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From the Editor

Dear Readers,

It is my great pleasure to present to you the 77th issue of the *Turkish Psychological Counseling and Guidance Journal*. As a publication committed to advancing knowledge and practice in the field of psychological counseling, we are proud to publish high-quality empirical, theoretical, and applied studies that reflect both national and international perspectives.

In this issue, we feature 15 diverse and timely articles addressing a range of topics, including the integration of psychotherapy and pastoral counseling, childhood traumas, marital expectations, psychological flexibility, life satisfaction, mentalization, social media addiction, academic self-concept, and well-being models. Each of these studies contributes to a deeper scientific understanding of human behavior, psychological support systems, and educational practices.

We are also pleased to observe a growing interest in our journal not only from researchers in Türkiye but also from scholars around the world. In this issue, we proudly include contributions from five different countries: Türkiye, France, Russia, Ukraine, and Tanzania. This international participation enriches the diversity of academic perspectives and strengthens our journal's global relevance.

To reduce publication turnaround times and ensure the timely dissemination of scholarly work, we have increased the number of articles published in each issue from twelve (12) to fifteen (15). Understandably, every researcher hopes for their work to be published as swiftly as possible. However, this goal is highly dependent on the responsiveness and efficiency of the peer review process. At this point, we would like to kindly emphasize the critical role of our reviewers in maintaining both the quality and pace of publication. We respectfully encourage our esteemed colleagues to accept review invitations when possible and to complete their evaluations promptly. The timely contribution of reviewers directly accelerates the visibility of scholarly research and supports the advancement of our field.

We were honored to host the 26th International Congress of Psychological Counseling and Guidance (PCG) at Ankara University between June 3 and 15, 2025. Holding this congress at Ankara University held particular symbolic significance, as it is the institution where psychological counseling and guidance education in Türkiye was first established. Moreover, this year marks the 60th anniversary of the inception of psychological counseling education in the country, making the congress a meaningful occasion to commemorate this milestone in the history of the discipline.

I would like to express my sincere appreciation to all contributing authors, anonymous reviewers, editors, and members of our editorial board for their invaluable efforts in bringing this issue to fruition.

We remain committed to fostering academic excellence and warmly welcome your continued contributions to the *Turkish Psychological Counseling and Guidance Journal*.

Prof. Dr. Metin Pişkin

Editor-in-Chief

Turkish Psychological Counseling and Guidance Journal

Ankara University

June, 30, 2025

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RESEARCH ARTICLE

Comparison of Attachment Styles, Childhood Traumas and Psychological Flexibility in Individuals with and without Sexual Dysfunction

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ABSTRACT

This study compares psychological flexibility, childhood traumas, and attachment styles between those with and without sexual dysfunction. In this study, causal comparison model was used. The population of this study consists of individuals with and without sexual dysfunction. The sample of the study consisted of 50 individuals with sexual dysfunction by purposive sampling method and 50 individuals without sexual dysfunction by random sampling method, totaling 100 individuals. Sociodemographic Information Form, Golombok-Rust Sexual Satisfaction Scale, Childhood Psychological Trauma Scale, Psychological Flexibility Scale and Inventory of Experiences in Close Relationships-II were used as data collection tools. In the findings of the study, sexual satisfaction and psychological flexibility of individuals without sexual dysfunction were found to be significantly higher than individuals with sexual dysfunction. At the same time, it has been determined that individuals with sexual dysfunction have experienced more childhood traumas and have a higher rate of developing anxious and avoidant attachment styles than individuals without sexual dysfunction. In this context, it is recommended to focus on psychological aid programs in order to increase the level of psychological flexibility in individuals with sexual dysfunction and to raise awareness of childhood traumas and attachment styles.

In Turkish Republic North Cyprus (TRNC) talking about sexuality and sexuality-related problems are often considered taboo, so it is seen as a difficult area to talk about. In the Turkish Republic of Northern Cyprus (TRNC), cultural, religious, and social factors contribute to the perception of sexuality and related topics as taboo. The traditional family structure may consider discussions about sexuality within the family as inappropriate or unnecessary, leading to a culture of silence across generations. Influenced by Islamic culture, the belief that sexuality is a private matter and should not be discussed openly in public is reinforced, making it difficult for individuals to express concerns about sexual health or seek support (Akalpler ve Eroğlu, 2015).

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Research indicates that sexual dysfunctions may be related to traumatic experiences in childhood and individuals' attachment styles. In a study conducted by Van Berlo and Ensink (2000), it was found that childhood traumas have lasting effects on adult sexual functioning, with individuals who have a history of sexual trauma being more likely to experience low sexual desire, painful intercourse, and orgasm disorders. Similarly, Uluyol's (2019) study revealed that individuals who experienced neglect or abuse in childhood are more prone to developing anxious and avoidant attachment styles, which in turn increases the risk of sexual dysfunctions. Individuals with an anxious attachment style tend to experience intense insecurity and a need for approval in their relationships, which can heighten sexual performance anxiety and contribute to sexual dysfunctions. On the other hand, individuals with an avoidant attachment style tend to avoid emotional intimacy, making it difficult for them to establish a healthy sexual relationship with their partners. These findings provide a significant foundation for understanding the impact of childhood traumas and attachment styles on sexual health. Research has shown that childhood traumas have a strong relationship with sexual dysfunctions. In the study conducted by Van Berlo and Ensink (2000), it was determined that individuals who experienced trauma during childhood were more likely to suffer from problems such as low sexual desire, orgasm disorders, and painful intercourse in adulthood. Similarly, Uluyol (2019) emphasized that childhood traumas trigger anxious and avoidant attachment styles, which in turn can lead to sexual dysfunctions in adulthood. Attachment styles also have a significant impact on sexual functioning. According to a study by Mikulincer and Shaver (2016), individuals with an anxious attachment style tend to seek constant approval from their partners, which can lead to sexual performance anxiety and negatively affect sexual satisfaction. On the other hand, individuals with an avoidant attachment style may struggle to establish a healthy sexual relationship due to their tendency to avoid emotional intimacy. Psychological flexibility refers to an individual's ability to cope with stress and tolerate negative life experiences (Kashdan & Rottenberg, 2010). It has been observed that individuals with sexual dysfunctions have lower levels of psychological flexibility, making it difficult for them to cope with their traumatic past and leading to increased anxiety and avoidance responses in their sexual lives (Bond et al., 2011). Examining these three variables together will provide a holistic approach to understanding the origins of sexual dysfunctions and contribute significantly to the literature. Therefore, considering the limitations of existing research, it is believed that this study will shed light on the field.

Sexuality is not just a biological activity performed for the continuity of the lineage, but rather a specific and complex activity that includes cognitive, cultural, behavioral, moral characteristics and is shaped by sexual myths; it has psychological, sociological and biological characteristics (Türkseven, Söylemez, & Dursun, 2020). Sexual function is the whole of the sexual reactions that occur during these reaction processes, including physiological, psychological and social reactions to any sexual stimulus (Şişman, 2020). Since sexual function is a biopsychosocial process, it has many components. For this reason, it requires a multidisciplinary evaluation (Doğan, 2011). Sexual function, which is considered taboo and private, has gradually begun to break taboos with the realization of its importance and thus has become a frequently addressed topic in today's research (CETAD, 2006). Although sexual dysfunction is the most common psychiatric disorder in women and men, it is less treated than other psychiatric disorders (Kumkale, 2015). Although sexual dysfunctions are not life-threatening, they significantly affect people's quality of life and lead to deterioration (Demir, Parlakay, Gök, & Esen, 2007).

People can be exposed to trauma at every stage of life from birth to death. One of these phases is childhood (Gençoğlu, 2021). Childhood is the most important developmental period in which personality is formed and the foundations for adulthood are laid. For this reason, children's exposure to damaging events during their developmental stages may cause various psychological problems in adulthood (Kutlubay, 2022).

Sexuality is a very important part of romantic relationships. The attachment styles of couples are one aspect that may influence sexual life in romantic partnerships (Brassard, Shaver, Lussier, 2007). Attachment is a two-sided relationship since it is a process in which two people fulfill each other's needs in the form of a mutual exchange (Tüzün & Sayar, 2006). For this reason, deterioration in the attachment process can affect both couples, negatively affecting their romantic relationships and thus their sexual relationships, and lead to sexual dysfunctions (Sınık, 2022). Attachment, which is a critical factor in understanding human relationships, is closely linked to sexuality. Attachment styles (secure, anxious, and avoidant) significantly influence individuals' romantic relationships and sexual satisfaction (Brassard, Shaver, & Lussier, 2007). Attachment is a two-sided relationship since it is a process in which two people fulfill each other's needs in a mutual exchange

(Tüzün & Sayar, 2006). For instance, anxious attachment is often associated with heightened dependence and fear of rejection, which can contribute to difficulties in achieving emotional and sexual intimacy. Avoidant attachment, on the other hand, is linked to discomfort with closeness and emotional detachment, leading to reduced sexual satisfaction and increased sexual dysfunction (Mikulincer & Shaver, 2016; Uluyol, 2019). Studies suggest that individuals with insecure attachment styles are more likely to experience lower sexual arousal, satisfaction, and pleasure, which may further exacerbate sexual dysfunctions (Fricker & Moore, 2002; Holmes & Johnson, 2022).

Moreover, childhood traumas have a profound effect on attachment styles, and this relationship plays a pivotal role in sexual health. Childhood is the most critical developmental stage where personality is formed, and the foundations for adulthood are laid. Adverse childhood experiences, such as abuse or neglect, can disrupt the development of secure attachment and lead to insecure attachment patterns in adulthood. These patterns, in turn, have been shown to mediate the relationship between childhood traumas and sexual dysfunctions (Ribeiro, Silva, & Carvalho, 2021; Stevenson, McDermott, & Willis, 2022).

Psychological flexibility, which is another variable of the research, is the ability to accept events beyond one's control as they are, to be determined to maintain behaviors that will enrich one's life, and to change the behaviors that need to be changed in line with one's own values (Çalışkan, 2020).

Sexual dysfunctions, childhood traumas, problems in attachment styles and decreased psychological flexibility, which are very common in the society, affect the individual himself/herself first, then the person with whom he/she is in a romantic relationship and his/her social environment. As a result, it can lead to many physical, emotional and social problems and cause an important public health problem. For this reason, comparing the effects of these four variables on each other may facilitate the understanding and solution of the problem by providing a different perspective on sexual dysfunctions. In this context, the aim of the study is to examine the comparison of attachment styles, childhood traumas and psychological flexibility in individuals with and without sexual dysfunction.

Method

Participants

There are two groups in the study: those with and those without sexual dysfunction. The sample of the study consists of 50 volunteers aged 18 and over with sexual dysfunction and 50 individuals without sexual dysfunction who live in Kyrenia and Nicosia and apply to the urology, psychiatry, obstetrics and gynecology departments of 3 hospitals in the Nicosia Region and 2 hospitals in the Kyrenia region of the Turkish Republic of Northern Cyprus.

Sociodemographic Characteristics of the Research Sample and Descriptive Statistics on Research Variables

When Table 1 is examined, it is seen that 50% of the healthy individuals participating in the study were male, 50% were female, 34% were bachelor, 66% were married, 40% were high school graduates or lower, 40% were undergraduates, 20% were postgraduates, 48% had good economic income, 48% had moderate economic income, and 4% had high economic income, 80% had an ongoing romantic relationship, 20% did not have an ongoing romantic relationship, 2% had a psychological disorder, 98% did not have any psychological disorder, 100% did not use any psychiatric medication, 10% had a chronic disease, 90% did not have any chronic disease.

Of the individuals with sexual dysfunction who participated in the study, 50% were male, 50% were female, 46% were bachelor, 54% were married, 36% were high school graduates or lower, 50% were undergraduates, 14% were postgraduates, 44% had good economic income, 50% had moderate economic income, and 6% had high economic income, 62% had an ongoing romantic relationship, 38% did not have an ongoing romantic relationship, 6% had a psychological disorder, 94% did not have any psychological disorder, 6% used a psychiatric drug, 94% did not use any psychiatric drug, 18% had a chronic disease, 80% did not have any chronic disease.

Table 1. Distribution of healthy individuals and individuals with sexual dysfunction according to sociodemographic characteristics

	Healthy		With SD		X ²	P
	N	%	N	%		
Age	36,78±9,35		36,00±8,53			0,607
Gender						
Male	25	50	25	50	0,000	1,000
Female	25	50	25	50		
Marital Status						
Bachelor	17	34	23	46	1,500	0,221
Married	33	66	27	54		
Education						
Highschool graduates or lower	20	40	18	36	1,190	0,551
Undergraduate	20	40	25	50		
Postgraduate	10	20	7	14		
Economic Income Group						
Good	24	48	22	44	0,307	0,858
Moderate	24	48	25	50		
High	2	4	3	6		
Ongoing romantic relationship						
Yes	40	80	31	62	3,934	0,047
No	10	20	19	38		
Any psychological disorder						
Yes	1	2	3	6	a	0,617
No	49	98	47	94		
Any psychiatric medication						
Yes	0	0	3	6	a	0,242
No	50	100	47	94		
Any chronic disease						
Yes	5	10	9	18	1,427	0,232
No	45	90	40	80		

a: Fischer exact test

Data Collection Tools

Sociodemographic Information Form: It is a form created by the researcher and structured to access sociodemographic information about the participants. This form, which will be used in the research, includes questions such as gender, age, education level, marital status.

Golombok-Rust Sexual Satisfaction Scale: This scale developed by Golombok and Rust (1986) was adapted into Turkish by Tuğrul, Öztan, & Kabakçı (1993). It is a 5-point Likert-type scale consisting of 28 questions. The scale has two dimensions. While the overall total score serves to measure the level of sexual functioning, the sub-dimensions allow for the measurement of problems occurring in various dimensions of sexual intercourse (Tuğrul, et al., 1993). In summary, the increase in the scores obtained from the scale indicates an increase in sexual function problems (Uluyol, 2019).

In the original Golombok-Rust Sexual Satisfaction Inventory, Cronbach's alpha values were 0.94 for women and 0.87 for men . In the reliability studies of the Turkish version of the Golombok-Rust Inventory, the total correlation coefficients of the questions varied between -0.04 and 0.76 for problematic and non-problematic men and between 0.18 and 0.74 for problematic and non-problematic women. In the total overall score, Cronbach's alpha coefficient was 0.92 for men and 0.91 for women (Tuğrul, Öztan, & Kabakçı, 1993).

Childhood Psychological Trauma Scale: This scale developed by Bernstein, Fink, Handelsman, & Foote (1994) was adapted into Turkish by Şar, Öztürk & İkikardeş (2012). It is a 5-point Likert-type scale consisting of 28 items. It consists of five sub-dimensions. The increase in the scores obtained from the sub-dimensions indicates an increase in the trauma in the relevant sub-dimension. In the original version of the scale, Cronbach Alpha values were found to be between .79 and .94 (Alpay, Aydın, & Bellur, 2017).

In the Turkish adaptation phase, the construct validity of the scale was examined and Bartlett's test of sphericity was found to be significant. At the same time, the KMO coefficient was found to be .84. In the reliability study, the Cronbach Alpha reliability coefficient of the scale was .93 and the Guttman half test coefficient was .97 (Gençoğlu, 2021).

Experiences in Close Relationships-Revised (ECR-R): The scale developed by Fraley, Waller & Brennan (2000) was adapted into Turkish by Selçuk, Günaydın, Sümer & Uysal (2005). It is a 7-point Likert-type scale consisting of two sub-dimensions (anxious and avoidant attachment) and 36 questions. Some questions in the scale are reverse scored. The sub-dimensions range from 18-126 points. The anxiety score in the scale is determined by the average of the odd-numbered questions and the avoidance score is determined by the average of the even-numbered questions. In the validity and reliability studies, as a result of the factor analysis, it was determined that the sub-dimensions of the scale related to attachment had a two-factor structure and the validity of the scale was supported. At the same time, the Cronbach's alpha coefficients of the sub-dimensions of the scale, which have a high level of internal consistency, were found to be .90 for the avoidance sub-dimension and .86 for the anxiety sub-dimension (Selçuk, Günaydın, Sümer, & Uysal, 2005).

In the original study of the scale, it was determined that the two-factor structure defined 44.36% of the total variance and the anxious attachment sub-dimension of the scale ($\alpha = .83$) and the avoidant attachment sub-dimension ($\alpha = .85$) had high internal consistency coefficients (Kırimer, Akça, & Sümer, 2014).

Psychological Flexibility Scale: Karakuş and Akbay (2020) adapted the Francis, Dawson & Golijani-Moghaddam (2016) scale into Turkish. It has 28 questions and 5 sub-dimensions on a 7-point Likert-type scale. The score that can be obtained from the scale is in the range of 28-196. As the scores obtained from the sub-dimensions increase, the level of psychological flexibility increases. In the original scale, Cronbach's α value for the overall scale was .91 (Francis, et al., 2016).

In the Turkish version of the scale, the Cronbach Alpha internal consistency reliability coefficient was found to be .79. (Meşe, 2021).

Process

Before collecting the data to be used in the study, permission was obtained from the Ethics Committee of Near East University (YDÜ/SB/2022/1360 (09.11.2022)). Data were collected from individuals with sexual dysfunction who applied to urology, psychiatry, obstetrics and gynecology departments of private and public hospitals in TRNC. The data of individuals without sexual dysfunction were collected on a voluntary basis from individuals who were not diagnosed with any sexual disorders or who did not have any problems about sexual disorders. The response time of the scales took an estimated 20-25 minutes. Data were collected on a voluntary basis and face-to-face. It took an average of 3 months to collect the data.

Data Analysis

Statistical Data Analysis for Social Sciences (SPSS) 26.0 package program was used to analyze the data. The reliability of the participants' responses to the scales used in the study was examined by Cronbach's alpha test and it was found that the alpha coefficient was 0.958 for the Childhood Psychological Trauma Scale (CTQ), 0.874 for the Psychological Flexibility Scale (PFQ) and 0.934 for the Experiences in Close Relationships-Revised (ECR-R). The distribution of healthy individuals and individuals with sexual dysfunction according to their sociodemographic characteristics was given in the cross tabulation and compared with the Perason chi-square test.

The normal distribution of the Childhood Psychological Trauma Scale (CTQ), Psychological Flexibility Scale (PFQ) and Inventory of Experiences in Close Relationships-II scores of healthy individuals and individuals with sexual dysfunction were examined by Shapiro-Wilk test and it was determined that they did not show normal distribution. For this reason, the research hypotheses were compared with nonparametric tests. Childhood Psychological Trauma Scale (CTQ), Psychological Flexibility Scale (PFQ) and Inventory of Experiences in Close Relationships-II scores of healthy individuals and individuals with sexual dysfunction were compared with Mann-Whitney U test.

Results

Comparison of Individuals with and without Sexual Dysfunction and Research Variables

Table 2. Comparison of SSS Scores of Healthy Individuals and Individuals with Sexual Dysfunction

	Group	n	\bar{x}	S	M	SO	Z	P
Frequency	Healthy	50	1,74	1,37	2	31,17	-6,725	0,000*
	With SD	50	4,58	1,80	5	69,83		
Communication	Healthy	50	1,06	1,30	0	33,99	-5,838	0,000*
	With SD	50	3,56	2,13	3	67,01		
Satisfaction	Healthy	50	1,88	2,12	1	28,04	-7,786	0,000*
	With SD	50	8,66	3,15	9	72,96		
Avoidance	Healthy	50	0,56	1,05	0	28,56	-7,777	0,000*
	With SD	50	5,8	3,26	6	72,44		
Touching	Healthy	50	0,78	1,49	0	32,82	-6,361	0,000*
	With SD	50	5,04	3,45	6	68,18		
Pre-ejaculation Vaginismus	Healthy	50	1,24	1,61	1	31,47	-6,663	0,000*
	With SD	50	7,16	4,15	8	69,53		
Impotence Anorgasmia	Healthy	50	1,96	2,03	1	27,23	-8,054	0,000*
	With SD	50	8,5	2,71	8,5	73,77		
Sexual Satisfaction Scale	Healthy	50	9,22	8,65	7,5	26,57	-8,252	0,000*
	With SD	50	43,3	12,19	44,5	74,43		

* $p < 0,05$

When Table 2 is examined, the Frequency, Communication, Satisfaction, Avoidance, Touching, Premature ejaculation/Vaginismus, Empotence /Anorgasmia scores of individuals with sexual dysfunction were statistically significantly higher than the Frequency, Communication, Satisfaction, Avoidance, Touching, Premature ejaculation/Vaginismus, Empotence /Anorgasmia scores of healthy individuals. Sexual Satisfaction Scale general scores of individuals with sexual dysfunction were found to be statistically significantly higher than Sexual Satisfaction Scale general scores of healthy individuals.

Table 3. Comparison of CTQ Scores of Healthy Individuals and Individuals with Sexual Dysfunction

	Group	n	\bar{x}	S	M	SO	Z	P
CTQ-Emotional Abuse	Healthy	50	6,44	2,20	5,00	34,45	-5,636	0,000*
	With SD	50	10,88	4,31	10,50	66,55		
CTQ-Physical Abuse	Healthy	50	5,60	1,40	5,00	39,36	-4,370	0,000*
	With SD	50	8,62	4,11	7,00	61,64		
CTQ-Sexual Abuse	Healthy	50	5,46	1,69	5,00	40,51	-4,298	0,000*
	With SD	50	8,60	4,77	5,00	60,49		

Table 3. (Continued)

CTQ-Physical	Healthy	50	6,82	2,11	6,00	37,34		
Neglect	With SD	50	10,34	4,10	10,00	63,66	-4,609	0,000*
CTQ-Emotional	Healthy	50	8,24	3,30	7,50	30,28		
Neglect	With SD	50	15,88	4,57	15,50	70,72	-7,001	0,000*
Childhood Psychological	Healthy	50	46,08	13,76	42,00	30,97		
Trauma Scale (CTQ)	With SD	50	77,60	21,22	83,00	70,03	-6,736	0,000*

* $p<0,05$

When Table 3 is examined, the Emotional Abuse, Physical Abuse, Sexual Abuse, Physical Neglect and Emotional Neglect scores of individuals with sexual dysfunction and the overall scores of the CTQ were found to be statistically significantly higher than the Emotional Abuse, Physical Abuse, Sexual Abuse, Physical Neglect and Emotional Neglect scores of healthy individuals and the overall scores of the CTQ.

Table 4. Comparison of PFQ Scores of Healthy Individuals and Individuals with Sexual Dysfunction

	Group	n	\bar{x}	S	M	SO	Z	P
PFQ- Values and behavior in line with values	Healthy	50	60,28	9,28	63,00	61,10		
	With SD	50	49,94	13,99	51,00	39,90	-3,658	0,000*
PFQ-Being in the moment	Healthy	50	27,40	5,29	30,50	54,23		
	With SD	50	25,42	6,91	27,50	46,77	-1,298	0,194
PFQ-Acceptance	Healthy	50	17,60	4,38	17,50	50,21		
	With SD	50	18,36	7,84	18,50	50,79	-0,100	0,920
PFQ-Contextual self	Healthy	50	14,76	3,17	15,00	65,00		
	With SD	50	10,82	3,84	11,00	36,00	-5,022	0,000*
PFQ-Dissociation	Healthy	50	13,86	2,57	14,00	64,56		
	With SD	50	11,06	3,16	11,00	36,44	-4,878	0,000*
Psychological Flexibility Scale (PFQ)	Healthy	50	133,90	19,21	139,00	62,84		
	With SD	50	115,60	21,81	114,00	38,16	-4,255	0,000*

* $p<0,05$

When Table 4 was examined, it was determined that there was a statistically significant difference between the Psychological Flexibility Scale (PFQ) general scores of healthy individuals and individuals with sexual dysfunction who participated in the study and the scores they received from the Values and behavior in line with values, Contextual self and Dissociation sub-dimensions of the scale ($p<0.05$). Behavior in line with values and values, Contextual self and Dissociation scores and PFQ general scores of healthy individuals were found to be statistically significantly higher than the Behavior in line with values and values, Contextual self and Dissociation scores and PFQ general scores of individuals with sexual dysfunction.

Table 5. Comparison of ECR-R Scores of Healthy Individuals and Individuals with Sexual Dysfunction

	Group	n	\bar{x}	S	M	SO	Z	P
ECR-R Anxious	Healthy	50	2,69	0,82	2,67	34,60		
	With SD	50	3,82	1,08	3,83	66,40	-5,482	0,000*
ECR-R Avoidant	Healthy	50	2,07	0,66	1,89	30,29		
	With SD	50	3,71	0,95	3,97	70,71	-6,968	0,000*

* $p<0,05$

When Table 5 was examined, it was found that there was a statistically significant difference between the Anxious and Avoidant scores of healthy individuals and individuals with sexual dysfunction who participated in the study ($p < 0.05$). Anxious and Avoidant scores of individuals with sexual dysfunction were statistically significantly higher than Anxious and Avoidant scores of healthy individuals.

Discussion

In this section, the findings are discussed in the light of the findings obtained and in line with the existing research in the literature. In this study, it was aimed to examine the comparison of attachment styles, childhood traumas and psychological flexibility in individuals with and without sexual dysfunction, taking into account the information provided in the light of the literature.

As a result of the analyzes conducted within the scope of the research, firstly, it was determined that there was a difference in the sexual satisfaction levels of individuals with and without sexual dysfunction. However, it was determined that individuals without sexual dysfunction had significantly higher levels of sexual satisfaction than individuals with sexual dysfunction. It is thought that individuals with sexual dysfunction may have a harder time focusing on satisfaction during sexual intercourse due to the possibility of triggering performance anxiety, worry, anticipatory anxiety, and past unsuccessful experiences during sexual experience. Alkan (2008) and Kumkale (2015) also obtained similar data supporting the data of this study in their studies. Wei, Zhang, and Li (2021) found that sexual satisfaction levels are closely related to individuals' psychological well-being and stated that anxiety has a negative effect on sexual satisfaction. Dimitropoulos et al. (2023) revealed that anxiety levels directly affect sexual satisfaction.

Many researchers have found that there is a strong relationship between sexual dysfunction and trauma (Goodman, Koss, & Russo, 1993; Van Berlo & Ensink, 2000). In the study, it was determined that there was a significant difference in the level of childhood traumas of individuals with and without sexual dysfunction. In addition, it was determined that individuals with sexual dysfunction had higher levels of childhood traumas than individuals without sexual dysfunction. Hallward and Ellison (2001) and Wang et al. (2023) reported that childhood traumas are a factor in sexual dysfunctions, and Geryan Çervatoğlu (1998) reported that the incidence of depression, anxiety disorders and sexual dysfunctions is high in individuals who were sexually abused as children (Geryan Çervatoğlu, 1998). It is thought that childhood traumas have a negative impact on sexuality, as in many other areas, during adulthood. Additionally, Ribeiro, Silva, and Carvalho (2021) stated that childhood traumas have a negative impact on sexual functioning in adulthood, leading to decreased sexual satisfaction, while Stevenson et al. (2022) emphasized that adversities experienced in childhood show a strong link with sexual health problems in adulthood. There are not enough studies on sexual dysfunction and psychological flexibility in the domestic literature. However, in studies conducted abroad, it has been determined by various researchers that sexual dysfunction and vulvovaginal pain are related to psychological flexibility. With this and similar studies, it was concluded that high levels of psychological flexibility cause more sexual function and less sexual dysfunction (Boerner & Rosen, 2015; Chisari et al. 2021; Maathz, 2022). In this direction, similar to the literature, it was determined that there was a differentiation in the psychological flexibility levels of individuals with and without sexual dysfunction. However, it was found that individuals without sexual dysfunction had higher levels of psychological flexibility than individuals with sexual dysfunction. Lee, Lee, and Kim (2021) emphasized that psychological flexibility is directly related to sexual satisfaction and that the Acceptance and Commitment Therapy (ACT) method is effective in solving problems in this area. In addition, Păsărelu et al. (2022) stated that ACT-based therapies provide positive results in individuals with sexual dysfunction. Psychological flexibility appears as a perspective on life and a psychological life skill, therefore, it is thought that having high psychological flexibility in sexuality will be a preventive factor for the emergence of sexual dysfunction.

In the study, it was found that there was a differentiation between attachment styles of individuals with and without sexual dysfunction. In addition, it was found that the rate of anxious and avoidant attachment styles in individuals with sexual dysfunction was higher than in individuals without sexual dysfunction. Kingsberg and Janata (2007) found that individuals with anxious and avoidant attachment styles experienced less sexual satisfaction and more sexual dysfunction as a result of their research. Uluyol (2019) found that insecure attachment style may cause an increase in sexual dysfunction problems. In addition, it has been supported by various studies that individuals with anxious and avoidant attachment styles are associated with lower levels of sexual arousal, pleasure and satisfaction (Morrison, Urquiza, & Goodlin Jones, 1997; Fricker & Moore,

2002). Roberts, Birnbaum, and Mikulincer (2021) found that insecure attachment styles have a negative impact on sexual satisfaction and function, while Holmes and Johnson (2022) found that secure attachment styles are associated with higher levels of satisfaction. These studies contribute to a deeper understanding of the relationship between attachment styles and sexual function.

Conclusions

As a result, in the research finding, sexual satisfaction and psychological flexibility of individuals without sexual dysfunction were found to be significantly higher than individuals with sexual dysfunction. At the same time, it was determined that individuals with sexual dysfunction had experienced more childhood traumas and also had a higher rate of developing anxious and avoidant attachment styles compared to individuals without sexual dysfunction.

According to the result we obtained from our research findings, it is thought that individuals having high levels of psychological flexibility will enable them to develop effective coping strategies in the face of difficult traumatic events, develop unconditional acceptance towards themselves, develop better attachment styles and have a better sexual functioning. For this reason, it is recommended that clinical assistance programs should be prepared for people with low psychological flexibility levels and work on increasing their psychological flexibility levels.

Recommendations

Recommendations for Researchers

This study was conducted on a sample of 100 participants, 50 with sexual dysfunction and 50 without sexual dysfunction, comparing attachment styles, childhood traumas, and psychological flexibility in individuals with and without sexual dysfunction. It is recommended that the data obtained as a result of the study to be repeated on a larger sample in order to increase the generalizability of the data.

It is thought that new studies conducted in a comparative manner between different cultural groups or different countries and cities in order to reduce the effect of cultural differences on the research data will shed light on the inconsistency in the literature.

In the literature review conducted, regarding the study, it was seen that the research on the concept of psychological flexibility was limited. It is thought that increasing the research examining psychological flexibility in terms of different sociodemographic characteristics and variables will make a significant contribution to the insufficient literature on this subject.

Recommendations for the State

Authorized institutions such as hospitals, public education centers, universities, etc. are thought that organizing seminars in places to provide information about sexual dysfunctions, childhood traumas, attachment styles and psychological flexibility concepts and in addition to ensuring that individuals in need can access support services more easily will be beneficial.

Recommendations for Clinicians

According to the results obtained from our research findings, it was determined that psychological flexibility has a significant relationship with sexual dysfunction, attachment styles and childhood traumas. According to the results obtained from our research findings, it is thought that individuals with a high level of psychological flexibility will enable them to develop effective coping strategies in the face of difficult traumatic events, develop unconditional acceptance towards themselves, develop better attachment styles and have better sexual function. For this reason, it is recommended that clinical assistance programs should be prepared for individuals with low levels of psychological flexibility and work on increasing their levels of psychological flexibility.

Limitations

The study is limited to the hospitals where the data was collected. Some participants did not want to be included in the study because sexuality was seen as a taboo. The study conducted is limited to the questions included in the data measurement tools and the responses given by the participants to the questions. In the study where the evaluation was made regarding sexuality, it is thought that the participants may be biased and this situation

may create methodological limitations. The results of the study are limited to the data analysis methods determined by the researcher.

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Data Availability: The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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RESEARCH ARTICLE

The Effect of Marital Messages Received From Family of Origin And Friends on Expectations From The Spouse

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ABSTRACT

The aim of this study is to analyse marital messages received by emerging adults from their families and friends and their spousal expectations and to determine the predictive relation between marital messages they receive from these sources and their spousal expectations. The participants of the study were 544 never-married emerging adults, 387 women and 157 men. The research data were collected with Marital Messages Scale, Spousal Expectations Scale and Personal Information Form. T-test, ANOVA and Multiple Linear Regression Analysis were implemented to analyse data. As a result of the study, a significant difference determined between genders and perceptions on the marriage of their parents of the participants. As for marital messages received from friends, a significant difference between gender and romantic relationship status was determined. A significant difference between spousal expectations of the participants in terms of variables of the way their parents married and gender. Additionally, marital messages received from parents and friends were together found to be explaining 5% of the total variance with relation to spousal expectations.

Marriage can be identified as one of the most important and enduring interpersonal relationships (Goldfarb & Trudel, 2019). Marriage, the primary structure for raising the next generations, is stated as a fundamental human relationship (Larson & Holman, 1994; Rosen-Grandon et al., 2004). Marriage is an important institution in almost every society in the world. For instance, more than 90% of the people living in the United States of America prefer to marry at a point in their life (Brubaker & Kimberly, 1993; Myers et al., 2005). Married individuals are healthier and live longer than those who are never-married, divorced or widowed (Lawrence et al., 2019). Marriage relationship is generally accepted as the most effective social relation for one's health and prosperity. This can be said that the health and quality of a marriage should be good to contribute positively to health of the couples.

Quality and happiness levels of marriage relationships are based on the way couples interact with each other and how they cope with life stresses (Taraban et al., 2017). Couples' interactions with each other are inevitably products of genetically and environmentally influenced personalities, attitudes and beliefs of them (Beam et al., 2018). Social and economic statuses and family life cycles of families of origin, educational backgrounds,

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perceptions of gender roles, ethnic origins and religious beliefs of the couples (L'Abate, 1994) are among the factors that are affecting the marriage. Other effective factors are marriage age of the couples, adjustment before marriage and the number of children (Douglass & Douglass, 1995). Marital messages received from different sources are another factor affecting the marriage (Shurts, 2004). Marital messages affect both emotions, attitudes toward a future marriage and preparedness status for a special and important relationship as the marriage of individuals (Benson et al., 1993). Marital messages received from environment on "the time to get married", "how the marriage is" and "what the marriage is" can shape one's plans and behaviours for marriage.

Marital Messages

Marital messages mean messages from family, friends, mass media and other organisations on positive, negative and/ or neutral aspects of the marriage and marriage relationships that are generally received by individuals. In most of the researches conducted on marital messages, the family is worked on as the sole source of marital messages (Shurts, 2004); however, friends, mass media and other organisations (religion, government, etc.) were determined to be sources of marital messages (Shurts 2004; Shurts & Myers, 2012; Şahin, 2019) in addition to family in the studies on what marital messages sources are. Given the sources of marital messages, ecological systems theory of Bronfenbrenner can be said to be presenting a base framework for explaining this complex and multi-dimensional phenomenon (Espelage & Swearer-Napolitano, 2003).

Bronfenbrenner (1977), in his ecological systems theory, states that ecological contexts affect characteristics of an individual and are affected by characteristics of an individual. An individual is born and grows in a social and cultural system. One interacts with family, school, community and other institutions. In other words, units of the system in which an individual grows can directly and indirectly affect one (Bronfenbrenner, 1986) according to the ecological theory. An individual's perception of marriage can be shaped by the messages received from ecologic contexts. Messages from various sources on marriage can affect the relation to be established with the opposite sex, duration and health of this relationship and whether it ends up with marriage or not. Sources of marital messages and the relation between demographical variables and marital messages are analysed in the studies on marital messages (Shurts, 2004; Shurts & Myers, 2012).

Females were determined to receive more positive messages than males considering the relation between marital messages and gender. It was also determined that younger college students receive more positive marital messages than older college students (Shurts, 2004; Shurts & Myers, 2012).

Those with divorced parents were determined to receive more negative marital messages than those with married parents. Besides, students who have high-conflict families were determined to receive more negative marital messages than those with no-conflict families (Shurts & Myers, 2012). Researchers stated that marital messages affect emotions, and attitudes toward getting married in the future (Benson et al., 1993; Jennings et al., 1992; Larson et al., 1998; Shurts, 2004; Shurts & Myers, 2012). Marital messages can be determinant in one's behaviours, emotions and opinions on marriage. Therefore, marital messages from various sources received by an individual can shape one's spousal expectations.

Spousal Expectations

Spousal expectation is the wish and desire of a never-married individual for the future spouse to love one, to respect one and one's family, to adjust the change, to have a belief and culture similar to those of one, to have a positive sexual attitude and to have a socio-economic status similar to one's (Güllü, 2015). Marital expectations and marriage itself are influenced by a range of economic, structural, cultural and individual forces that unfold over the life span (Crissey, 2005). Various researches show that couples' expectations from each other plays an important role in their levels of satisfaction from married life and the quality of their common life (Vosoughi & Meymandi, 2012).

The most interesting explanation of spousal expectations is the growing independence of women as a result of increased access to education and participation in labour force (Harris & Lee, 2006). This process so improved that women started to demand active roles and participation in both family and society. Major changes at social scale and transition from tradition to modernity have affected individuals' view on marriage, family values, the quality of spousal interactions and family expectations (Vosoughi & Meymandi, 2012). Women's education, participation in business life and other changes in social areas can shape spousal expectations of both women and men.

Today, many changes occur in perspective on marriage as in many aspects of life. Arnett (2007) states average marriage age increased to late 20s and premarital sex and cohabitation in 20s became widely accepted. According to Arnett (2000) individuals aged 18-25 are in the period of emerging adulthood. Efforts of identity formation, trying and making decisions in love, work and worldview, which were started in adolescence, becomes completely evident in emerging adulthood period. Emerging adulthood is a period with more optimism and hopes. At the same time, most of the dreams of this period are alive. Emerging adulthood is the period of great hopes and dreams (Arnett, 2001). Almost every individual in this period believes that their life will be great and some of their dreams, at least, will come true (Arnett, 2004). As a result of these characteristics, having many expectations from their spouses in near or distant future is not surprising for emerging adults.

A difference between expectations of mothers and their daughters from their spouses was determined in the qualitative study on spousal expectations conducted in Iran, by Vosoughi & Meymandi (2012). Spousal expectations of mothers are more minimal than their daughters. Female college students were found to have more spousal expectations than males according to two different studies conducted with college students, in Turkey (Güllü, 2018; Söyler, 2021). More than half of the participants were of the same opinion in egalitarian items of all sub-scales of the inventory and many of them were of the same opinion in traditional items in the study conducted by Dunn (1960) on marital expectations which were including spousal expectations as well. Considering events prior to adulthood may help explain the formation of attitudes about marriage, and eventually union formation itself (Crissey, 2005). Experiences of an individual gained in one's past life, the family in which one raised, environment, society, culture and gender roles transferred through socialisation process and schemes one created combining all of these influence spousal expectations (Söyler, 2021). Messages from different sources received by one to date can play a determining role in one's marital expectations. No study on the relation between marital messages received from different sources and spousal expectations was found in the literature review. Therefore, marital messages received by never-married emerging adults from sources of family and friends, and spousal expectations of them were analysed and additionally, the relation between received messages from these sources and spousal expectations was tried to be determined.

Answers of the following questions have been searched in the study: "Do marital messages received by emerging adults from family and friends and spousal expectations of them significantly differ according to demographical characteristics (gender, the income level of the family, parents' perception of their marriage, the way parents married and romantic relationship status)?" , "Do marital messages from family and friends predict spousal expectations?".

Method

Research Design

This study was designed according to the survey method. The survey method provides quantitative and numeric descriptions of trends, attitudes and opinions in the universe through studies on a sample from a universe (Creswell, 2014). Marital messages received by emerging adults from sources of family and friends, spousal expectations of them according to demographical characteristics and additionally, the relation between messages from these sources received by participants and their spousal expectations were analysed in the study through the relational survey model.

Study Group

The participants of the study were 544 never-married emerging adults (387 women and 157 men) studying at a university in Turkey. Convenience sampling method was used in the process of including emerging adults in the research. According to Şenol (2012), in cases of money, time and manpower limitations, choosing a sample consisting of units which are easily accessible and convenient for performing an application is called convenience sampling. When demographic characteristics of emerging adults in the working group analysed, this can be seen that most of the participants are females. On the other hand, the family income of most of the participants is between 2851-5700 Turkish Liras (₺). Participants perceiving the marriage of their parents as "generally inharmonious" are in the minority. Marriage of most of the parents of emerging adults participating in the research are arranged ones. Most of the participants expressed that they have no romantic relationship.

Ethical Processes and Data Collection

The study was conducted with the permission of the Ethics Committee of a university in Turkey dated 27.05.2021 and numbered 202-18 and numbered 18-05. In the study, information collection tools were applied by the researchers. Informed Consent Form was presented to the participants. For the sake of frankness when replying to data collection tools, the required motivation was tried to be created through explaining the subject and importance of the research. It was not mandatory to write down their names for participants to make them reply the tools frankly and sincerely.

Data Collection Tools

Marital Messages Scale (MMS), Spousal Expectations Scale (SES) and Personal Information Form were used in this study. Information on them is given below.

Marital Messages Scale (MMS): MMS was developed in the context of Turkish Culture. Explanatory-sequential design of mixed research methods was used in development of the scale. Validity of MMS was examined using Exploratory (EFA) and Confirmatory (CFA) Factor Analyses. In order to realize EFA, the scale was applied to 608 students, 276 males and 332 females. As a result of the analyses, the scale was found to be having a structure with 4 factors and 38 items. MMS as is, was applied to 324 participants in order to realize CFA. In consequence of CFA, the scale was found to be having an acceptable level of fitness with a model of 3 factors and 20 items. The reliability of MMS was analysed using internal consistency (Cronbach's Alpha) and test-retest methods. Within this scope, Cronbach's Alpha and test-retest coefficients of general inconsistency of the scale were respectively calculated as .95 and .91. On the other hand, sources of marital messages were determined to be "Family, Friends, Mass Media and Other Institutions". The lowest and highest scores that can be get from the scale for each source of messages are respectively 20 and 140. High scores are the indicative of receipt of more positive marital messages from that source (Şahin, 2019; Şahin a& Bilge, 2019). Internal consistency of MMS was analysed using the data obtained from this research as well. Cronbach's Alpha coefficients calculated for the sub-scale of Marital Messages Received from Family and for the Marital Messages Received from Friends were respectively found as .96 and .95.

Spousal Expectations Scale (SES): It was developed by Güllü (2015) using the data obtained from never-married 896 college students, 669 females and 227 males and aged 19-30, in order to measure premarital spousal expectations of the youth. Internal consistency and equivalent half reliability coefficients of SES were respectively found as .92 and .91. SES is composed of 25 items and 7 sub-scales (love for spouse, socio-economic factors, harmony, sex, similarity of belief and culture, respect for families and respect for spouse). SES was determined to be explaining 59,14% of the total variance of the scale in the Exploratory Factor Analysis conducted with regard to it. The maximum and minimum scores can be get from SES are respectively 250 and 25. High scores show that spousal expectations of individuals are higher. In a similar scale validity study, a positive relation at the level of .50 was determined between SES and Interpersonal Cognitive Distortions Scale (ICDS) (Güllü 2015; 2018). Thus, the reliability of internal consistency of SES was analysed using the data obtained from that research. The Cronbach's Alpha coefficient calculated in this scope is .85.

Personal Information Form (PIF): The form prepared by the researchers consists of 5 questions. These are aimed at determining gender, the income level of the family, the way parents married, parents' perception of their marriage and romantic relationship status of parents.

Analysis of Data

The data acquired from measurement tools were analysed through inserting them to SPSS 25.0 software. Skewness and kurtosis coefficients of the data acquired from MMS and SES were calculated to identify if the survey data meet the assumption of normality. If skewness and kurtosis values are ranged between -1,5 and +1,5 the distribution of data is accepted normal (Tabachnick & Fidell, 2013). Skewness and kurtosis coefficients of the data acquired from MMS and SES were identified to be in the range of -1,5 and +1,5. Parametric tests were used in the analyses conducted based on that. In the analysis of the data within this scope, t-test was applied to test if the difference between two-dimensional independent sample means is significant. On the other hand, one-way analysis of variance (ANOVA) was applied to determine if the difference between sample means of groups more than two is significant. The relation between scores acquired from the measurement tools were calculated using Pearson Product-Moment Correlation coefficient. Additionally, the predictive relation between marital messages and spousal expectation, which are respectively the independent and dependent variables of the research, was analysed with the multiple linear regression method. Effect size

statistics were calculated in order to determine to what extent the independent variable is effective on the dependent variable in the study (Büyüköztürk, 2021). In this scope, Eta-square (η^2) correlation coefficient was used to calculate effect size within groups compared using ANOVA. Eta-square (η^2) is interpreted as small, medium and wide effect sizes if it's respectively at the levels of .01, .06, .14 (Büyüköztürk, 2021). Cohen's d was calculated for the groups compared using t-test. Cohen's d is considered small, medium and large effects when it is respectively .20, .50, .80. (Cohen, 1998). The margin of error of the research was taken as .05.

Results

In this part of the research firstly, the findings on marital messages received by emerging adults from the sources of family and friends and their spousal expectations and then, the results showing predictive relations between marital messages received from the sources of family and friends and spousal expectations are given. The findings on marital messages received by participants from the sources of family and friends and spousal expectations according to gender are depicted in Table 1.

Table 1. Marriage Messages Received from Family and Friends and Expectations from the Spouse in Terms of Gender

Variable	Gender	n	\bar{X}	s	sd	t	p	Cohen's d
Marital Messages Received from Family	Male	157	113.02	24.57	542	2.66	.00	.02
	Female	387	106.54	26.20				
Marital Messages Received from Friends	Male	157	102.96	27.21	542	2.26	.02	.02
	Female	387	107.88	20.96				
Spousal Expectations	Male	157	198.90	27.51	542	6.16	.00	.05
	Female	387	212.66	20.85				

When means of scores obtained from Scale of Marital Messages Received from Family of emerging adults analysed according to gender, those of males ($\bar{X}_{\text{male}}=113.02$) were found ($p<.05$) to be significantly higher than those of females ($\bar{X}_{\text{female}}=106.54$). Besides, when means of scores obtained from Scale of Marital Messages Received from Friends of emerging adults analysed according to gender, those of females ($\bar{X}_{\text{female}}=107.88$) were found ($p<.05$) to be significantly higher than those of males ($\bar{X}_{\text{male}}=102.96$). On the other hand, when means of scores obtained from Spousal Expectations Scale analysed according to gender, those of females ($\bar{X}_{\text{female}}=212.66$) were found ($p<.05$) to be significantly higher than those of males ($\bar{X}_{\text{male}}=198.90$). Cohen's d values, which were calculated to determine the effect of the gender variable on marital messages received from family and friends by participants, were found as .02. These values indicate that the gender variable is effective at low level on marital messages received from family and friends by participants. Accordingly, it is possible to say that males receive more positive marital messages from their families and females do so from their friends. Additionally, Cohen's d value, which was calculated to determine the effect of the gender variable on spousal expectations, was found as .05. This value indicates that the gender variable is effective at medium level on spousal expectations of the participants. Therefore, spousal expectations of females can be said to be higher than that of males.

It was analysed whether marital messages received from family and friends by emerging adults and spousal expectations of them vary according to the income level of the family. The findings are depicted in Table 2.

Table 2. Descriptive Data on Marriage Messages Received from Family and Friends and Expectations from the Spouse in Terms of Family Income Level

Variable	Income Level of Their Families	n	\bar{X}	s
Marital Messages Received from Family	2850 ₺ and less	179	106.49	28.57
	2851-5700 ₺	240	108.57	25.29
	5701 ₺ and more	125	110.84	22.78

Table 2. (Continued)

Marital Messages Received from Friends	2850 ₺ and less	179	105.52	25.11
	2851-5700 ₺	240	107.76	20.50
	5701 ₺ and more	125	105.31	24.50
Spousal Expectations	2850 ₺ and less	171	210.32	23.36
	2851-5700 ₺	233	208.21	23.26
	5701 ₺ and more	113	207.22	25.47

Means of scores of emerging adults obtained from Scale of Marital Messages Received from Family, Scale of Marital Messages Received from Friends and Spousal Expectations Scale according to the income level of the family are seen to differentiate. It was analysed whether this difference is significant using ANOVA and the results are depicted in Table 3.

Table 3. ANOVA Results Regarding Marriage Messages Received and Expectations from the Spouse in Terms of Family Income Level

Variable	Source of Variance	Sum of Squares	sd	Mean Squares	F	p
Marital Messages Received from Family	Intergroup	1404.42	2	702.21	1.04	.35
	Within groups	362627.51	541	670.29		
	Total	364031.93	543			
Marital Messages Received from Friends	Intergroup	730.93	2	365.46	.68	.50
	Within groups	287240.40	541	530.94		
	Total	287971.33	543			
Spousal Expectations	Intergroup	750.70	2	375.35	.66	.51
	Within groups	291038.61	541	566.22		
	Total	291789.32	543			

When Table 3 analysed, no significant difference was found between marital messages from family and friends received by emerging adults and their spousal expectations according to the income level of their family ($F=1.04$, $p>.05$; $F=.68$; $p>.05$; $F=.66$, $p>.05$).

It was analysed whether marital messages from family and friends received by emerging adults and their spousal expectations change according to their perception on the marriage of their parents. The results are depicted in Table 4.

Table 4. Descriptive Data on Marriage Messages Received from Family and Friends in Terms of Perception of Parents' Marriage and Expectations from Spouse

Variable	Perception of Parents' Marriage	<i>n</i>	\bar{X}	<i>s</i>
Marital Messages Received from Family	Generally Harmonious (a)	378	117.66	16.00
	Generally Inharmonious (b)	73	75.60	33.03
	Rarely Harmonious (c)	93	96.58	26.55
Marital Messages Received from Friends	Generally Harmonious (a)	378	106.83	22.68
	Generally Inharmonious (b)	73	103.24	26.65
	Rarely Harmonious (c)	93	107.47	21.32

Table 4. (Continued)

Spousal Expectations	Generally Harmonious (a)	378	209.05	23.59
	Generally Inharmonious (b)	73	207.85	24.87
	Rarely Harmonious (c)	93	207.92	23.86

Means of scores of emerging adults obtained from Scale of Marital Messages Received from Family, Scale of Marital Messages Received from Friends and Spousal Expectations Scale according to their perception on the marriage of their parents are seen to differentiate. It was analysed whether this difference is significant using ANOVA and the results are depicted in Table 5.

Table 5. ANOVA Results Regarding Marriage Messages Received and Expectations from the Spouse in Terms of Perception of Parents' Marriage

Variable	Source of Variance	Sum of Squares	sd	Mean Squares	F	p	η^2	Sig. Diff.
Marital Messages Received from Family	Intergroup	123937.15	2	61968.57	139.63	.00	.34	a-b-c
	Within groups	240094.78	541	443.79				
	Total	364031.93	543					
Marital Messages Received from Friends	Intergroup	903.43	2	451.71	.85	.42		
	Within groups	287067.90	541	530.62				
	Total	287971.33	543					
Spousal Expectations	Intergroup	148.29	2	74.14	.13	.87		
	Within groups	291641.02	541	567.39				
	Total	291789.32	543					

When Table 5 analysed, no significant difference was found between marital messages from friends received by emerging adults and their spousal expectations according to their perception on the marriage of their parents ($F=.85$, $p>.05$; $F=.13$, $p>.05$). On the other hand, a significant difference was identified between marital messages received from family by the participants according to their perception on the marriage of their parents ($F=139.63$; $p<.05$). According to the results of Scheffe's Multiple Comparison Test which was performed to find the source of the difference, the mean of scores obtained from Scale of Marital Messages Received from Family of participants perceiving the marriage of their parents as generally harmonious ($\bar{X}=117.66$) was found to be significantly higher than means of scores of those perceiving the marriage of their parents as inharmonious and rarely harmonious ($\bar{X}=75.60$, $\bar{X}=96.58$). Additionally, the mean of scores obtained from Scale of Marital Messages Received from Family of the participants perceiving the marriage of their parents as rarely harmonious ($\bar{X}=96.58$) was determined to be significantly higher than that of those perceiving the marriage of their parents as generally inharmonious ($\bar{X}=75.60$). Eta-square (η^2) correlation coefficient, which was calculated to determine the effect of the variable of the perception on the marriage of parents on the marital message received by the participants from family, was found as .34. This eta-square (η^2) value means that the perception on the marriage of parents has a wide effect on marital messages received from family by the participants. Accordingly, this can be said that those perceiving the marriage of their parents as generally harmonious receive more positive marital messages from the source of family than those perceiving the marriage of their parents as rarely harmonious and generally inharmonious. Additionally, those perceiving the marriage of their parents as generally inharmonious can be said to receive more negative marital messages from the source of family than those perceiving the marriage of their parents as rarely harmonious.

It was analysed whether marital messages from family and friends received by emerging adults and their spousal expectations change according to the way their parents married. The results are depicted in Table 6.

Table 6. Marriage Messages Received from Family and Friends in Terms of Parents' Marriage Style and Expectations from the Spouse

Variable	Way of parents marriage	n	\bar{X}	s	sd	t	p	Cohen's d
Marital Messages Received from Family	Arranged	390	107.44	26.03	542	1.38	.16	
	Consented	154	110.86	25.45				
Marital Messages Received from Friends	Arranged	390	106.65	22.95	542	.308	.75	
	Consented	154	105.98	23.28				
Spousal Expectations	Arranged	390	210.80	22.88	542	3.237	.00	.03
	Consented	154	203.34	25.21				

No significant difference was determined between means of scores of emerging adults obtained from Scale of Marital Messages Received from Family and Scale of Marital Messages Received from Friends according to the way their parents married. However, when the means of scores of participants obtained from Spousal Expectations Scale according to the way their parents married considered, the mean score of those whose parents had an arranged marriage ($\bar{X}_{\text{arranged}}=210.80$) was determined ($p<.05$) to be significantly higher than that of those whose parents had a consented marriage ($\bar{X}_{\text{consented}}=203.34$). Cohen's d value, which was calculated to determine the effect of the variable the way parents married on spousal expectations, was found as .03. This value indicates that the variable of the way parents married is effective at medium level on spousal expectations of the participants. Therefore, spousal expectations of those whose parents had an arranged marriage can be said to be higher than that of those whose parents had a consented marriage.

It was analysed whether marital messages from family and friends received by emerging adults and their spousal expectations change according to the romantic relationship status. The results are depicted in Table 7.

Table 7. Marriage Messages Received from Family and Friends in Terms of Romantic Relationship Status and Expectations from the Spouse

Variable	Romantic Relationship	n	\bar{X}	s	sd	t	p	Cohen's d
Marital Messages Received from Family	Have	221	110.66	25.93	542	1.67	.09	
	Don't Have	323	106.87	25.78				
Marital Messages Received from Friends	Have	221	108.93	21.18	542	2.07	.03	.01
	Don't Have	323	104.77	24.09				
Spousal Expectations	Have	221	207.30	23.76	542	1.10	.27	
	Don't Have	323	209.65	23.78				

No significant difference was determined between means of scores of emerging adults obtained from Scale of Marital Messages Received from Family and Spousal Expectations Scale according to their romantic relationship status. On the other hand, when the means of scores of college students obtained from Scale of Marital Messages Received from Friends according to their romantic relationship status considered, the mean score of college students who have a romantic relationship ($\bar{X}_{\text{have}}=108.93$) was determined ($p<.05$) to be significantly higher than that of those who don't have one ($\bar{X}_{\text{don't have}}=104.77$). Cohen's d value, which was calculated to determine the effect of the variable of romantic relationship status on marital messages received from friends by the participants, was found as .01. This value indicates that the variable of romantic relationship status is effective at low level on marital messages received from friends by the participants. Accordingly, this can be said those who have a romantic relationship receive more positive marital messages from friends than those who don't have one.

The findings on whether there is a correlation between marital messages received by emerging adults from family and friends, and their spousal expectations are given below. The correlation between marital messages received from family and friends, and spousal expectations is depicted in Table 8. Additionally, the results of multiple linear regression analysis on the prediction of spousal expectations by marital messages received from family and friends are depicted in Table 9.

Table 8. Correlation Coefficients and Significance Level Between the Scores Obtained from the Marital Messages Scale and Expectations from the Spouse Scale

Variables	n	Marital Messages Received from Family	Marital Messages Received from Friends	Spousal Expectations
Marital Messages Received from Family		1	.350**	.142**
Marital Messages Received from Friends	544	.350**	1	.219**
Spousal Expectations		.142**	.219**	1

**p < .01

Positive, significant and low-level relations ($r = 0.142$ and $r = 0.219$; $p < .01$) were found between the means of scores of emerging adults obtained from Spousal Expectations Scale and Scales of Marital Messages Received from Family and Marital Messages Received from Friends.

A positive, significant and medium-level relation ($r = 0.35$; $p < .01$) was found between the means of scores obtained from Scale of Marital Messages Received from Family and Scale of Marital Messages Received from Friends.

Table 9. The Results of Multiple Linear Regression Analysis on the Prediction of Spousal Expectations by Marital Messages Received from Family and Friends

Variable	B	SE	β	t	p	Binary r	Partial r
Constant	180.343	5.535		32.585	.000		
Marital Messages Received from Family	.066	.042	.073	1.594	.112	.142	.070
Marital Messages Received from Friends	.199	.047	.192	4.185	.000	.219	.182

$R = .229$, $R^2 = .052$, $F(2, 542) = 14.236$, $p = .000$

As can be seen in Table 9, the variables of marital messages received from family and friends together turn out to have a low-level and significant relation ($R = .229$, $R^2 = .052$, $p < .01$) with the scores of spousal expectations of emerging adults. Marital messages received from family and friends together explain 5% of the total variance with relation to spousal expectations. According to the standardized regression coefficient (β), the relative order of importance on spousal expectations of predictive variables is as: marital messages received from friends and marital messages received from family. When t-test results on the significance of regression coefficients analysed, only the variable of marital messages received by friends is seen to be an important (significant) predictive on spousal expectations. The variable of marital messages received from family does not have a significant effect.

Discussion and Comments

In this part of the study, acquired findings were discussed and interpreted within the framework of the existing literature. It was determined in the study that marital messages received by emerging adults from family and friends and their spousal expectations significantly differ according to gender. Therefore, males and females in emerging adulthood were determined to receive more positive marital messages respectively from their

families and friends. Additionally, spousal expectations of females in emerging adulthood were determined to be higher than that of males. In the literature, there are researches suggesting that marital messages received from family do not show significant differences according to gender (Shurts, 2004; Shurts & Myers, 2012; Şahin, 2019). As for the current research, males in emerging adulthood were determined to receive more positive marital messages from their families than females do.

In other words, females receive more negative messages from their families about the marriage. Bringing social and economic benefits, marriage provides a healthier and qualified living for an individual (Çağ & Yıldırım, 2013). In Turkish society, similar views are suggested to unmarried young males. Many families can be said to be imposing to their sons that men are supposed to marry when they grow up and start to work. On the other hand, this can be said for today's Turkish community that families, especially mothers, direct their daughters to complete their education, have a job and plan to marry after these. TURKSTAT (2019) data are also suggesting this argument. Schooling data of TURKSTAT show women demand education more compared to 15 years ago.

The gender equality in education which is the indicator of the schooling rate, has made continuous progress in favour of women in higher education as in other levels of education since 2008. In other words, the schooling level of women in Turkey has increased also in the higher education since 2018. According to the TURKSTAT (2021) statistics, the schooling level of women in the higher education (46.3%) is higher than that of men (40.6%). This can be said that one of the reasons of the increase in the schooling level of women is participating in labour force. In the light of these, it is possible to say "completing education and starting a carrier rather than marrying" is advised to women by their families. On the other hand, many responsibilities relating to the marriage and family are perceived as if they belong to women in Turkish culture. As a result, women make more effort than men and get exhausted during the marriage. Thus, this point of view can cause women to receive more negative marital messages from family than men.

In the study, females in emerging adulthood were determined to receive more positive marital messages from friends compared to males. This result is consistent with the results of researches conducted by Shurts (2004), Shurts & Myers (2012) and Şahin (2019). Education life, for most of the emerging adults, continues and they live economically dependent on their families as adolescents. On the other hand, it is seen that some of the individuals in emerging adulthood have had a job and have experienced marriage and having a child (Arnett, 2004; Temiz, 2020). According to TURKSTAT (2021) data, the first marriage ages of men and women in Turkey are respectively 28.1 and 25.4. Based on this, it is possible to say that many of the women in Turkey marry in emerging adulthood. Especially, the adults, seeing and hearing their friends, acquaintances from a similar age group marry, can be receiving positive marital messages from those acts. As mentioned above, emerging adulthood is a period during which seeking love and work identity stand out (Arnett, 2000). Sharing many things with their friends, females in this period can be positively affected by them.

Spousal expectations of females in emerging adulthood were determined to be higher than that of males in the study. This is consistent with the results of the research conducted by Güllü (2018). As said above, emerging adulthood is a period during which hopefulness and optimism stand out. Dreams intensively occur in this period (Arnett, 2001). Most of emerging adults believe that their life will be good and some of their dreams will come true (Arnett, 2004). It is inevitable that these hopes and dreams are also about marriage. This can be said that females in emerging adulthood pin more hopes and dreams on a future spouse and marriage.

No significant difference was determined between marital messages emerging adults receive from family and friends, and their spousal expectations according to the income level of their families. Marriage is considered as an important institution in almost every society in the world (Brubaker & Kimberly, 1993; Çağ & Yıldırım, 2013). According to Saxton (1982), marriage is a universal institution varying from society to society. Therefore, not receiving positive, negative or neutral marital messages from the sources of family and friends according to the level of income is comprehensible. Any individuals with any socio-economic status can receive similar messages from family or friends on the necessity, importance, positive and negative aspects of marriage. Accordingly, the level of income of one's family can shape one's spousal expectations according to one's socio-economic status. As every society has its own consideration on marriage, this can be not causing any difference of received marital messages and spousal expectations.

In the study, those perceiving the marriage of their parents as inharmonious were determined to receive more negative marital messages from their families. These findings are consistent with the results of the researches

conducted by Benson et al. (1993), Shurts (2004), Shurts & Myers (2012) and Şahin (2019). If there are high conflicts between parents and they are very unhappy due to the marriage (Shurts, 2004; Shurts & Myers, 2012), it is likely to happen for their children that they receive negative marital messages from their families. Inharmony in the marriage of parents can reflect on children. This can be said that one's perception on the marriage starts with observing the marriage of parents. If inharmony, conflict and unhappiness arising from these are in the forefront in the marriage of parents the child can receive negative marital messages from that marriage.

The conflicts disturb harmony in the marriage. In addition to mental and physical negative consequences for parents, children are negatively affected from the conflict (Kahveci, 2016). The marriage of individuals having a good relationship and an open communication with each other represents the healthy family structure (Cutler and Radford, 1990). The marital relationship of parents especially effective on the perception and attitude of children toward marriage and divorce (Coleman & Ganong, 1984). Children raised in a family with a healthy relationship and communication can receive more positive marital messages from their families. The marriage of parents provides an improving environment for these children. High-level inharmony between spouses and conflict arouse due to it damages not only the marriages but also the perception of children they developed on the marriage.

No significant difference was identified in the research between marital messages received by emerging adults according to their perception on the marriage of their parents. This finding is consistent with the finding of the research conducted by Şahin (2019). Positive or negative intrafamilial conditions may not reflect on the communication with friends and messages received from them on various matters. Therefore, the reason for the inexistence of differences between marital messages received from family and harmony in the marriage of parents can be that.

The absence of a significant difference between spousal expectations of emerging adults according their perception on the marriage of their parents is another result obtained from the research. Kasapkara & Kasapkara (2014) states that one, during the process of spouse choosing, considers many characteristics of the possible spouse. Personal and physical characteristics and appearance, economic and social status, profession, religion and view of life can be priorities when choosing a spouse. One can get advices from parents or face directives on these mentioned characteristics. Reflection of harmony or inharmony in the marriage of parents on one's spousal expectations may not be effective for everybody and every situation.

In the study, no significant difference was determined between marital messages received by emerging adults from family and friends according to the way their parents married. This finding is different from the finding of the research conducted by Benson et al. (1993) and the results of the research conducted by Şahin (2019). Marital relationship of the parents can be affected by the way they married. The way of marrying can reflect on intrafamilial communications and relations. On the other hand, the way their parents married may not cause a difference on the positivity of the marital messages received by children from family and friends.

In the study, spousal expectations of those whose parents had an arranged marriage were determined to be higher than that of those whose parents had a consented marriage. One of the important notions in relation with marriage is the way of marrying. Şendil and Korkut (2008) stated that the way of marriage varies culturally, consented marriages are common in the western societies while arranged marriages are common in the societies prioritizing traditional values as Turkey's. In the researches conducted by Öner (2016) and Macit (2016), marital satisfaction and marital harmony of the women who had arranged and consented marriages were analysed. Marital satisfaction and harmony of women who had an arranged marriage were found to be lower. Children raised in the families that started with an arranged marriage can have an expectation from their spouses and marriages to be more satisfactory and harmonious.

No significant difference between marital messages received by emerging adults from family and friends and their spousal expectations according to their romantic relationship status. On the other hand it was determined that those who have a romantic relationship receive more positive marital messages from friends than those who have not one. Also in the researches conducted by Shurts (2004), Shurts & Myers (2012) and Şahin (2019), no significant difference was determined between marital messages received by college students from family and friends. Consistently with the results of the current research, in the study of Güllü (2018), no significant difference was found between spousal expectations of college students according to their romantic relationship status. Romantic relationships play a central role in the lives of individuals at college ages (Shurts,

2004). This can be said that romantic relationships are effective on the personality and psycho-social developments of individuals at these ages (Saraç et al., 2015). An individual in emerging adulthood was stated to be in search of identity of love and work by Arnett (2001). Starting a romantic relationship and maintaining it is a developmental task for emerging adults. In a way, the individual prepares to get married with these romantic relationships. This can also be said that one starts romantic relationship to prepare for marriage. In this scope, the individuals who have a romantic relationship can be receiving more positive marital messages from their romantic partners and other friends or it's possible that they started romantic relationship because they received positive marital messages.

In the study, marital messages received from family and friends were determined to be explaining 5% of the total variance with relation to spousal expectations. While marital messages received from friends were determined to be an important (significant) predictor on spousal expectations, marital messages received from family were determined to not have a significant effect. This can be said for spousal expectations of emerging adults that they affected more by marital messages from friends. Neff and Morgan (2014) states that the meaning and function attached to the marriage have changed radically over the centuries and the marriage serves as the primary source of one's emotional and personal satisfaction. According to Wiata and Gallagher (2001), as the expected roles of men and women have changed today, social definition of the marriage needs to be adjusted. In other words, changes occurred in the lifestyle in today's world reflected on the marriage as well as other behaviours of people. Different marital messages received from family and friends can be determinant in spousal expectations of individuals.

Limitations and Recommendations

The data of the research was collected online processes due to the COVID-19 Pandemic. Collection of the data with online processes is a limitation of the research. The sample size is another limitation of the research. The sample size of 544 people is adequate and acceptable. On the other hand, increasing the sample size in future studies will improve the generalizability of the findings. Additionally, this study was conducted using a quantitative survey method. To obtain further information on the subject, qualitative studies can be planned to be conducted in the future.

In the study, participants perceiving the marriage of their parents as "generally inharmonious" were determined to receive more negative marital messages from their families. For children to have a healthy marriage in the future this can be recommended to parents that they should be positive role models for them and avoid arguing, yelling and fighting in the presence of them. Witnessing to the conflicts between parents or being included in them cause children to keep away from marriage and to find starting a marriage in the future unfavourable. Thus, this can be recommended to parents that they should take due precautions to keep children away from their conflicts. Intrafamilial relations between parents can be the marital message children receive from family and this can be effective on their perceptions on the marriage. Therefore, this can be recommended that parents should behave keeping in mind that they are role models of their children for marriage as well. A, even low-level, positive relation was found between marital messages received from family and friends and spousal expectation. Messages received from the environment – especially from family and friends – on various topics can be said to determining in one's perception on the subject of the message. Having reasonable, sensible and healthy expectations from the spouse is an important point in starting healthy marriages. Considering received marital messages when dealing with one's spousal expectations can be recommended for practitioners studying in the area of marriage and family counselling.

Conclusion

Marriage is an important developmental task to be achieved for many individuals. Marital messages received from different sources can be said to be effective in starting and maintaining the marriage. Marital messages received especially from kinspeople as family and friends can shape spousal expectations. One's spousal expectations and whether these expectations are met can reflect on the marital satisfaction, harmony and happiness in one's marriage. In this scope, it is possible to say the relation between received marital messages and spousal expectations is important. As a result of the research, a significant difference was found between marital messages received from family according to gender of the participants and their perception on the marriage of their parents. A significant difference was identified between marital messages received from friends according to gender and romantic relationship status. A significant difference was also identified between spousal expectations of the participants in terms of the variables of the way parents married and

gender. Additionally, a low-level positive relation between marital messages received from family, and friends and spousal expectations was determined.

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RESEARCH ARTICLE

The Mediating Role of Mentalization Capacity in the Relationship Between Family Unpredictability and the Infidelity Tendency

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ABSTRACT

The primary aim of this study is to investigate the mediating role of mentalization capacity in the relationship between family unpredictability and the tendency toward infidelity (extradyadic involvement). Family unpredictability refers to the inconsistencies in family behaviors and regulatory systems, while infidelity, within the context of a romantic relationship, refers to a partner's violation of norms regulating emotional or physical intimacy with others outside the relationship. Mentalization is the ability to understand the conscious or unconscious states of mind of oneself and others. The study's participants consisted of 441 middle-aged adults involved in romantic relationships, including dating, engaged, or married. The Retrospective Family Unpredictability Scale, The Mentalization Scale, The Infidelity Tendency Scale, and the Socio-demographic Data Form were used in this study. Structural Equation Modelling was employed to test the proposed model. Findings indicated that family unpredictability significantly predicted both the tendency toward infidelity (extradyadic involvement) and mentalization capacity in middle-aged adults involved in romantic relationships. Mentalization capacity, in turn, was identified as a partial mediator in the relationship between family unpredictability and the tendency toward infidelity. These findings suggest that individuals who experience inconsistencies in family behaviors and regulatory systems may be more prone to infidelity, potentially due to compromised mentalization capacity. The findings obtained in this study highlight the significance of stable family environments and the development of mentalization skills in the risk of infidelity in romantic relationships.

The growing number of individuals seeking family and couple therapy, alongside the demand for expert guidance on relationship continuity and decision-making, underscores the significance of relationship dynamics. Infidelity frequently emerges in the clinical histories of clients seeking couple therapy and has been shown to significantly disrupt relationship dynamics. It stands out that there has been an increase in divorce and infidelity rates with the COVID-19, which started in the past years and has remained the most severe public health problem in the world (Gordon & Mitchell, 2020). COVID-19 has been cited as a factor that brought about relational difficulties worldwide, leading to an increase in divorces and relational crises after 2020 (Nkire et al., 2022).

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In the context of a romantic relationship, the concept of infidelity is defined as a partner's violation of the norms that regulate the level of emotional or physical intimacy with people outside the relationship (Drigotas & Barta, 2001). Family unpredictability is thought to be one of the factors that predicts the tendency toward infidelity in relationship dynamics. The concept of family unpredictability is defined as inconsistency in family behavior and regulatory systems. In other words, family unpredictability arises when family members cannot consistently fulfill their family responsibilities, such as providing care, or are unwilling to fulfill them. Family unpredictability may also occur when the regulatory systems or mechanisms necessary to maintain expectations within the family are disrupted. In this context, parents and other primary caregivers are considered significant contributors to such family chaos or instability (Ross & Hill, 2000).

The concept of family unpredictability is evaluated in the context of attachment (Bowlby, 1969) and learned helplessness theories (Maier & Seligman, 1976). According to Bowlby, the pioneer of Attachment Theory, the baby who experiences a secure relationship with a caring object in the early stages of his life can cope with the negative emotions he experiences in the relationships in his later life, thanks to the safe experiences he has internalized. Bowlby suggests that infants are affected by the unpredictability of the caregiving object's responses (Bowlby, 1969). It has been stated that babies whose mothers respond inconsistently to their needs develop an insecure-anxious attachment style, are less willing to explore their environment, and are more challenging to calm down in stressful situations (Ainsworth et al., 1978). In contrast, consistent care promotes secure attachment, which enables children to believe that their behavior affects their environment (Lewis & Goldberg, 1969). Thus, a sense of environmental unpredictability or predictability develops at an early age. Learned helplessness is defined as developing a chronic belief that external forces and individuals determine one's destiny (Overmier & LoLordo, 1998). It is seen that the well care provided by the parents is decisive in the development of the belief that the baby affects his relationship with the environment (Katkovsky et al., 1967). Research has shown that learned helplessness is associated with emotional and physical health problems, as well as perceptual and cognitive development issues (Lewis & Goldberg, 1969). Internal working models, a key concept in Bowlby's Attachment Theory, are schemas that influence how individuals perceive themselves and others, shaped by interactions between the infant and the caregiver. These models include two distinct schemas: the 'self-model,' which encompasses the individual's perceptions of themselves and how they appear to others, and the 'other-model,' which reflects their perceptions of the external world (e.g., whether it is safe, insecure, and lovable) (Lopez et al., 1998). These two complementary models ultimately play a fundamental role in the individual's subsequent romantic attachment relationships (Hazan & Shaver, 1994). Bowlby (1979/1994) emphasized that attachment is an essential component of human experience "from the cradle to the grave" and stated that attachment relationships play a substantial role in the emotional lives of adults. Adult individuals bring their personalities with them when they get married, and the developmental problems of the two spouses related to early separation-individuation cause chronic conflicts in their relationships (Katz, 1981). The results of this research emphasize that individuals with secure attachment in the context of object relations differ significantly in their tendency to cheat in romantic relationships compared to individuals with insecure and avoidant attachment styles (Fish et al., 2012).

This study not only investigates the relationship between family unpredictability and the tendency toward infidelity but also aims to understand the dynamics of infidelity by examining the mediating role of mentalization capacity.

Mentalization is the capacity of the individual to interpret the internal mental states of both himself and others (such as emotions, wishes, goals, desires, and attitudes) (Fonagy et al., 2016). It has been suggested that this ability develops through early interactions with a secure attachment. It is defined as the capacity to understand human behavior through mental processes, and individuals who do not develop this ability may face issues related to psychopathologies in adulthood (Bateman & Fonagy, 2013). Mentalization involves the quality and quantity of an individual's psychic representations, which form the foundation of mental life. These representations enable the formation of associations, thoughts, and inner dialogue, and they interact with each other directly or indirectly (Marty, 2019). Fonagy et al. (2015) highlighted that symptoms, such as difficulties in emotion regulation, impulse-control problems, inconsistent relationship patterns, and unstable self-esteem

are linked to a lack of mentalization. The psychological self develops when a person puts himself in another person's shoes with his feelings and thoughts (Fonagy & Target, 2002). In this context, it is believed that individuals prone to infidelity may cheat due to a weakness in their capacity to interpret their partner's mental states (such as emotions, desires, goals, and attitudes). In other words, partners in a relationship may be more likely to cheat when there is a deficiency in their mentalizing capacity.

Based on these explanations, this study aims to investigate the relationship between family unpredictability and the tendency to cheat and to understand the role of the mentalization mediator variable. In this context, answers to the following questions will be sought in this research:

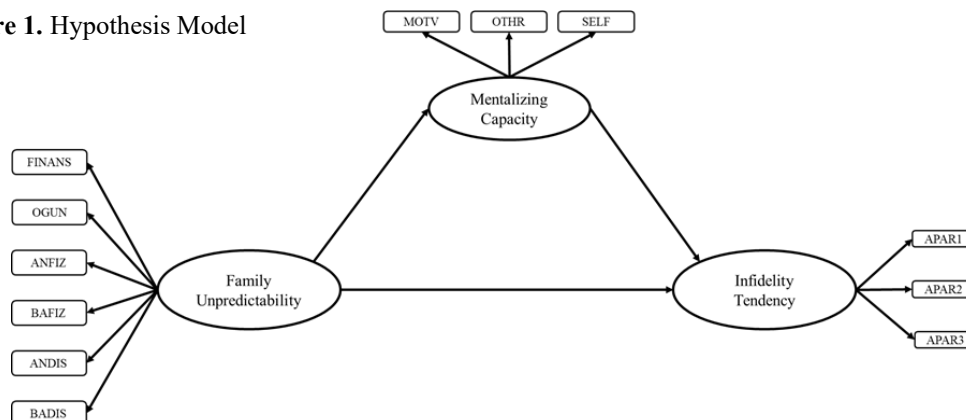
1. Does mentalization capacity have a mediating role in the relationship between family unpredictability and the infidelity tendency?
2. Do the participants' deception tendencies, family unpredictability levels, and mentalization capacities differ according to gender?
3. Do the infidelity tendencies, family unpredictability levels and mentalization capacities of the participants differ according to the education level?
4. Do the participants' infidelity tendencies, family unpredictability, and mentalization capacities differ according to the relationship status?
5. Do the participants' infidelity tendencies, family unpredictability, and mentalization capacities differ according to their current romantic relationship?
6. Do the infidelity tendencies, family unpredictability levels, and mentalization capacities of the participants differ according to the deception status in their current romantic relationship (non-relationship)?
7. Do the infidelity tendencies, family unpredictability levels, and mentalization capacities of the participants differ according to the parent's cheating (non-relationship) status?

Methodology

Research Model

This study employed a descriptive research model to investigate the relationships between family unpredictability, mentalization capacity, and infidelity tendencies. A relational screening design was used to examine these relationships. The structural model, which was developed and tested as part of this research, is presented in Figure 1.

Figure 1. Hypothesis Model



Note: FINANCE: Total scores from the Financial Unpredictability sub-dimension of the Retrospective Family Unpredictability Scale, OGUN: Total scores from the Retrospective Family Unpredictability Scale's Unpredictability of Meals sub-dimension, ANFIZ: Total scores from the Retrospective Family Unpredictability Scale from the Maternal Physical-Emotional Satisfaction sub-dimension

BAFIZ: Total scores from the Retrospective Family Unpredictability Scale Father Physical-Emotional Satisfaction Unpredictability sub-dimension, ANDIS: Total scores from the Retrospective Family Unpredictability Scale from the Mother Discipline Unpredictability sub-dimension, BADIS: Total scores from the Retrospective Family Unpredictability Scale-Father Discipline Prediction sub-dimension, MOTV: Total scores from the Mentalizing Scale's Mentalizing Motivation sub-dimension, OTHR: Total scores from the Mentalizing Scale's Mentalizing Others sub-dimension, SELF: Total scores from the Mentalizing Scale's Self-Oriented Mentalization sub-dimension, APAR1-3: Infidelity tendency.

Sample

The sample group for the present study consisted of 441 individuals aged between 21 and 58 years ($M = 33.30$, $SD = 8.62$) currently in an ongoing relationship (married, dating, or engaged). The participants were recruited through online advertisements and social media platforms (Facebook, X, Instagram and WhatsApp), targeting individuals in romantic relationships. The survey battery was distributed to 600 individuals, resulting in a participation rate of approximately 73.5%.

When examining the demographic characteristics of the participants, 76% ($N = 335$) identified as female, and 24% ($N = 106$) identified as male. In terms of education, 61% ($N = 273$) were university graduates, 25% ($N = 112$) had post-doctoral qualifications, 10.7% ($N = 47$) were high school graduates, 1.1% ($N = 5$) had completed secondary school, and 1.9% ($N = 4$) had completed primary school. Regarding relationship status, 82.8% ($N = 365$) were married, 13.2% ($N = 58$) were dating, and 4.1% ($N = 18$) were verbally engaged. Additionally, 89.8% ($N = 396$) reported having no past or present experience of being cheated on by their current partners, while 10.2% ($N = 45$) had experienced infidelity in the past or present with their current partners. Furthermore, 95.7% ($N = 422$) did not have another romantic relationship parallel to their current one, while 4.3% ($N = 19$) did. Lastly, it was found that 71.7% ($N = 316$) of participants reported that neither of their parents had a history of infidelity, while 28.3% ($N = 125$) reported that at least one parent had a history of infidelity.

Data Collection Tools

The Retrospective Family Unpredictability Scale: The Retrospective Family Unpredictability Scale was developed by Ross and McDuff (2008) to evaluate the behavior patterns of individuals in their families concerning unpredictability. Participants answer the items on the scale by reflecting on their past experiences. The total score indicates the level of unpredictability within the family. The scale is a five-point Likert-type instrument consisting of 28 items. It has six dimensions: (a) Financial Unpredictability, (b) Meal Unpredictability, (c) Mother Physical-emotional Satisfaction, (d) Father Physical-Emotional Satisfaction, (e) Mother Discipline and (f) Father Discipline. Scores on the scale can range from 28 to 140, with higher scores indicating greater perceived family unpredictability.

The scale was adapted into Turkish by Oktay and Uluç (2019), where it retained its six-factor structure. The overall scale's internal consistency coefficient ranged between .87 and .90, while the internal consistency coefficients for the sub-dimensions ranged from .71 to .85. In the current sample, the internal consistency coefficient for the entire scale was calculated as .92.

Confirmatory Factor Analysis (CFA) was conducted using the data collected in this study. The analysis revealed that the factor loadings of the scale items ranged from .48 to .88. The goodness-of-fit indices were χ^2/df ($1762.39/335$) = 5.026, $p = .001$, IFI = .92, NNFI = .91, CFI = .92, SRMR = .067, and RMSEA = .098 (confidence interval for RMSEA = .094–.10), indicating an acceptable model fit.

The Mentalization Scale: The Mentalization Scale was developed by Dimitrijević et al. (2018) to evaluate the mentalization capacities of participants in both community and clinical samples. The scale consists of 25 items, rated on a five-point Likert scale (1 = Completely False, 5 = Completely True), and is divided into three sub-dimensions: Self-Based Mentalization (MentS-S), Others-Based Mentalization (MentS-O), and Motivation to Mentalize (MentS-M). The scale's total score ranges from 25 to 125, with higher scores indicating better mentalization capacity.

The Turkish version of the scale was adapted by Törenli-Kaya et al. (2021), where it maintained the three-factor structure. The internal consistency coefficients for the Turkish version were .84 for the total score, .78 for MentS-S, .80 for MentS-O, and .79 for MentS-M.

Confirmatory Factor Analysis (CFA) conducted in this study found that the factor loadings of the items varied between .40 and .70. The goodness-of-fit indices were χ^2/df (1082.27/272) = 3.99, $p = .001$, IFI = .90, NNFI = .90, CFI = .90, and RMSEA = .082 (confidence interval for RMSEA = .077–.087), indicating an acceptable fit. The internal consistency coefficient (Cronbach's alpha) for the total scale in this sample was calculated as .86.

The Infidelity Tendency Scale: The Infidelity Tendency Scale, developed by Polat (2006), is a five-point Likert-type scale consisting of 30 items designed to measure individuals' tendencies toward infidelity. The scale includes 18 positive items measuring infidelity tendency and 12 negative items, which are reverse-scored and assess behaviors not considered infidelity. Scores on the scale can range from 30 to 150, with higher scores indicating a greater tendency toward infidelity.

The original scale reported a Cronbach's α coefficient of .95. Test-retest reliability indicated a coefficient of .84, showing good stability over time. In this study, Confirmatory Factor Analysis (CFA) revealed that the factor loadings of the items ranged from .29 to .85. The goodness-of-fit indices were χ^2/df (1711.02/405) = 4.22, $p = .001$, IFI = .97, NNFI = .97, CFI = .97, SRMR = .053, and RMSEA = .086 (confidence interval for RMSEA = .081–.090), indicating an acceptable model fit. The internal consistency coefficient (Cronbach's alpha) for this sample was calculated as .94.

Socio-demographic Data Form: The socio-demographic data form was created by researchers to collect information on participants' basic demographic characteristics. This form included items on age, gender, education level, relationship status, duration of the current relationship, and previous experiences of infidelity. The form also gathered data on participants' parents' history of infidelity and any current parallel romantic relationships. This information was used to contextualize the primary variables of the study and ensure a comprehensive analysis of the participants' backgrounds.

Procedure

The battery was prepared in 2022 and consisted of four sections designed to assess various variables of interest. The battery was designed to gather comprehensive data on participants' backgrounds, family unpredictability, mentalization capacity, and infidelity tendencies. Data were collected online using Google Forms, allowing for convenient and wide-reaching participation.

Data Analysis

Structural Equation Modeling was used to test the hypothetical model. In the evaluation of structural model tests, as the cut-off point for goodness-of-fit values, $<.10$ for RMSEA; $\geq .90$ was considered for CFI, IFI, NFI, and GFI (Kline, 1998; Schumacher & Lomax, 2004).

Before the model test, preliminary analyses were made, and the data distribution was evaluated. The skewness values of the observed variables in the model were between .163 and 1.28; kurtosis values varied from -.116 to 1.51. As a result, it can be stated that there is no deviation from the normal distribution.

Findings

Measurement Model Findings

In the hypothesis model, which was determined to be tested within the scope of this research, the observed variables were defined for each latent variable. Since a two-stage approach was followed in model testing, the measurement model related to the model was tested first. In the model, three plots were observed, consisting of the total scores from the Retrospective Family Unpredictability Scale sub-dimensions for the latent variable "Family Unpredictability," the total scores from the Mentalization Scale sub-dimensions for the latent variable "Mentalization," and the items of the Infidelity Tendency Scale for the latent variable "Infidelity Tendency." has been determined. The correlation coefficients between the observed variables in the model are given in Table 1.

Table 1. Correlations of Observed Variables in the Structural Model

	FINANS	OGUN	ANFIZ	BAFIZ	ANDIS	BADIS	MOTV	OTHR	SELF	APAR1	APAR2
FINANS											
OGUN	.424**										
ANFIZ	.243**	.371**									
BAFIZ	.330**	.390**	.511**								
ANDIS	.246**	.313**	.510**	.289**							
BADIS	.296**	.317**	.233**	.446**	.390**						
MOTV	-.047	.045	-.103*	-.049	.033	.036					
OTHR	-.060	-.064	-.197**	-.158**	-.070	-.055	.547**				
SELF	-.246**	-.207**	-.192**	-.237**	-.254**	-.303**	.299**	.393**			
APAR1	-.025	.066	.075	.087	.031	.128**	-.129**	-.154**	-.169**		
APAR2	-.005	.063	.074	.051	-.005	.078	-.141**	-.170**	-.179**	.847**	
APAR3	-.018	.087	.127**	.113*	.010	.119*	-.110*	-.152**	-.196**	.854**	.848**

*p < .05, **p < .01,

Note: FINANCE: Total scores from the Financial Unpredictability sub-dimension of the Retrospective Family Unpredictability Scale, OGUN: Total scores from the Retrospective Family Unpredictability Scale's Unpredictability of Meals sub-dimension, ANFIZ: Total scores from the Retrospective Family Unpredictability Scale from the Maternal Physical-Emotional Satisfaction sub-dimension BAFIZ: Total scores from the Retrospective Family Unpredictability Scale Father Physical-Emotional Satisfaction Unpredictability sub-dimension, ANDIS: Total scores from the Retrospective Family Unpredictability Scale from the Mother Discipline Unpredictability sub-dimension, BADIS: Total scores from the Retrospective Family Unpredictability Scale-Father Discipline Prediction sub-dimension , MOTV: Total scores from the Mentalizing Scale's Mentalizing Motivation sub-dimension, OTHR: Total scores from the Mentalizing Scale's Mentalizing Others sub-dimension, SELF: Total scores from the Mentalizing Scale's Self-Oriented Mentalization sub-dimension, APAR1-3: Infidelity tendency.

The goodness of fit values obtained when the measurement model was tested, χ^2/Sd (217.27/51) = 4.26, p=.001, IFI=.92, NNFI=.90; CFI=.92; RMSEA=.086 (confidence interval for RMSEA=.074-.098) and is at an acceptable level. The standardized path coefficients calculated in the measurement model are given in Figure 2. The relationships between the latent variables are given in Table 2.

Table 2. Correlations of the Latent Variables in the Structural Model

Latent Variable	1	2	3
1. Family Unpredictability	-		
2. Mentalization	-.28*	-	
3. Infidelity Tendency	.18*	-.25*	-

*p<.01

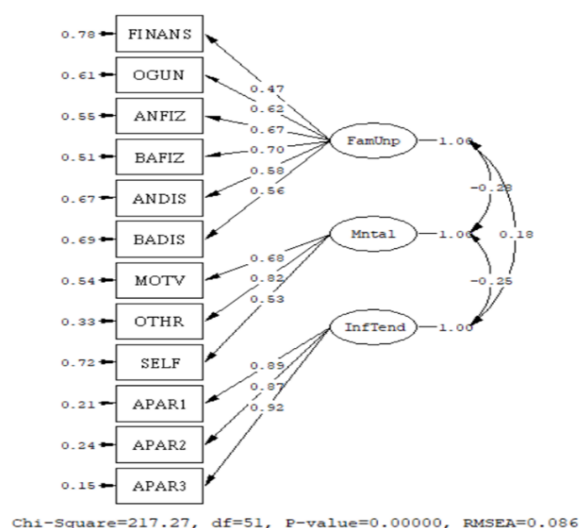


Figure 2. Standardized Path Coefficients for the Measurement Model

Note: FINANCE: Total scores from the Financial Unpredictability sub-dimension of the Retrospective Family Unpredictability Scale, OGUN: Total scores from the Retrospective Family Unpredictability Scale's Unpredictability of Meals sub-dimension, ANFIZ: Total scores from the Retrospective Family Unpredictability Scale from the Maternal Physical-Emotional Satisfaction sub-dimension BAFIZ: Total scores from the Retrospective Family Unpredictability Scale Father Physical-Emotional Satisfaction Unpredictability sub-dimension, ANDIS: Total scores from the Retrospective Family Unpredictability Scale from the Mother Discipline Unpredictability sub-dimension, BADIS: Total scores from the Retrospective Family Unpredictability Scale-Father Discipline Prediction sub-dimension, MOTV: Total scores from the Mentalizing Scale's Mentalizing Motivation sub-dimension, OTHR: Total scores from the Mentalizing Scale's Mentalizing Others sub-dimension, SELF: Total scores from the Mentalizing Scale's Self-Oriented Mentalization sub-dimension, APAR1-3: Infidelity tendency.

When examining the relationships between the latent variables, all correlation coefficients were statistically significant. Specifically, there was a positive correlation between family unpredictability and infidelity tendency ($r = .18, p < .01$) and a negative correlation between family unpredictability and mentalization capacity ($r = -.28, p < .01$). A statistically significant negative relationship was observed between mentalization capacity and infidelity tendency ($r = -.25, p < .01$).

Structural Equation Modelling

When the model given in Figure 1 was tested, the analysis results showed that the goodness of fit values was $\chi^2/Sd (217.27/51) = 4.26, p=.001, IFI=.92, NNFI=.90; CFI=.92; RMSEA=.086$ (confidence interval for RMSEA= .074-.098), and it is seen to be at an acceptable level. The standardized path coefficients of the model formed as a result of the analysis are given in Figure 3.

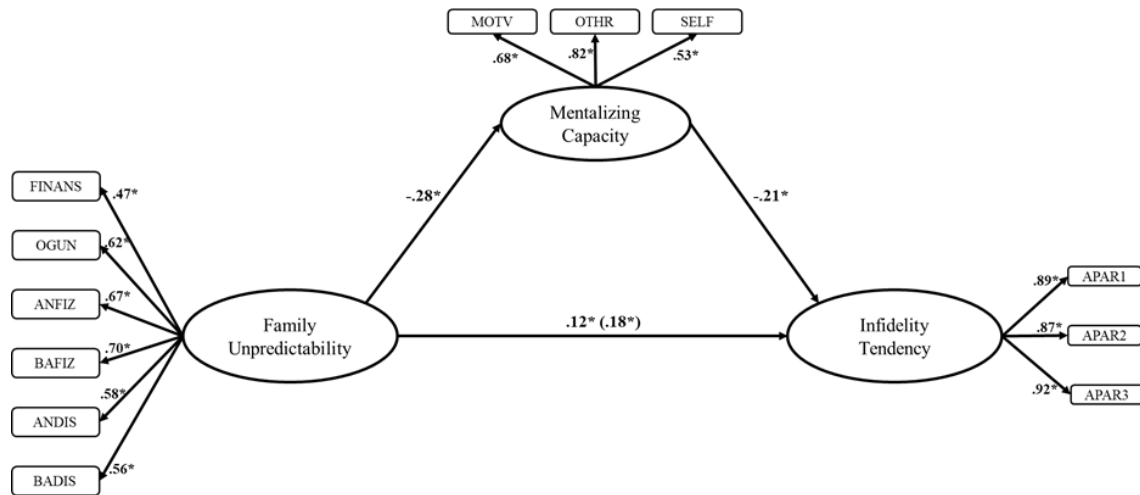


Figure 3. Standardized Path Coefficients for the Structural Model

As a result of model analysis, family unpredictability ($\beta = .12, p < .05$) and mentalization capacity ($\beta = -.21, p < .05$) were on the infidelity tendency. In addition, it was determined that family unpredictability had a statistically significant predictive effect on mentalization capacity ($\beta = -.28, p < .05$). It was seen that family unpredictability and mentalization capacity together explain a 7% variance in the variable of infidelity tendency. As a result, mentalization capacity mediated the relationship between family unpredictability and infidelity tendency partially.

Differences in family unpredictability, mentalization capacity and infidelity tendency were evaluated according to participants' gender, educational background, relationship status, cheating experiences in their current relationships, and whether at least one of their parents showed cheating behaviour.

As a result of the analysis, it was found that the infidelity tendency ($t_{439} = -7.69, p < .001$) and mentalization capacity ($t_{439} = 3.14, p = .002$) differed according to the biological sex of the participants; however, it was determined that family unpredictability did not vary according to their biological sex ($t_{439} = .81, p = .419$). The mentalization capacity of women ($\bar{X} = 96.74, S = 10.64$) was higher than that of men ($\bar{X} = 92.94, S =$

11.56), and the infidelity tendency of men ($\bar{X} = 63.69$, $S = 23.47$) was higher than that of women ($\bar{X} = 48.36$, $S = 15.74$).

When evaluated in terms of education levels, the number of primary and secondary school graduates was not included in the analysis. As a result of the analysis, family unpredictability ($F_{2, 438} = 5.31$, $p = .005$) and mentalization capacity ($F_{2, 438} = 6.55$, $p = .002$) differed according to the education level of the participants; however, it was determined that infidelity tendencies ($F_{2, 438} = .93$, $p = .397$) did not differ. Since it was determined that the homogeneity assumption was met, the Scheffe test was applied for comparisons between groups. According to the results of post-hoc analysis, the level of family unpredictability of the participants with a master's degree-doctorate ($\bar{X} = 49.82$, $S = 14.86$) was determined to be lower than the participants with a high school education level and below ($\bar{X} = 57.66$, $S = 15.15$); mentalization capacity of the participants with a master's-doctoral degree ($\bar{X} = 97.96$, $S = 10.29$) and a university degree ($\bar{X} = 95.84$, $S = 10.92$) was higher than the participants with a high school education level and below ($\bar{X} = 91.54$, $S = 11.51$) was high.

In terms of relationship status, in the analyses made with the Kruskal Wallis H test, the infidelity tendency differed according to the relationship status ($H_2 = 18.31$, $p < .001$); however, family unpredictability ($H_2 = 3.03$, $p = .219$) and mentalization capacity ($H_2 = 1.03$, $p = .597$) did not differ according to relationship status. As a result of the Bonferroni pairwise comparison test, it was seen that the participants whose relationship status was dating (Mean Rank = 283.22) were more likely to cheat than those who were married (Mean Rank = 209.35).

Family unpredictability ($t_{439} = 1.60$, $p = .110$), mentalization capacity ($t_{439} = .01$, $p = .991$) and infidelity tendency ($t_{439} = .71$, $p = .479$) did not differ according to experiences of cheating in current relationships. Similarly, family unpredictability ($Z = -.55$, $p = .581$) and mentalization capacity ($Z = -.27$, $p = .787$) did not differ according to experiences of cheating in current relationships. However, as expected, the infidelity tendency ($Z = -4.23$, $p = .000$) was determined to differ according to the cheating experiences in their current relationships. Those who have cheating experience are more likely to cheat than those who do not.

Finally, family unpredictability ($t_{439} = 7.02$, $p = .000$) differed according to whether or not at least one of the parents showed cheating behavior; however, it was determined that mentalization capacity ($t_{439} = .21$, $p = .836$) and infidelity tendency ($t_{439} = 1.47$, $p = .143$) did not differ according to whether or not at least one of the parents showed cheating behavior. As a result, the family unpredictability levels of the participants whose parents had cheating experience ($t_{439} = 60.05$, $S = 13.75$) were higher than those whose parents had no cheating experience ($t_{439} = 49.59$, $S = 14.24$).

Discussion

Research findings revealed that both family unpredictability and mentalization capacity significantly predicted infidelity tendency, while family unpredictability also predicted mentalization capacity. Recent studies (Bornstein, 2002; England-Mason & Gonzalez, 2020; Hajal & Paley, 2020; Zimmer-Gembeck et al., 2022) indicate that the way parents treat their children and the family environment predicts the problematic behaviors, social competence skills, and emotion management skills of children. The expectation of an individual who grew up in an unpredictable environment not being able to spend their future in an unpredictable and well-being (Hill et al., 2008) is an indication that the nature of the relationships they will establish in adulthood will also be unlikely to be healthy and inclusive. From this perspective, individuals raised in unpredictable environments may engage in relationships with unstable outcomes, including infidelity. Frisch and Frisch-Desmarez (2010) emphasize that although some couples appear to be a couple by establishing emotional relationships, after a few months of honeymoon, they start to attack everything related to their partner to defend themselves. This clinical picture seen in couple relationships is an indication that individuals have not internalized sufficiently strong and continuous relationship representations to maintain a certain quality of attachment. It is seen that they perceive their partners as distorted internal objects, and it is they may try to meet this need by establishing parallel relationships with the desire to establish an emotional connection.

Hazan and Shaver (1987), who were the first to formulate romantic couple attachment, stated that attachment is a lifelong and evolving process; they stated that while they were primary caregivers at an early age, they were often partners in romantic relationships by adulthood. They defined individuals with a secure attachment style as those who have high self-confidence and do not have problems establishing close relationships. Research results show that people who do not have a secure attachment style are more likely to participate in emotional and/or physical infidelity styles (Fish et al., 2012; Hatamy et al., 2011). These findings align with the present study showing that unpredictability significantly predicts the tendency toward infidelity (extradyadic involvement). The study suggests that individuals with insecure attachment may struggle with mentalization, which could, in turn, increase their susceptibility to infidelity in the context of unpredictable family dynamics.

The mediating role of mentalization capacity in the relationship between family unpredictability and the tendency toward infidelity, which is the main research subject, was confirmed by the partial mediation effect. The concept of mentalization, which emerged from attachment theory, is one of the criteria for evaluating the client in the context of a psychodynamic perspective.

The basic deficiencies of mental representations originate from the earliest developmental stages of the individual. The most common cause of this inadequacy is the insufficiency, inconsistency, or excessiveness of the mother's emotional responsiveness to her baby. The decrease in mental representations does not allow the formation of associations, thoughts and inner thinking. It prevents them from being used healthily way in the relationship with the other. The expression and discharge of these arousals is only possible by taking action with behaviours (Marty, 2019). In this perspective, individuals whose mentalization skills are not good enough can take action with defense mechanisms, such as acting out to cope with situations that cause conflict and intense emotional stimulation. The tendency of partners to cheat is a breakdown of a relationship agreement that has a framework and norm. The individual chooses one of the most economical ways to eliminate the conflict situation with their partner and puts it into action. This path is indicative of a primitive defence mechanism. At the same time, it is an indication that mental representations of the client, such as how their partner will feel, what they will think, and how much damage they will take in their mental world, cannot function adequately. In acting out, the individual provides temporary relief by re-enacting the childhood trauma. This situation occurs outside the person's awareness area; the person cannot distinguish between his past traumatic experience and acting out behavior (Lees & Stimpson, 2010). Insecure-unpredictable internal object representations experienced by the individual are reactivated due to the intimacy inherent in the romantic relationship. In this context, it will be possible to experience healthier partner relationships by minimizing traumatic situations, such as the tendency toward infidelity with mentalization skills.

Further analysis revealed that women generally demonstrate greater mentalization capacity than men, whereas men exhibit a stronger tendency toward infidelity. Mentalization capacity refers to the ability to understand and interpret others' mental states. The study by Törenli-Kaya et al. (2021) highlighted that women tend to have a greater mentalization capacity. This higher capacity in women is believed to be linked to their stronger internal motivation to understand others' mental states from early developmental stages (Rutherford et al., 2012). Studies have shown that women generally exhibit higher levels of emotional intelligence women typically have higher levels of emotional intelligence (Joseph & Newman, 2010) and empathy (Ibanez et al., 2013), which are closely related to mentalization.

The finding that infidelity tendency differs according to gender aligns with existing literature on the topic. Research has shown that men often place more importance on external relationships than on their primary relationships and exhibit stronger desires for non-relationship involvement (Atkins et al., 2001; Prins et al., 1993). Additionally, Kakirman-Moroğlu (2022) found that men have a higher tendency toward infidelity than women. This gender difference may be attributed to various factors, including evolutionary theories suggesting that men may seek multiple partners to maximize reproductive success and social and cultural norms that may grant men more latitude in engaging in infidelity. Moreover, men may experience less societal pressure to maintain exclusivity in relationships, which could further contribute to their higher infidelity tendency.

Another notable finding of this study is that family unpredictability and mentalization capacity differ according to the education level of the participants; the level of family unpredictability of the participants with a master's-doctorate education level was lower than the participants with a high school or lower education level.

Moreover, participants with undergraduate and graduate-level education demonstrated higher mentalization capacity than those with a high school education or below. These findings suggest that the increase in the level of education contributes positively to the level of family unpredictability. The healthy experience of the sub-dimensions of family unpredictability, such as financial unpredictability, meals, mother physical-emotional satisfaction, father physical-emotional satisfaction, mother discipline, and father discipline can accompany the increase in the education level of individuals. Ross and Hill (2002) describe the unpredictability scheme as follows; "...it describes it as a widespread belief that people are intolerable and that the world is chaotic. This belief has consequences on people's emotions, cognitions, and experiences." From this perspective, the effect of all these variables on children's future education life was supported by the research. The fact that the mentalization capacity is related to the ability to make sense of the other person's mental states (e.g., emotions and thoughts) to predict and make meaningful human behaviors, supports the high level of mentalization in people with a high level of education (Möller et al., 2014).

The research found that infidelity tendency varies according to relationship status, with participants who were dating being more likely to cheat than those who were married. In the related literature, studies are showing that marriage prevents non-relationship behaviors. Married women have a lower tendency to have non-relationship relationships than women who are dating or living together (Forste & Tanfer, 1996; Treas & Giesen, 2000); it is seen that cohabiting partners have lower levels of commitment compared to married couples (Bumpass et al., 1991). This situation can be interpreted as that marriage functions as a commitment mechanism as a protective factor against infidelity in couples, that marriage is built both as a written and verbal contract. It requires more responsibility than dating or engagement situations (Kakirman-Moroğlu, 2022).

Another result of this research is that those who have experienced infidelity (those who are in a parallel romantic relationship) have a higher tendency to cheat than those who do not. This result also points to the high infidelity tendency, associated with involvement in parallel romantic relationships. Moreover, it was found that the family unpredictability levels of the participants whose parents had cheating experience were higher than those whose parents had no cheating experience. This finding aligns with the notion that a child's perception of a secure world is initially shaped within the relational bond formed with their parents and the broader family environment.

Therefore, emotionally and cognitively unstable family dynamics may disrupt an individual's perception of a secure world and elevate family unpredictability levels. Ross and McDuff's (2008) study also compared the retrospective family unpredictability of adult participants over the age of 18 with divorced and undivorced families, and all sub-domains of family unpredictability (especially finance and paternal satisfaction unpredictability) were higher in participants with divorced parents compared to those with undivorced parent. Another similar study showed that participants with divorced parents were more unpredictable about their meal routines and finances than those who did not have divorced parents (Ross & Miller, 2009).

In conclusion, given that the empirical measurement of family unpredictability and mentalization variables using Turkish scales is relatively recent, this research is expected to contribute significantly to adult and couple therapy. Specifically, the finding suggests that enhancing mentalization capacity within the psychotherapy process may help mitigate infidelity tendencies—a major concern in romantic relationships. The findings indicate that while higher levels of family unpredictability predict a greater tendency toward infidelity, an increase in mentalization capacity within the relationship can mitigate this tendency. Therefore, working on improving mentalization capacity during therapy may have a therapeutic effect, strengthening both individual well-being and couple dynamics.

Given the limitations of this research, it is seen that the sample group of the research consists of participants who have a romantic relationship. In future studies, it may be recommended to use a research design in which the participation of both partners in the sample group can be achieved. However, it can be suggested as another suggestion to conduct research on a single type of relationship (dating, promise/engagement, married) for further studies.

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Conflicts of Interest: There is no conflict of interest

Data Availability: The author affirms that all data generated or analysed during this study have been incorporated into this published article. Additionally, all primary and secondary sources and the data underpinning the study's findings, were publicly accessible at the time of submission.

Ethics Approval and Consent to Participate: This study was approved by the Ethics Committee under meeting number 2022/15 on 22.09.2022. This study strictly adheres to ethical guidelines, ensuring participant confidentiality, informed consent, and unbiased reporting of findings. The author have no conflict of interest to disclose.

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RESEARCH ARTICLE

Perceived Paternal Acceptance-Rejection as a Mediator of the Association Between Perceived Maternal Acceptance-Rejection and Psychological Adjustment: Effect of Gender

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ABSTRACT

The present study explores the mediating role of perceived paternal acceptance-rejection on the association between perceived maternal acceptance-rejection and psychological adjustment and its gender-related facets among 551 secondary school students aged 11 to 15. Results suggest paternal acceptance-rejection partially mediates this relationship for both genders, impacting positive self-adequacy, emotional responsiveness, and positive worldview. It partially mediates hostility and emotional stability for females and fully mediates for males. However, it does not affect self-esteem for either gender.

The relationship between mother-father-child is at the heart of our understanding of the social and psychological child development. Most theories in psychology have focused on this relationship and reported that childhood is a significant stage in the lives of individuals (Freud, 1942; Bowlby, 1951). Another theory within the same vein is the Parental Acceptance-Rejection Theory developed by Rohner (1975) and recently known as the Interpersonal Acceptance-Rejection (IPAR) Theory (Rohner, 2016; Khaleque, 2017). This theory can be explained as a 'theory of socialization' and 'lifespan development' that seeks to explain the causes, consequences, and other relevant factors of parental acceptance and rejection throughout the world (Rohner, 1986). The concepts of perceived acceptance and rejection, which are the basic concepts of the theory, are related to the way individuals interpret the parental behaviours of their caregivers. It assumes that the perceived acceptance or rejection of the parents has a powerful and unique effect on the child (Rohner et al., 2005; Putnick et al., 2015; Khaleque, 2017). This study is based on the IPAR Theory mentioned above. A key aspect of IPAR Theory is the dimension of warmth in parenting, which posits that individuals need to be accepted

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by people who are important to them. It is furthermore argued that the need for acceptance is valid for all people and is independent of their culture, ethnicity, appearance, social status, language, and geography (Rohner, 1986; Rohner, 2016). Within the framework of this theory, warmth is the emotional bond established between parents and children and the physical, verbal, and symbolic behaviours used by the parents to reveal their feelings of warmth. The dimension of warmth represents a continuum with acceptance at one end and rejection at the other. While the perception of acceptance forms because of closeness, care, relaxation, nutrition, support and love experienced by the child with their primary caregivers, the perception of rejection is formed as a result of both the absence of these experiences and the presence of harmful physical and/or psychological behaviours (Rohner et al., 2012; Rohner, 2016).

However, extensive research within the framework of the Interpersonal Acceptance-Rejection Theory indicates that parental rejection will occur from any combination of the four basic representations. These are (1) cold/unaffectionate, (2) hostile and aggressive, (3) indifferent and neglecting, and (4) undifferentiated rejection. Cold/unaffectionate is depicted as the parent withholding warmth, love and affection from the child and behaving coldly towards the child; thus, the child perceives the parental behaviour as rejecting. Hostile and aggressive include parents' feelings of hostility and aggressive behaviour towards their children. Another representation, indifference and neglect, is the negligent behaviour of parents by being indifferent towards their children. Undifferentiated rejection is the belief that the child is not loved by his parents even though there is no apparent coldness, aggression, or indifference towards the child from the parents (Rohner, 1986; Rohner et al., 2012; Rohner, 2016).

The IPAR Theory consists of three sub-theories: personality sub-theory, coping sub-theory, and sociocultural sub-theory. Personality sub-theory suggests that everyone will react the same way to the acceptance or rejection they perceive from their parents or other attachment figures, regardless of sociocultural system, race, or gender. The first question of the theory is whether this view is correct. The second question is about the extent to which the effects of childhood rejection continue into adulthood and old age. The other sub-theory of coping has only one question: Why are some people rejected by their parents, coping more effectively than others? One of the questions that belong to the final sub-theory sociocultural is why the behaviour patterns of parents change towards children and whether certain psychological, familial or social factors are related to these behaviour patterns; another question is how the general structure, and beliefs of society are related to acceptance or rejection in childhood (Rohner, 1986; Rohner et al. 2012; Rohner, 2016).

Moreover, in the IPAR Theory, psychological adjustment is defined regarding acceptance-rejection syndrome. According to this syndrome, individuals who perceive acceptance from their attachment figures tend to develop (a) low hostility/aggression, (b) independence, (c) positive self-esteem, (d) positive self-adequacy, (e) emotional stability, (f) emotional responsiveness and (g) positive worldview yet individuals who perceive rejection from their attachment figures tend to develop (a) hostility/aggression, (b) dependence or defensive independence, (c) negative self-esteem, (d) negative self-adequacy, (e) emotional instability, (f) emotional unresponsiveness and (g) negative worldview (Khaleque & Rohner, 2012; Rohner, 2016).

The seven psychological dimensions mentioned above are accepted to develop concerning acceptance or rejection because when the individuals' need for positive responses from people who are important to them, which occurs during the evolutionary process on the biological basis, is not sufficiently met by parents or other attachment figures, they tend to behave in an anxious and insecure manner. At this point, hostility/aggression consists of every behaviour intended to harm someone or something deliberately and an internal feeling of hatred, anger, or rage (Rohner, 2005). The dependence or defensive independence dimension includes an inner desire or behaviours to see emotional support, care, attention, or similar behaviours from attachment figures. As the perceived rejection from attachment figures increases, the level of addiction increases. After a point, this situation turns into defensive independence. In other words, for children who perceive a continuous rejection from their parents, asking for love/attention from their parents, who are hostile and/or indifferent, turns into a painful situation. After a while, these children become withdrawn and attempt less and less positive reactions or deny their needs (Rohner, 1986, 2005; Rohner et al., 2012). The third dimension of adjustment self-esteem universally corresponds to the emotional judgments made by people about their values. Rejected people believe their attachment figures do not love them, so they develop negative self-esteem by not seeing themselves as worthy of being loved. They feel that they cannot meet the need for love and acceptance, one of their most basic needs. By generalizing these feelings, they also develop a negative sense of self-adequacy with the view that they are not good at meeting their needs (Khaleque & Rohner, 2012). The emotional-

unresponsiveness dimension is defined as the ability of individuals to express their feelings openly and freely. According to Rohner, children rejected by their parents emotionally shut themselves out to avoid the pain of rejection; since they cannot learn to give and receive love within the family, they have difficulty in receiving and giving love even though they need it (Rohner, 1986; Rohner, 2016). Emotional stability, on the other hand, is described as the state of being tolerant of setbacks, failures, difficulties, or stressful circumstances without overreacting and having a balanced mood. However, emotional instability may occur because of negative emotions created by rejection, and individuals may display inconsistent behaviours with extreme emotions in the face of stressful situations. According to Rohner, children rejected by their parents have low stress tolerance and can exhibit extreme emotions when faced with a stressful situation (Rohner, 1986; Rohner, 2016). All these painful emotions cause rejected people to develop a negative worldview by perceiving life and interpersonal relationships as unreliable, hostile, threatening, and dangerous (Khaleque & Rohner, 2012).

As was mentioned before, IPAR Theory focuses on the individuals' perceived acceptance and rejection from the people who are important to them and the possible effects it has on the person. The significant people mentioned in the theory are those with whom a child or an adult has a long-term emotional bond that cannot be exchanged with anyone else. In adulthood, these people are seen as intimate partners, while the most significant persons in childhood are parents. According to the result of a meta-analysis study conducted in 2001, even parents generally refer to mothers and fathers. 84% of the studies examining this concept were related to mothers, and only 16% of the fathers were included (Rohner & Veneziano, 2001). The reason why the focus is on mothers in the studies is that the main caregiver is the mother in many psychological theories and the explanation of child development through mothers in general (Palm, 2014). The fact that most of the studies using the concept of parents involve only mothers resulted in ignoring the possible effects of fathers on children for a long time, and the number of studies on this subject remained limited during this period (Daniel, Madigan, and Jenkins, 2016; Rohner & Veneziano, 2001). While there may be points where the functions of mothers and fathers overlap on the child, both parents may also have independent effects and contributions in raising children. Therefore, it is not the correct approach to see the mother and father as one and to examine the effects of only one of them in research (Jeynes, 2016). Based on the view that parents are the most important contributors to child development, more research is missed on the different contributions of parents to children (as cited in Finley et al., 2008). In fact, in the Interpersonal Acceptance- Rejection Theory, which is the basis of the study, it is emphasized that while many studies are based only on mothers, mothers and fathers should also be studied together through parallel scales (Rohner & 2001; Sultana & Khaleque, 2016). Therefore, it is beneficial to examine the possible effect on the child of the father but not only of the mother.

Similarly, when examining the effects of parental acceptance-rejection on children and looking at studies examining maternal and paternal rejection together, it is seen that the results are not consistent. While some studies show that the perceived acceptance-rejection of only one parent is significant, other studies report that both parents are, and the perceived acceptance-rejection of one parent is better than the perceived level of the other (Rohner, 2014; Rohner & Veneziano, 2001). Therefore, in this case, it may be significant to evaluate the contributions of the mother and father to the child together.

On the other hand, relevant studies also reported that examining the differences based on parent and child's gender will provide valuable information on parent-child interaction (Droppleman & Schaefer, 1963; Nilsson, 2016). In this context, some studies reported that girls tend to perceive their parents as more accepting than boys; however, studies that have obtained the opposite results or did not find a gender difference are also available in the literature (Ali et al., 2015). Rohner and Khaleque (2003) report that gender-related changes in parental acceptance and rejection perception are cultural, and the results may vary from country to country and thus cannot be consistent. At this point, when the IPAR Some studies, including the examination of Turkish samples, stated that there are no significant differences in parental acceptance-rejection levels according to the gender of the child (Gürmen & Rohner, 2014; Polat, 1988). Moreover, there are research findings that perceived maternal and paternal acceptance-rejection levels differ significantly according to the child's gender. According to these studies, boys perceive more rejection from their mothers and fathers than girls (Keskiner, 2012).

Finally, the IPAR Theory literature indicates that studies on the level of perceived acceptance-rejection from parents usually focused on the general psychological adjustment level obtained from the total score of the Personality Assessment Scale developed within the scope of the theory (Rohner, 2014; Ali et al., 2015). There

are relatively few studies with a focus on the effects of perceived acceptance-rejection from the mother and father on the sub-dimensions of psychological adjustment (Ansari, 2013). To illustrate, in a meta-analysis study conducted by Khaleque and Rohner (2012), the psychological adjustment dimension was limited to its sub-dimensions and the relationship between the perceived acceptance-rejection level from the mother and father and the sub-dimensions was analysed. It was found that there was a significant relationship between children's perceived levels of acceptance and rejection from both parents and the sub-dimensions of psychological adjustment (as cited in Rohner et al., 2012).

In conclusion, considering the findings mentioned above, this study aims to examine the possible mediating role of perceived paternal acceptance-rejection in the association between the perceived maternal acceptance-rejection and the psychological adjustment with its sub-dimensions in terms of gender.

Method

Participants

A total of 592 students, consisting of 283 females and 309 males, whose parents are married and cohabiting, participated in the study conducted in secondary schools located in the Kağıthane district of Istanbul. However, 551 subjects (272 females, 279 males) aged between 11 and 15 ($\mu = 12.78$; $SD = 1.28$), whose data were complete after the loss of subjects due to not answering some of the scales properly, were included in the sample.

Measures

Personal Information Form: Demographic information such as age, gender and education level, was collected with this form

Parental Acceptance and Rejection Questionnaire – Mother and Father (Child Short Form): The current study used the short form of the Parental Acceptance and Rejection Scale Child Form to determine the perceived parental acceptance and rejection levels of the participants. Parental Acceptance and Rejection Scale (PARQ) is a self-report scale designed by Rohner in 1971 to determine the levels of acceptance and rejection perceived by individuals from their parents. The three versions of the scale are adult, parent, and child. The Child PARQ, the short form used in this study, assesses levels of acceptance and rejection perceived by children aged 9-17 in their relationships with their parents. PARQ is evaluated separately for the mother and father. Perceived acceptance and rejection in the relationship with the father is evaluated by "PARQ: Father;" perceived acceptance and rejection of the relationship with the mother is evaluated by "PARQ: Mother". In addition, in the mother and father forms, the sentences of the items are parallel and only the subjects change to "my mother" or "my father" (Rohner & Khaleque, 2005). There are 60 questions in the original form, but the short form consists of 24 items. Polat (1988) made the Turkish adaptation of the scale. Reliability analysis of Turkish short forms yielded that the Cronbach alpha value of the mother form was .89; the father form was .90 (Polat, 1988). In this study, the Cronbach alpha coefficient of the Child PARQ short form was found to be .82 for both the mother and father forms.

Personality Assessment Questionnaire (Child PAQ): The Personality Assessment Scale (PAQ), developed by Rohner in 1978 was used to determine the general psychological adjustment of children in the study (Rohner, 1978). The scale consists of seven subscales: hostility/aggression, dependence, self-esteem, self-adequacy, emotional responsiveness, emotional stability, and worldview. These subscales also represent seven personality traits thought to be influenced by acceptance and rejection in IPAR Theory. The sum of these subscales also shows the general psychological adjustment of the individual. The Child PAQ used in this study evaluates the general psychological adjustment of children between the ages of 7-12 and consists of a total of 42 items that examine each of the seven subscales mentioned above with 6 items. PAQ is a 4-point Likert-type scale ranging from 1 (almost never true at all) to 4 (almost always true). Cronbach alpha value of child PAQ varied between .50 and .74. The Cronbach alpha value of the whole form was .88. The Turkish adaptation of the scale was made by Varan (2013) with 1657 subjects between the ages of 9-18. The internal consistency Cronbach alpha values of the subscales varied between .53 and .80; the total internal consistency value was calculated as .86. In this study, Cronbach alpha values of subscales of Child PAQ; .76 for hostility/aggression, .73 for dependence, .68 for negative self-esteem, .75 for negative self-adequacy, .74 for emotional unresponsiveness, .75 for emotional instability, .65 for negative worldview. Cronbach's alpha value for the whole scale, which means general psychological adjustment, was found to be .86.

Procedure

The study obtained approval from the relevant university ethical committee before the data collection started. The application was carried out collectively in classrooms, during school class hours, with volunteers, who allowed their data to be used. Before the students started answering the scales given to them, the instructions for the scales were explained to them. The students were asked not to write names in any part of the scale forms, and it was declared that the information collected from them would only be read by the researchers and that this information would not be given to the school administration, teachers or parents. The order of the scales was changed in each application to avoid the effect of the order. Each application took 30-35 minutes on average.

Results

The data was checked for outliers and missing values before the analyses. By using the list-wise deletion procedure (Rohner & Khaleque, 2005), cases missing data on more than one item on any scale and more than two items on the overall questionnaire were removed from the data set. The mean substitution method was employed for the remaining missing cases. Non-normality, linearity, and restriction of range assumptions were also checked in the data. The data from the Parental Acceptance and Rejection Questionnaire mother and father forms were found to violate the normality assumption, so the inverse transformation method was utilized to normalize them. Statistical analysis was undertaken after the data revealed appropriate features for parametric testing.

Firstly, Pearson's *r* correlation coefficients were calculated to understand the relationships among the variables. As expected, the results showed that both maternal and paternal acceptance-rejection scales were positively correlated with psychological adjustment, low hostility/aggression, positive self-esteem, positive self-adequacy, emotional responsiveness, emotional stability, and positive worldview. In addition to that, there was no significant correlation between dependence and both parental acceptance-rejection scales (Table 1).

Table 1. Correlations between variables

Variables	1	2	3	4	5	6	7	8	9	10
Maternal Acceptance-Rejection	1									
Paternal Acceptance-Rejection	.649**	1								
Psychological Adjustment	.556**	.526**	1							
Low Hostility/Aggression	.376**	.412**	.768**	1						
Dependence	-.027	-.005	.178**	.103**	1					
Positive Self-Esteem	.338**	.270**	.539**	.245**	-.183**	1				
Positive Self-Adequacy	.449**	.428**	.684**	.391**	-.105*	.489**	1			
Emotional Responsiveness	.481**	.398**	.660**	.341**	-.151**	.389**	.530**	1		
Emotional Stability	.342**	.330**	.745**	.611**	.106*	.247**	.349**	.328**	1	
Positive Worldview	.493**	.443**	.806**	.556**	-.010	.421**	.457**	.504**	.531**	1

p*<.05, *p*<.001

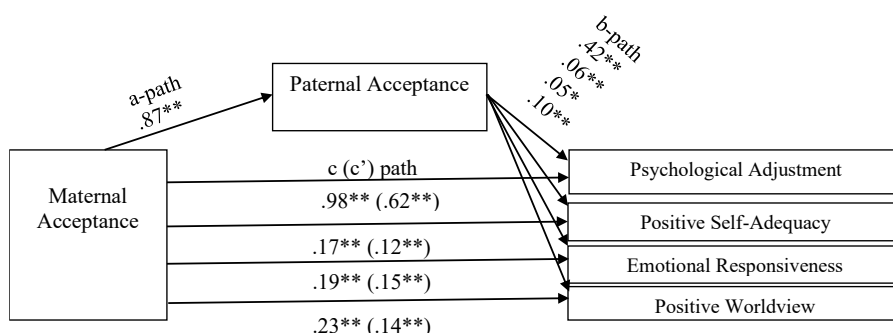
To be able to evaluate the relationships between the variables of the study, all analyses were carried out using the PROCESS macro statistical software program, developed by Hayes (2013). The mediating role of paternal acceptance-rejection in the relationship between maternal acceptance-rejection and psychological adjustment, low hostility/aggression, positive self-esteem, positive self-adequacy, emotional responsiveness, emotional stability, and positive worldview was investigated separately for males and females to determine the effect of gender. To assess for mediating roles, the four-step method suggested by Baron and Kenny was followed (Baron & Kenny, 1986).

A variable mediates the relationship between two variables only if, according to Baron and Kenny: 1) the Predictor should significantly predict the outcome, 2) the Predictor should significantly predict the mediator, 3) the Mediator should retain predicting outcome after controlling for the effect of predictor, 4) After adding the mediator to the model, predictive effect of predictor either disappears or diminishes.

As it was mentioned earlier, there was no significant correlation between dependence and parental acceptance-rejection; therefore, dependence was discarded from further analysis. Seven different models were evaluated separately for male and female participants. The significance of indirect effects was assessed using the bootstrapping procedure and Sobel test. The indirect effect was calculated for every 1000 bootstrapped samples and indirect effects of mediating variables were accepted as significant if there was no zero between the %95 confidence intervals obtained (Preacher and Hayes, 2008). The proportion of variance in the dependent variable explained by indirect effects was also calculated to see the effect size (R^2_{med}) (Hayes, 2013).

Mediational analysis showed that paternal acceptance-rejection has a “partial” mediational role in the relationship between maternal acceptance-rejection and psychological adjustment, positive self-adequacy, emotional responsiveness, and positive worldview separately for both male and female participants (Figure 1 and Figure 2). There was a significant indirect effect of maternal acceptance-rejection on psychological adjustment (0.36, $Z = 4.18$, $p < .01$, $R^2_{med} = .23$), positive self-adequacy (0.05, $Z = 2.66$, $p < .01$, $R^2_{med} = .15$), emotional responsiveness (0.04, $Z = 2.05$, $p < .05$, $R^2_{med} = .15$) and positive worldview (0.09, $Z = 3.35$, $p < .01$, $R^2_{med} = .17$) for male participants. There was also a significant indirect effect of maternal acceptance-rejection on psychological adjustment (0.29, $Z = 4.01$, $p < .01$, $R^2_{med} = .23$), positive self-adequacy (0.06, $Z = 3.77$, $p < .01$, $R^2_{med} = .15$), emotional responsiveness (0.04, $Z = 2.26$, $p < .05$, $R^2_{med} = .15$) and positive worldview (0.06, $Z = 3.04$, $p < .01$, $R^2_{med} = .18$) for female participants. There was no zero between the %95 confidence intervals obtained for all models.

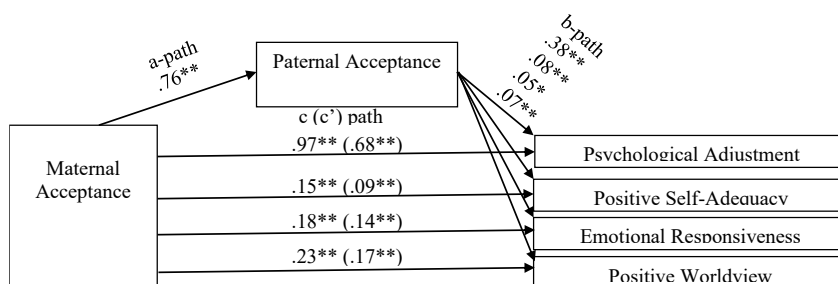
Figure 1. Mediational role of perceived paternal acceptance-rejection in the relationship between perceived maternal acceptance-rejection and psychological adjustment, positive self-adequacy, emotional responsiveness, and positive worldview for male participants



Note1: ** $p < .01$, * $p < .05$

Note2: Unstandardized coefficients were presented in the figure

Figure 2. Mediational role of perceived paternal acceptance-rejection in the relationship between perceived maternal acceptance-rejection and Psychological Adjustment, Positive Self-Adequacy, Emotional Responsiveness and Positive Worldview for female participants



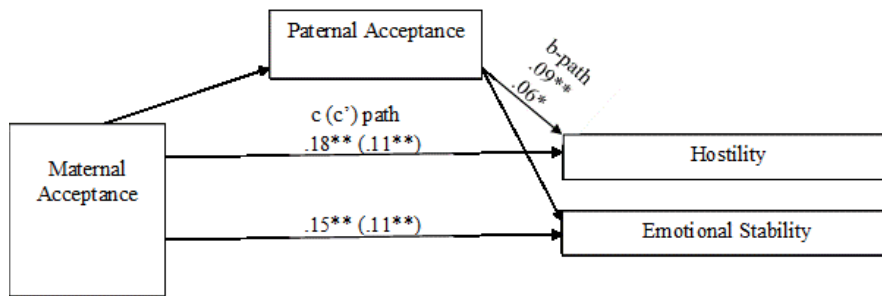
Note1: ** $p < .01$, * $p < .05$

Note2: Unstandardized coefficients were presented in the figure.

In addition, results also showed that paternal acceptance-rejection is not a mediator in the relationship between maternal acceptance-rejection and self-esteem for both male and female participants, respectively ($Z = 1.30$, $p > .05$; $Z = 0.83$, $p > .05$). Moreover, 95% bootstrap CI contains zero for both males and females. R^2_{med} indicates only 9% of variance explained for males and 5% for females.

Finally, paternal acceptance-rejection has a "partial" mediational role in the relationship between maternal acceptance-rejection and hostility and emotional stability for female participants. The indirect effect of maternal acceptance-rejection on hostility and emotional stability is also significant (0.07 , $Z = 3.25$, $p < .01$, $R^2_{med} = .12$; 0.04 , $Z = 2.42$, $p < .05$, $R^2_{med} = .11$) (Figure 3). On the other hand, paternal acceptance-rejection has a full mediation role in the relationship between maternal acceptance-rejection and hostility (Figure 3) and the relationship between maternal acceptance-rejection and emotional stability (Figure 4) for male participants only. The indirect effect of maternal acceptance-rejection on hostility and emotional stability is also significant (0.10 , $Z = 4.00$, $p < .01$, $R^2_{med} = .11$; 0.08 , $Z = 3.29$, $p < .01$, $R^2_{med} = .07$). There was no zero between the %95 confidence intervals obtained for models. Unstandardized direct, indirect, and total effects of all tested mediational analysis and effect sizes (R^2_{med}) can be seen in Table 2.

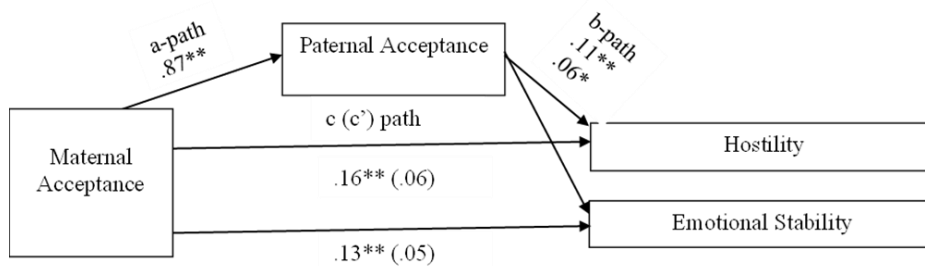
Figure 3. Mediational role of perceived paternal acceptance-rejection in the relationship between perceived maternal acceptance-rejection and hostility, emotional stability for female participants



Note1: ** $p < .01$, * $p < .05$

Note2: Unstandardized coefficients were presented in the figure.

Figure 4. Mediational role of perceived paternal acceptance-rejection in the relationship between perceived maternal acceptance-rejection and hostility, emotional stability for male participants



Note1: ** $p < .01$

Note2: Unstandardized coefficients were presented in the figure.

Table 2. Unstandardized direct, indirect, and total effects of all tested mediational analysis and effect sizes for tested models

Gender	Predictor	Mediator	Criterion	Effects	%95 CI	R^2_{med}
Male	Maternal Acceptance-Rejection	Paternal Acceptance-Rejection	Psychological Adjustment	Direct	.62**	0.38 - 0.86
				Indirect	.36	0.19 - 0.56
				Total	.98**	0.80 - 1.17

Table 2. (Continued)

Male	Maternal Acceptance- Rejection	Paternal Acceptance- Rejection	Hostility	Direct	.06	0.00 – 0.13	.11
				Indirect	.10	0.04 – 0.15	
				Total	.16**	0.11 – 0.21	
Male	Maternal Acceptance- Rejection	Paternal Acceptance- Rejection	Self-Esteem	Direct	.09**	0.04 – 0.12	.09
				Indirect	.02	0.00 – 0.04	
				Total	.10**	0.07 – 0.13	
Male	Maternal Acceptance- Rejection	Paternal Acceptance- Rejection	Self-Adequacy	Direct	.12**	0.07 – 0.18	.15
				Indirect	.05	0.001 – 0.09	
				Total	.17**	0.13 – 0.21	
Male	Maternal Acceptance- Rejection	Paternal Acceptance- Rejection	Emotional Responsiveness	Direct	.15**	0.09 – 0.20	.15
				Indirect	.04	0.005 – 0.08	
				Total	.19**	0.15 – 0.24	
Male	Maternal Acceptance- Rejection	Paternal Acceptance- Rejection	Emotional Stability	Direct	.05	-0.02 – 0.12	.07
				Indirect	.08	0.03 – 0.14	
				Total	.13**	0.08 – 0.18	
Male	Maternal Acceptance- Rejection	Paternal Acceptance- Rejection	Positive Worldview	Direct	.15**	0.07 – 0.21	.17
				Indirect	.09	0.03 – 0.14	
				Total	.23	0.18 – 0.29	
Female	Maternal Acceptance- Rejection	Paternal Acceptance- Rejection	Psychological Adjustment	Direct	.68**	0.47 – 0.88	.23
				Indirect	.29	0.13 – 0.49	
				Total	.97**	0.80 – 1.14	
Female	Maternal Acceptance- Rejection	Paternal Acceptance- Rejection	Hostility	Direct	.11**	0.04 – 0.17	.12
				Indirect	.07	0.02 – 0.12	
				Total	.18**	0.13 – 0.22	
Female	Maternal Acceptance- Rejection	Paternal Acceptance- Rejection	Self-Esteem	Direct	.07**	0.03 – 0.11	.05
				Indirect	.01	-0.01 – 0.04	
				Total	.08	0.05 – 0.11	
Female	Maternal Acceptance- Rejection	Paternal Acceptance- Rejection	Self-Adequacy	Direct	.09**	0.05 – 0.14	.15
				Indirect	.06	0.02 – 0.10	
				Total	.15**	0.11 – 0.19	
Female	Maternal Acceptance- Rejection	Paternal Acceptance- Rejection	Emotional Responsiveness	Direct	.15	0.10 – 0.19	.15
				Indirect	.03	0.002 – 0.07	
				Total	.18**	0.014 – 0.21	
Female	Maternal Acceptance- Rejection	Paternal Acceptance- Rejection	Emotional Stability	Direct	.11**	0.05 – 0.16	.11
				Indirect	.04	0.01 – 0.09	
				Total	.15**	0.11 – 0.19	

Table 2. (Continued)

Female	Maternal Acceptance- Rejection	Paternal Acceptance- Rejection	Positive Worldview	Direct	.17**	0.11 – 0.23	.18
				Indirect	.06	0.01 – 0.11	
				Total	0.23**	0.18 – 0.27	

Adequacy of Sample Size

The study of Fritz and Mackinnon (2007) was used as a reference point to decide the adequacy of the sample size. The significant direct effects (c) obtained in this study include wide range of values from .09 to .68. Moreover, significant relationships between maternal acceptance-rejection and the mediator (a) obtained in the study are between .76 and .87, and significant relationships between the mediator and dependent variables (b) are between .05 and .42. In the light of these findings, it has been seen that the significant effects obtained in the tested models range from small to huge (Cohen, 1988). Since .08 power was suggested in mediation analysis (Baron & Kenny, 1986), the number of participants in this study was compared with the values reported by Fritz and Mackinnon (2007) for a small and huge effect in their study at .08 power. This comparison showed that 551 participants are higher than the suggested number of participants for both the direct effect of .14 and the direct effect of .59 (445 and 404 respectively). In other words, the current study has an adequate number of participants to find mediated effects.

Discussion

As mentioned before, the study aimed to examine whether perceived acceptance-rejection from the father plays a mediating role in the relationship between the level of perceived acceptance-rejection from the mother and the general psychological adjustment along with its sub-dimensions in the context of gender. In this context, a finding obtained is that there is a positive relationship between perceived acceptance-rejection from the mother and father and all sub-dimensions of psychological adjustment except dependency. This finding supports the literature on the subject. Results of a meta-analysis showed that studies conducted with children from 1975 to 2010, including 14 published, 22 unpublished, and 36 studies in total, perceived acceptance-rejection from both mother and father shows a significant correlation with personality traits in all societies (Khaleque & Rohner 2012).

However, in this study, it is seen that there is no significant relationship between perceived acceptance-rejection from parents and the dependency dimension. The probable reason for this can be the fact that the so-called relationship is non-linear. Six of the sub-dimensions (hostility/aggression, self-esteem, self-adequacy, emotional responsiveness, emotional stability, and worldview) are claimed to be related to parental acceptance-rejection level in the personality sub-theory of the Interpersonal Acceptance-Rejection Theory. While they have a linear relationship with the level of acceptance; dependency has a nonlinear relationship. As the perceived rejection from parents increases, the need for positive reactions of children increases to a point. After a point that varies from person to person, anger and other negative emotions prevent the person's desire to receive a positive response, and dependence begins to decrease and turns into reactive independence (Khaleque & Rohner, 2012; Rohner et al., 2012). As a matter of fact, in a meta-analysis study conducted with 43 studies from different cultures, it was stated that the relationship between dependency and parental rejection is often very low compared to other sub-dimensions (Khaleque & Rohner, 2002).

From a personal perspective, this finding highlights the complexity of the dependency dimension. It suggests that children's emotional needs may vary significantly based on their perception of parental rejection, potentially evolving from a desire for acceptance to emotional detachment. This non-linear trajectory seems to align with interpersonal dynamics that change with increased rejection. In future studies, it would be important to explore how socio-cultural factors shape this development.

Another finding obtained from the study showed that perceived acceptance-rejection from the father played a partial mediating role for both girls and boys in the relationship between perceived acceptance-rejection from the mother and general psychological adjustment, positive self-adequacy, emotional responsiveness, and positive worldview. In other words, the father has an effect that partially strengthens the mother's effect in terms of the mentioned dimensions. To the best of our knowledge, no research has been found in the relevant literature that examines it in the context of the mediation of the previously mentioned relationship. However, this result supports the findings of studies indicating that the possible effect of the father on the child should not be ignored rather than focusing only on the mother (Jeynes, 2016).

From our perspective as the researchers, these findings underscore the need to consider traditional assumptions about parental roles. While the mother is often seen as the primary caregiver, it is clear that the father's influence is also significant in shaping children's psychological outcomes, particularly in positive self-concepts. This challenges conventional thinking, especially in societies where father-child interactions may be culturally minimized, suggesting that fathers should be more actively involved in parenting for healthier development outcomes.

In addition, another finding obtained from the study is that while perceived acceptance-rejection from the father is a partial mediator for girls in the relationship between perceived acceptance-rejection from the mother and hostility and emotional stability for females; it has a full mediating role in the relationship between perceived acceptance-rejection from the mother and hostility and emotional stability for males. In other words, while factors other than paternal factors are also effective in this relationship for girls, only father acceptance-rejection in boys has a mediating role in the mentioned relationship. Although there is no study on the sub-dimensions of psychological adjustment in the relevant literature (as far as we know), the finding seems to support the relevant findings showing its effectiveness in boy-father interaction, especially in terms of hostility (Hussain & Munaf, 2012).

As researchers, we find these gender-specific findings particularly intriguing. It suggests that boys may be more sensitive to their father's acceptance-rejection, which could have implications for how we understand gendered parenting dynamics. Boys might model emotional stability and hostility management more closely on their father's behaviour, whereas girls may draw from a wider range of influences. Future research could delve into how cultural and familial expectations of gender roles shape these dynamics and further clarify why boys appear to be more influenced by paternal figures in certain areas.

Finally, the finding obtained from the study was that perceived acceptance-rejection from the father did not have any mediating role in the relationship between perceived acceptance-rejection from the mother and self-esteem, for both girls and boys. In this context, it is seen that self-esteem is only related to acceptance and rejection perceived by the mother, and the father has no effect on both girls and boys. However, this result has not previously been described. Preliminary work on this subject was undertaken by many researchers and findings suggest that interaction with both parents is important for the development of self-esteem (Keizer et al., 2019; Amat, 2014). Furthermore, studies focused solely on fathers also found a significant association between father-child interaction and self-esteem (Antonopoulou et al., 2012). Even if this finding contradicts the previous works, it is also in line with findings related to the association between socioeconomic status (SES) and self-esteem. Findings suggest that SES is a significant predictor of self-esteem, specifically lower SES may lead to lower self-esteem (Malka & Miller, 2006). In this study, research data were obtained from children living in an area that represents a relatively lower socio-economic level so, this finding related to self-esteem can be affected by SES. To develop better understanding, findings must be replicated in a different sample from different SES in the future.

In our view, this finding, while unexpected, aligns with broader research indicating the complex role of socio-economic factors in shaping self-esteem. Given the lower socio-economic status of the sample in this study, it's plausible that the mother's role is more pronounced, as fathers in such contexts might be less involved due to traditional or economic pressures. This suggests that the father's role in self-esteem development may be more context-dependent, and future research should explore how varying socio-economic environments influence these dynamics.

In line with the findings obtained, this study is thought to be important in three aspects. First, the study tried to contribute to revealing the points where the mother and father effects differ by examining the maternal and paternal acceptance and rejection levels together. The second importance of the study is the effects of mother and father acceptance and rejection levels on sub-dimensions of general psychological adjustment, which are lacking in the literature. Finally, the possible parental effects were examined in terms of child gender in the study, and it is observed that the literature shows a limited number of such studies.

On the other hand, the research has some limitations. One of these is the sample. Research data were obtained from children living in an area that represents a relatively lower socio-economic level. Therefore, the dominance of traditional roles in the region may have increased the effectiveness of the mother on the child, while the father is a more distant figure, which may have led to less activity on the child. In our opinion, this highlights the need for future studies to sample diverse socio-economic levels to examine how these cultural

and economic contexts affect the roles of both parents. Another limitation of the study is that it has single informants and a cross-sectional design, so it can be seen as a common method bias, but because of Harman's single factor score of .19 in the study, possible negative effects seem tolerable. However, future studies may use other methods to avoid this bias.

Author Note: This study was carried out within the scope of the first author's master's thesis, based on data collected in the current period.

Author Contributions: All authors have contributed to the conception and design of this study.

Funding Disclosure: No funding was provided for this study.

Conflicts of Interest: The authors declare no conflicts of interest.

Data Availability: The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Ethics Approval and Consent to Participate: Ethical approval for this research was obtained from the Okan University Ethics Committee with the decision dated 29.02.2016 and numbered Decision 17. The study was approved within the scope of the first author's master's thesis, and the researcher was permitted to proceed with the data collection as outlined in the submitted research proposal.

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RESEARCH ARTICLE

Investigation of the Effect of the Cognitive-Behavioral Approach Based Self Help Platform on Test, State, and Trait Anxiety of High School Students

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ABSTRACT

The aim of this study was to investigate the efficacy of a self-help platform based on cognitive behavioral therapy in mitigating test anxiety, state anxiety, and trait anxiety among high school students. The research employed a quasi-experimental design, incorporating pre-test and post-test measures, as well as experimental and control groups. The study sample consisted of 222 high school students from Türkiye, with 111 participants assigned to the experimental group and the remaining 111 to the control group. In the experimental group, the gender distribution was 28 male students and 83 female students. Similarly, in the control group, there were 31 male students and 80 female students. Data were collected using the Westside Test Anxiety Scale and the State-Trait Anxiety Inventory. Dependent samples t-tests were employed to examine the differences between the pre-test and post-test scores within the experimental and control groups. Independent samples t-tests were utilized to compare the post-test scores between the experimental and control groups. To assess the effects of the intervention after one month, dependent samples t-tests were conducted. The results indicated that the CBT-based self-help platform was significantly effective in reducing test anxiety, state anxiety, and trait anxiety among the students in the experimental group. Furthermore, this beneficial effect persisted during the follow-up assessment conducted one month after the intervention. There was no decrease in the test anxiety, state anxiety and trait anxiety scores of the students in the control group.

Anxiety has been one of the most researched concepts in relation to the personality traits of individuals in recent years. Anxiety has been the subject of many studies due to its complex nature and abundance of factors that may cause it. As there are many factors affecting it, some studies have focused on psychological factors, some on environmental factors, some on personal factors, and some on neurological factors. No matter which of these factors are, anxiety is a universal condition, and it creates positive effects from time to time but also brings about several negative problems when experienced intensely. Anxiety problems are common issues faced by adolescents, but they are often under-recognized and under-treated. The prevalence

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of anxiety has increased dramatically over the past decade, with the prevalence of anxiety among high school students at approximately 30% (AAP, 2025; Chang, 2021).

Spielberger (1972), who made the first notable studies on anxiety and then intensified these studies, categorized anxiety into two as state anxiety which is expressed as the perception of a situation or event as an unpleasant emotion accompanied by a physiological reaction in connection with the autonomic nervous system, and trait anxiety which is experienced in the form of individual tendency to perceive threat and danger in various situations.

Test refers to a situation involving the measurement or evaluation of knowledge and skills. Test anxiety is also considered as a form of state anxiety because it can occur as a result of exposure or possibility of exposure to any test. It is stated in various studies that test anxiety is a common situation among students and that approximately 35% of students experience test anxiety (Kaçan-Softa et al., 2015; Lufi et al., 2004; Şahin et al., 2006). This rate, which seems to be high, also causes students to experience various problems and difficulties at school. Examining the relevant literature reveals that people with test anxiety tend to have negative self-perceptions and expectations. They develop habits and attitudes of self-dislike in line with these negative self-perceptions and expectations, they have fears of anxiety-inducing situations, and they have excessive physiological activities and this excessive arousal before or during the test affect the person's assessment of the situation (Spielberger, 1972).

While it is seen in the literature that test anxiety has a cognitive, affective, and physiologically complex multidimensional structure and is defined as behavioral reactions in cases of assessment (Hancock, 2001; Hong, 1998), in another study, test anxiety is examined under four structures named as worry, tension, somatic symptoms, and thoughts unrelated to the test (Sarason, 1984). In addition, test anxiety is also considered as a negative emotional and cognitive response in situations where performance is measured and evaluated (Vogelaar et al., 2017). In a different study, test anxiety is handled as worry and emotionality (Sparfeldt et al., 2014; Liebert & Morris, 1967), and while worry is defined as cognitive distress related to the test, emotionality is expressed as physical symptoms (irritability, fear, physical discomfort, etc.) experienced during the test.

School counselors working in line with a plan and program at school determine a general goal, local goal, and some specific goals while preparing these plans. Some of these determined goals are related to student achievement. Tests are the most common way to measure student performance and achievement. Although testing is an inevitable part of education, this assessment method can sometimes cause a series of problems for students. Given that tests are important assessment tools in the Turkish education system, it is inevitable for many students to have problems with them (Kaçan-Softa et al., 2015).

One of these problems is the anxiety experienced by students during the process of preparation for a test or tests. Test anxiety is one of the important variables affecting student achievement. While students with a normal level of anxiety consider test situations as an opportunity to test their success, students with higher levels of anxiety perceive these situations as a threat and engage in a negative self-dialogue in test-related situations (Genç, 2013). Although anxiety is generally considered a negative situation, it is extremely necessary for our survival. A small amount of anxiety is of vital importance, otherwise we may not feel motivated enough to engage in our most basic duties (Kaçan-Softa et al., 2015). In this respect, school counselors are expected to carry out preventive or intervening studies on issues such as preparing for tests with individual and group work, effective and efficient study methods, and test anxiety. In order to be able to carry out these expected studies, the number of students the school counselor is responsible for is very important.

In the appointment of the permanent school counselors in Türkiye, the provisions of Article 21 titled "Permanent Recruitment of Counselors" of the Regulation on the Permanent Recruitment of Administrators

and Teachers in Educational Institutions Affiliated to the Ministry of National Education, published in the Official Gazette dated 18.06.2014 and numbered 29034, are taken into account. These provisions stipulate that a) For each level and type of private education institutions (to be given to those who have more students from private education institutions that provide education at different levels in the same building or garden), 1 permanent counselor post is given for a total number of 25 or more students, b) For each primary school with a total number of 300 or more students and for each secondary school and Imam Hatip secondary school with a total number of 150 or more students, 1 permanent counselor post is given, c) For each of secondary schools having a total number of 150 or more students, 1 permanent counselor post is given, ç) Regardless of the number of students, for each of boarding schools, 1 permanent counselor post is given, d) When a permanent counselor post cannot be given as the number of students is not enough in primary and secondary education institutions in central districts, 1 permanent counseling teacher post is given to the school with the highest number of students, e) For each of the vocational training centers with 200 or more apprentices and trainees, 1 permanent counselor post is given. Although these numbers of permanent posts seem optimistic, there are schools that do not have a school counselor and there are schools where the number of students is too high but there is just one school counselor. Considering the high number of students that school counselors have to deal with in each school in Türkiye, it seems very difficult for school counselors to deal with each student individually and for a long time, especially with students having high-test anxiety.

The school counselor-student ratio recommended by the American School Counselor Association (ASCA) is one school counselor per 250 students (ASCA, 2023). Although there are no statistics on this issue in Türkiye, it is thought that the number of students per school counselor is much higher. Therefore, it seems extremely functional and practical in terms of time to apply self-help practices, which form the basis of this research, to students experiencing test anxiety problems by school counselors.

Self-help is the general name of scientifically based practices that help people individually apply scientifically proven methods through various tools and thus help them cope with psychological problems. Self-help should not be perceived as the individual conducting self-help therapy with their own means. What is important is to enable the individual to do something by themselves through some guidance (Williams & Chellingsworth, 2010). Here, guidance can be provided with a book, a sound recording, or it can be done through software offered online over the internet or applications used via smart phones as a result of developing technologies. Online interventions generally consist of staged activities. The individual works on the content presented to them by creating an account on the software. This content can be in the form of text, animation, video, or it can include forms and measurement tools that the individual will fill out. Web-based interventions can include expert guidance or can be designed to be completely autonomous. In times of increasing psychological symptoms and problems, web-based interventions are increasingly used because the number of available specialists may be insufficient to meet the applications, and preventive intervention programs can prevent problems before they reach the clinical level. Barak et al. (2009) define internet-based support interventions as a user-directed, structured intervention program run through an online program operated over a website and used by individuals seeking assistance for their health and mental health. In this context, three different types of web-based interventions can be mentioned. The first of these is educational content that only provides information. Another is the presentation of therapeutic interventions that individuals can use in the self-help process. The last category includes expert-assisted interventions. In these programs, the expert regularly informs the user. It is possible to add a fourth type, which includes artificial intelligence supported software, to these three types of intervention. These software programs include more advanced technology and autonomous interventions that can make decisions according to the needs of the user (Barak et al., 2009).

Web-based interventions are generally designed as structures made up of successive modules. In these interventions, individuals are registered in the system, or they register themselves. They then use the applications determined by the person who developed the intervention. These applications can also be designed to be interactive with the user from time to time. Interventions generally begin with an assessment

module. Then, it continues with the content that offers psycho-education about the problem area to the user. In the following modules, interventions specific to the theoretical approach on which the program is based are presented online (Doğan, 2021).

In the international literature, there are studies conducted with the participation of children, adolescents, and university students on the use of networked, web-based, and self-help applications to address mental health (Levin, Hayes, Pistorello, & Seeley, 2016; Viskovich, 2019), resilience (Herrero et al., 2019; Levin et al., 2016), self-care (Viskovich, 2019), depression (Abeles et al., 2009; Deady et al., 2014; Hoek et al., 2012; O'Kearney et al., 2006; Sethi et al., 2010; Makarushka, 2011; Stallard et al., 2011), anxiety disorder (Vigerland et al., 2016), social anxiety (Furmark et al., 2009), anxiety disorders and phobias (Botella et al., 2010; Hoek et al., 2012; Khanna & Kendall, 2010; Sethi et al., 2010; Spence et al., 2006; Spence et al., 2011; Stallard et al., 2011; Vigerland et al., 2013), chronic fatigue syndrome (Nijhof et al., 2012), alcohol abuse (Deady et al., 2014), sleep disorders (Cliffe et al., 2018), headache (Trautmann & Kröner-Herwig, 2010), and career planning (Gati & Asulin-Peretz, 2011). When these applications are examined, it is seen that there are a few studies that include a web-based self-help application on university students' test, state, and trait anxiety, and that the studies include cognitive behavioral-based interventions (Alibak, & Alibak, 2021; Chancey et al., 2023; McEwan et al., 2018; Orbach et al., 2007; Tzvi, 2018). It is seen that there are a few studies include cognitive behavioral-web based interventions on high school students' anxiety and anxiety disorders (Bevan-Jones et al., 2023; Nordh et al., 2017; Radomski et al., 2019; Stjerneklar et al., 2018; Stjerneklar et al., 2019). It is not seen that there is any research that includes a web-based self-help application with cognitive behavioral techniques on high school students' test, state, and trait anxiety.

When the studies conducted in the field of counseling and guidance in Türkiye are examined, it is seen that the use of networked, web-based, and self-help programs is limited (Buğa & Hamamcı, 2016; Çetintulum-Huyut, 2019; Doğan, 2011; Özer & Ceyhan, 2021; Özer et al., 2023; Psybot, t.y.). Buğa and Hamamcı (2016) investigated the effects of web-based interactive and traditional psycho-educational programs based on cognitive-behavioral approach on children's cognitive errors and psychological symptoms, and as a result of the analyses, the cognitive errors of students involved in both web-based interactive and traditional psycho-education programs were found to have decreased after the application, and this decrease continued in the follow-up periods. Doğan (2011) investigated the effect of networked counseling application on the career development levels of 8th grade students and reached significant results. Moreover, as a result of the literature review, an application called Psybot (<http://www.psybotapp.com/>) was also encountered. The Psybot application was prepared as a mobile application developed for mental self-help, and the techniques in it were prepared according to the principles of cognitive therapy and schema therapy. An internet-based self-help application based on the cognitive behavioral therapy (CBT) approach was developed by Özer and Ceyhan (2021) during the pandemic period. The platform includes three modules on depressive mood, anxiety, and stress, and one relaxation exercise module. Each of the modules consists of five sessions created in stages. The platform, which functions as a self-help intervention without expert support, aims to help users manage their psychological symptoms. In addition to these studies, Çetintulum-Huyut (2019) showed that the use of internet-based CBT applications in the treatment of social anxiety disorder, panic disorder (with or without agoraphobia), generalized anxiety disorder, and specific phobia is increasing. In the treatment of anxiety disorders, internet-based, therapist-supported CBT applications and therapist-assisted group applications have been evaluated as the last period alternatives to traditional face-to-face therapies. As can be understood from the limited studies in Türkiye, there are few studies that include internet and web-based applications, and only two of them are web-based self-help applications. When these studies are examined, it is seen that they are not related to high school students' test, state, and trait anxiety.

Due to the above-mentioned reasons, it is clear that the field of counseling and guidance cannot be left out of these developing technologies. The use of web-based self-help applications will not only ensure that counseling services are supported by technology, but might eliminate the limitation of counseling services to working hours during the day. As a result of the integration of counseling and guidance services with

technology, students who could not otherwise benefit from these services for various reasons will have the opportunity to reach them. In addition, it will provide individuals the opportunity to benefit from counseling and guidance services from their home or any place where there is an internet connection.

The current study, encompassing the development of a web-based self-help application, is considered important in terms of demonstrating and supporting the functionality of technology use in counseling services, supporting existing limited studies, and pioneering new studies. It is anticipated that this research will contribute substantially to the knowledge base regarding test anxiety, state anxiety, and trait anxiety. Additionally, the findings are expected to aid school counselors in their efforts to mitigate these forms of anxiety among high school students. By leveraging this self-help platform, school counselors can allocate their time more effectively, given their demanding workloads, while simultaneously providing counseling and guidance services beyond the confines of the school setting.

The overall aim of this study is to examine the effectiveness of a CBT-based self-help platform in reducing test, state, and trait anxiety in high school students. To this end, the following hypotheses have been formulated:

H1: When comparing the test, state, and trait anxiety pre-test and post-test scores of the experimental and control groups, the post-test scores of the experimental group will show a significant decrease.

H2: When comparing the test, state, and trait anxiety post-test scores of the experimental and control groups, the post-test scores of the experimental group will be significantly lower.

H3: When comparing the test, state, and trait anxiety post-test and follow-up scores of the experimental group, there will be no significant differences between them.

Methodology

Model

A quasi-experimental design with pre-test, post-test, and follow-up measurements and experimental and control groups was used in the study. Quasi-experimental designs are those in which random assignment is not made but a matching is involved. In the paired quasi-experimental design, two of the ready-made groups are tried to be matched on certain variables (Büyüköztürk et al., 2024; Tabachnick & Fidell, 2007). In this study, participants were not randomly selected from a large population. Since sampling could not be done randomly from the universe, a complete experimental design could not be reached. All participants were evaluated. The participants were divided into two groups and the groups were assigned as experimental and control on a voluntary basis. In addition, pairings were made according to gender and pre-test scores.

Study Group

The research was conducted with a study group of 222 high school students from Burdur, Türkiye. Participants were assigned to either the experimental group ($n = 111$) or the control group ($n = 111$) on a voluntary basis. In the experimental group, the gender distribution was 28 (25.2%) male students and 83 (74.8%) female students, with a mean age of 16.65 years. Similarly, in the control group, there were 31 (27.9%) male students and 80 (72.1%) female students, with a mean age of 16.72 years. The demographic composition of the study group suggests a balanced representation of gender and age across both the experimental and control groups, facilitating a rigorous evaluation of the intervention's effectiveness. Statistical analyses were performed to determine whether the test, state, and trait anxiety pre-test scores of the two groups were similar; and it was found that they were similar (Test anxiety, $t(220)=-1.291$, $p>.05$; State anxiety, $t(220)=1.082$, $p>.05$; Trait anxiety, $t(220)=.253$, $p>.05$).

Tools and Data Collection

Westside Test Anxiety Scale: Developed by Driscoll (2007), this scale was adapted into Turkish by Totan

and Yavuz (2009), who conducted validity and reliability studies. Totan and Yavuz (2009) determined that the explained variance of the scale was 46.05% in the descriptive factor analysis, and that there was a one-dimensional structure with factor loadings between .32 and .78. They found that the one-factor structure of the scale was confirmed in the confirmatory factor analysis ($\chi^2 = 155.02$, $df = 42$, $\chi^2/df = 3.69$, CFI = .97, RMSEA = .05). They reported that the test-retest validity of the scale, whose item total correlations were between .47-.71, was .57 and the Cronbach alpha coefficient was .89. Totan (2018) examined the one-dimensional structure of the scale in middle and high school students with confirmatory factor analysis. Confirmatory factor analysis using maximum likelihood estimation was modeled at the first level. According to the results obtained, the goodness of fit indices of the models at the middle school ($\chi^2 = 137.96$, $df = 44$, $\chi^2/df = 3.14$, CFI = 0.97, SRMR = 0.003) and high school ($\chi^2 = 128.33$, $df = 44$, $\chi^2/df = 2.92$, CFI = 0.96, SRMR = 0.003) levels were at a sufficient level. While the standardized parameter estimates of the scale at the middle school level were between 0.57 and 0.79, they were positively loaded between 0.49 and 0.80 and were statistically significantly ($p \leq 0.05$) in the high school. The reliability analyses of the Westside Test Anxiety Scale were conducted using internal consistency and test-repeat methods. In the analyses conducted for reliability examination, it was found that the Cronbach alpha value of the scale was 0.92 in middle school students and 0.91 in high school students. In the test-repeat reliability analyses where measurements were repeated at two-week intervals, a significant relationship ($p \leq .001$) was determined between the two applications at the level of .72 in middle school and .74 in high school. In the reliability analysis conducted on the data of this study, Cronbach Alpha coefficient was found to be .92.

State-Trait Anxiety Inventory (STAI): Originally developed by Spielberger et al. (1970), the STAI was adapted into Turkish by Öner and LeCompte (1983). The scale consists of 40 items in total, 20 of which evaluate state anxiety and 20 evaluate trait anxiety. For the trait anxiety subscale, test-retest reliability coefficients ranged from .71 to .86, while for the state anxiety subscale, they ranged from .26 to .68. Internal consistency and test homogeneity calculated using the Kuder Richardson 20 formula, yielded values between .83 and .87 for the state anxiety subscale, and between .94 and .96 for the trait anxiety subscale. Construct validity analysis revealed correlation coefficients between .52 and .80 for female students, and between .58 and .79 for male students, when compared to other anxiety scales. Moreover, the construct validity of both scales was tested experimentally on healthy and patient groups within the framework of the two-factor anxiety theory. The fact that state anxiety first increased and then decreased before and after important and stressful events, the fact that such a change in trait anxiety was not significant, supported the hypotheses derived from the theory, and was evaluated as an indicator of the construct validity of the inventories. The results of the applications made by Öner and LeCompte (1985) for periods ranging from 10 days to 1 year revealed that although there were increases and decreases in state anxiety scores under changing conditions, there were no significant changes in the trait anxiety scores of the same individuals. In the reliability analysis conducted on the data of this study, the Cronbach Alpha coefficient was found to be .61 for state anxiety and .62 for trait anxiety.

In the data collection process of the study, ethics committee permissions were obtained, and necessary institutional permissions were obtained. High schools volunteering to participate in the study were visited and the study was continued with students who volunteered to participate in the study. Each student was invited to the guidance service, a consent form was signed, and permission was obtained from their family. The experimental study and data collection were carried out by going to the school where the student was studying, during counseling hours or after class.

Experimental Procedure

The initial phase of the study involved an extensive literature review to inform the development of a web-based self-help platform targeting high school students' test anxiety, state anxiety, and trait anxiety. The literature search revealed that the cognitive-behavioral approach is the most effective intervention strategy for anxiety and test anxiety. Consequently, the decision was made to employ this approach in designing the self-help platform. The platform was developed by incorporating various components, including videos, audio recordings, and informational texts grounded in cognitive-behavioral principles. Additionally,

relaxation activities and relevant links were integrated to provide comprehensive support for mitigating test anxiety, state anxiety, and trait anxiety among high school students.

The experimental process commenced with obtaining ethical clearance from the relevant committee (B...M...A...E...University, G.O:2022/805). Subsequently, collaboration was established with the principal and counselor of the participating school. The students were then informed about the study, and those who provided informed consent were pre-tested. Based on their pre-test scores, participants were assigned to either the experimental or control group. In the next stage, students in the experimental group were granted access to the web-based self-help platform through a personalized link. No intervention was conducted for the control group. Following the intervention, post-test measures were administered to both the experimental and control groups. Additionally, a follow-up assessment was conducted one month after the post-test to evaluate the sustained effects of the intervention. After the experimental study was completed and follow-up measurements were taken, the control group received the interventions applied to the experimental group.

Development of the web-based self-help platform on test, state, and trait anxiety

The self-help platform was developed by the researcher using the principles of the cognitive-behavioral approach. The content, including videos and audio recordings, was carefully curated and produced using CBT techniques. The platform comprised five distinct rooms, each serving a specific purpose within the intervention. During and after the development of the platform, opinions were obtained from three field experts who are authorities in the field of CBT. The platform consisted of a total of five modules and each module contained interconnected content. Depending on the participants' speed and module content, each module lasted approximately 40 minutes. Before the experimental applications, a pilot study was conducted with 10 high school students and their opinions about the platform were obtained. After interacting with the platform, students' opinions were positive and there were significant decreases in their post-tests.

Room 1: In this initial room, participants were required to complete the pre-test measures and familiarize themselves with brief introductory information.

Room 2: This room presented a comprehensive “Anxiety and Test Anxiety Information” bulletin, which participants were expected to read thoroughly.

Room 3: Participants were instructed to watch a series of videos in this room, including the Crocodile Metaphor, Theater Metaphor, Exam Soon, Profit and Cost Analysis, and Evidence Review. Additionally, they were provided with a text on opposing automatic thinking and fostering realistic thinking patterns.

Room 4: In this room, participants were first required to listen to audio recordings on Relaxation Exercise, Imagination Relaxation, and Safe Place. Subsequently, they engaged in coloring activities, explored an interactive aquarium, and participated in relaxation exercises accompanied by soothing music. Motivational quotes were also incorporated to provide additional support.

Room 5: Upon completing the activities in the previous rooms, participants were instructed to fill out the post-test measures by clicking on the “Post-tests” button. Finally, after reading an acknowledgment note, they were able to conclude their journey through the self-help platform.

This structured and comprehensive approach ensured that participants received a well-rounded intervention grounded in cognitive-behavioral principles, encompassing informational resources, experiential activities, and relaxation techniques.

Data Analysis

Prior to conducting the statistical analyses, the normality of the data distribution was assessed using the Shapiro-Wilk test. The results ($df = 111$, SW: .978-.989, $p > .05$) indicated that the pre-test, post-test, and follow-up data were normally distributed. Furthermore, an examination of the skewness and kurtosis values

revealed that they fell within the range of -1 to +1, further confirming the normal distribution of the data. Consequently, parametric analyses were deemed appropriate for analyzing the pre-test, post-test, and follow-up data (Büyüköztürk, 2024). First of all, an independent samples t-test was conducted to examine whether there was a difference between the pre-test scores of the test, state, and trait anxiety of the experimental and control groups, and it was seen that there were no significant differences between the scores of the two groups (Test anxiety, $t(220)=-1.291$, $p>.05$; State anxiety, $t(220)=1.082$, $p>.05$; Trait anxiety, $t(220)=.253$, $p>.05$).

After it was seen that the pre-test scores of the two groups were similar, a series of analyses were conducted to evaluate the effectiveness of the self-help platform:

1. Dependent samples t-tests were employed to examine the differences between the pre-test and post-test scores within the experimental and control groups.
2. Independent samples t-tests were utilized to compare the post-test scores between the experimental and control groups.
3. To assess the effects of the intervention after one month, dependent samples t-tests were conducted to compare the post-test and follow-up test scores within the experimental group.

This comprehensive analytical approach, involving both within-group and between-group comparisons, allowed for a rigorous evaluation of the self-help platform's efficacy in reducing test anxiety, state anxiety, and trait anxiety among high school students. The use of appropriate parametric tests, following the confirmation of normality assumptions, ensured the validity and reliability of the statistical inferences drawn from the study.

Results

1- Results related to the hypothesis that when comparing the test, state, and trait anxiety pre-test and post-test scores of the experimental and control groups, the post-test scores of the experimental group will show a significant decrease.

To investigate the effectiveness of the cognitive-behavioral approach-based self-help platform, a dependent samples t-test was conducted to compare the participants' pretest and posttest scores. The results are presented in Table 1.

Table 1. Dependent Samples T-Test Results Comparing Pretest and Posttest Scores of the Experimental and Control Groups

			n	\bar{x}	S	df	t	p	Cohen d
Experimental	Test	Pretest	111	35.44	8.66	110	8.969***	.000	0.85
		Posttest	111	28.95	8.97				
	State	Pretest	111	56.72	5.68	110	3.491**	.001	0.33
		Posttest	111	54.81	5.48				
	Trait	Pretest	111	51.56	5.46	110	2.155*	.033	0.20
		Posttest	111	50.45	5.42				
Control	Test	Pretest	111	36.94	8.59	110	-.708	.481	0.07
		Posttest	111	37.07	8.16				
	State	Pretest	111	55.70	8.12	110	-4.344***	.000	0.41
		Posttest	111	57.23	8.07				
	Trait	Pretest	111	51.31	8.98	110	-2.143*	.034	0.20
		Posttest	111	53.26	5.86				

*** $p<.001$, ** $p<.01$, * $p<.05$

As seen in Table 1, when the pre-test and post-test scores of the experimental group students were compared, it was determined that there was a significant decrease in the post-test scores (Test anxiety: $t(110) = 8.969$, $p < .001$, Cohen $d=0.85$; State anxiety: $t(110) = 3.491$, $p < .01$, Cohen $d=0.33$; Trait anxiety: $t(110) = 2.155$, $p < .05$, Cohen $d=0.20$). These findings suggest that the post-test scores of the experimental group students were significantly lower than their pre-test scores, demonstrating the effectiveness of the cognitive-behavioral approach-based self-help platform in reducing test anxiety, state anxiety, and trait anxiety. When the effect sizes are analyzed, it can be said that there is a large effect in test anxiety and a small effect in state and trait anxiety (Cohen, 1988).

In contrast, the significant difference observed in state and trait anxiety scores in the control group (Table 1) indicates an increase rather than a decrease in the post-test scores. This suggests that the control group students experienced an increase in state and trait anxiety when no intervention was implemented. This further emphasizes the positive effect of the self-help platform on the experimental group.

These results provide strong evidence that the developed self-help platform, grounded in cognitive-behavioral principles, was successful in mitigating test anxiety, state anxiety, and trait anxiety among high school students in the experimental group.

2- Results related to the hypothesis that when comparing the test, state, and trait anxiety post-test scores of the experimental and control groups, the post-test scores of the experimental group will be significantly lower.

To further evaluate the effectiveness of the cognitive-behavioral approach-based self-help platform, an independent samples t-test was conducted to compare the post-test scores of the experimental and control groups. The results are presented in Table 2.

Table 2. Independent Samples T-Test Results Comparing Posttest Scores of the Experimental and Control Groups

Posttest		n	\bar{x}	S	df	t	p	Cohen d
Test	Experimental	111	28.95	8.97	220	-7.062***	.000	0.95
	Control	111	37.07	8.16				
State	Experimental	111	54.81	5.48	220	-2.618**	.009	0.35
	Control	111	57.23	8.07				
Trait	Experimental	111	50.45	5.42	220	-3.708***	.000	0.50
	Control	111	53.26	5.86				

*** $p < .001$, ** $p < .01$

As seen in Table 2, there were significant differences between the experimental and control groups in test anxiety, state anxiety, and trait anxiety posttest scores (Test anxiety: $t(220) = -7.062$, $p < .001$, Cohen $d=0.95$; State anxiety: $t(220) = -2.618$, $p < .01$, Cohen $d=0.35$; Trait anxiety: $t(220) = -3.708$, $p < .001$, Cohen $d=0.50$). Specifically, the post-test scores of the experimental group were significantly lower than those of the control group, indicating that the self-help platform developed using CBT techniques was effective in reducing test anxiety, state anxiety, and trait anxiety. When the effect sizes are analyzed, it can be said that there is a large effect in test anxiety, a small effect in state anxiety, and a moderate effect in trait anxiety (Cohen, 1988).

These findings, in conjunction with the results from the dependent samples t-test (Table 1), provide compelling evidence for the efficacy of the cognitive-behavioral approach-based self-help platform. The significant differences observed between the experimental and control groups, with the experimental group exhibiting lower levels of test anxiety, state anxiety, and trait anxiety, further substantiate the positive impact of the intervention.

3- Results related to the hypothesis that when comparing the test, state, and trait anxiety post-test and follow-up scores of the experimental group, there will be no significant differences between them.

To assess the sustained effects of the self-help platform based on the cognitive-behavioral approach, a dependent samples t-test was conducted to compare the experimental group's post-test and follow-up scores. The results are presented in Table 3.

Table 3. Dependent Samples T-Test Results Comparing Posttest and Follow-up Scores of the Experimental Group

			n	\bar{x}	S	df	t	p
Experimental	Test	Posttest	111	28.95	8.97	110	-1.944	.054
		Follow up	111	29.08	8.89			
	State	Posttest	111	54.81	5.48	110	1.701	.092
		Follow up	111	54.62	5.66			
	Trait	Posttest	111	50.45	5.42	110	2.239*	.027
		Follow up	111	50.12	5.26			

*p<.05

When Table 3 is examined, when the post-test and follow-up tests of the experimental group were analyzed, it was seen that there was no significant difference between the post-test and follow-up test scores of Test anxiety ($t(110) = -1.944$, $p > .05$) and State anxiety ($t(110) = 1.701$, $p > .05$). However, a significant difference was observed between Trait anxiety post-test and follow-up test ($t(110) = 2.239$, $p < .05$).

These findings demonstrate that the positive effects of the self-help platform, developed using cognitive-behavioral techniques, were sustained over time for test anxiety and state anxiety.

These results provide evidence that the effect of the self-help platform based on the cognitive-behavioral approach on reducing test anxiety and state anxiety in high school students lasted for one month. The sustained benefits observed at the follow-up assessment highlight the enduring efficacy of this intervention.

Discussion

The present study aimed to develop a self-help platform using cognitive-behavioral techniques to address test, state, and trait anxiety in high school students. The results showed that the developed self-help platform was significantly effective in reducing test anxiety, state anxiety, and trait anxiety scores and that these positive effects were sustained over time.

The literature review revealed a paucity of research examining the development and evaluation of self-help platforms based on cognitive-behavioral techniques for test, situation, and trait anxiety. However, few studies have examined internet-based interventions using cognitive-behavioral techniques for anxiety and anxiety disorders in adolescents (Bevan-Jones et al., 20-23; Nordh et al., 2017; Radomski et al., 2019; Stjerneklar et al., 2018; Stjerneklar et al., 2019).

Stjerneklar et al. (2019) implemented 14 weeks of therapist-guided internet-based cognitive behavioral therapy (ICBT) for high school students with anxiety and found that ICBT might be an acceptable treatment option, even for those with relatively high levels of anxiety and depressive symptoms. Bevan-Jones et al (2023) demonstrated the significant impact of digital technologies in supporting adolescents with depression and anxiety. Stjerneklar et al. (2018) reported that a 12-week internet-based CBT intervention had a significant effect on anxiety disorders in adolescents. Nordh et al. (2017) evaluated the feasibility and efficacy of internet-delivered CBT with therapist and parent guidance, supplemented by group exposure sessions, for adolescents with social anxiety disorder (SAD). Their findings indicated that this approach is a promising intervention for adolescents with SAD. Radomski et al (2019) developed and implemented an internet-based CBT programs for anxious children and adolescents, which had a significant impact on reducing anxiety.

These studies supported the findings of the current study, highlighting the importance and potential of the internet and web-based applications in addressing adolescent concerns. However, it is noteworthy that the reviewed studies focused primarily on the short-term effects of such interventions on adolescent anxiety, while the long-term effects remained unexplored. In contrast, the current study not only demonstrated the

efficacy of the self-help platform in reducing test anxiety, state anxiety, and trait anxiety but also provided evidence for the sustained effects of the intervention.

Furthermore, the existing literature has not identified any self-help applications specifically developed using cognitive-behavioral techniques to target test, trait and state anxiety in adolescents. The present study addressed this gap by introducing a self-help platform tailored to these specific concerns, thereby contributing to the knowledge base and paving the way for future research in this area.

The results of the present study showed that the self-help platform developed using cognitive-behavioral techniques had both short-term and long-term effects on adolescents' test anxiety, state anxiety, and trait anxiety. Considering these findings, it is recommended that further studies with larger sample sizes be conducted to validate and extend the efficacy of this platform. Furthermore, given the willingness of adolescents to engage with the platform during the study, it is advisable to develop similar programs targeting other key areas of concern for this age group.

It is recommended that school counselors use the self-help platform to integrate technology into counseling services, provide practicality in terms of time, and encourage the use of this platform and similar applications. Furthermore, given that students are comfortable with technology and can easily adapt to its use, school counselors can encourage students to use such applications.

As with any research endeavor, the present study is not without limitations. As the intervention was an internet-based self-help platform, occasional internet outages posed a challenge during the implementation phase. In addition, the study was conducted in two high schools in a small city, so further research is needed to assess the impact of the platform in different geographical and cultural contexts.

Despite these limitations, the current study represents a significant contribution to the existing literature by introducing and evaluating an innovative self-help platform based on cognitive-behavioral techniques for addressing test, state, and trait anxiety among high school students. The positive findings and recommendations summarized here pave the way for future research efforts to encourage, inform, and develop interventions aimed at reducing state, trait, and test anxiety in adolescents.

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RESEARCH ARTICLE

Validation of the Academic Self-Concept Scale among Secondary School Students of Mbeya City Council, Tanzania

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ABSTRACT

Academic self-concept is a crucial psychological construct underlying a student's beliefs about subjects, the learning process, and educational outcomes. Students' self-belief about subjects and schooling impacts academic performance, consequently affecting educational and career advancement. Studies in Tanzania found that low school motivation, incorrect subject selection, and negative attitudes towards subjects are among several factors impacting secondary school students' academic performance. This study aimed to validate the Academic Self-Concept Scale (Reynolds, 1988) for Tanzanian secondary school students. The study employed a cross-sectional survey design in which 294 and 316 students from public secondary schools of Mbeya City Council in Tanzania were conveniently selected. Statistical Package for Social Sciences (SPSS) and Analysis Moment of Structure (AMOS) version 22.0 was used for data analysis. The statistical analysis yielded a four-factor solution explaining 63.70% of the total variance, consisting of 16 scale items. The extracted factors showed acceptable statistical indices as $\chi^2/DF=2.42$, CFI=.93, GFI=.91, TLI=.91, RMSEA=.067 and SRMR=.062. The scale and its sub-scales demonstrated convergent and discriminant validity as well as adequate internal consistency in Cronbach's Alpha ($\alpha>.7$). The results show that the four factors of the scale are valid and reliable to measure student's self-perception about their academic ability in Tanzania. According to the study, factors of the scale are reliable and valid for assessing academic self-concept in Tanzanian secondary school students.

Academic performance is a building block and determinant of a person's educational and career goals (International Labour Organization (ILO), 2020; Stipanovic et al., 2017). It is a criterion for judging academic accomplishment in education and training (Green et al., 2006; Marsh & Scalas, 2010). Among other factors related to academic performance, academic self-concept has been reported by several studies to influence the student's academic performance (Burger & Naudé, 2019; Iyengar et al., 2021; Marsh et al., 1988; Shavelson et al., 1976). The authors further clarify that students' academic self-concept underlies their beliefs about studies and schooling in general. According to Shavelson et al. (1976), there are two forms of self-concept: "non-academic self-concept", which encompasses social, physical, and emotional self-concepts, while "academic self-concept" is focused on beliefs, attitudes, and opinions regarding academic endeavours.

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In educational contexts, academic self-concept impacts students' educational and career goals. As Lohbeck (2020) asserts that student's academic success is impacted by their academic self-concept, which is favorably correlated with their self-esteem and self-perception.

Acosta-Gonzaga (2023) stresses that self-esteem is essential for students to engage in the learning process. Similarly, Korkmaz et al. (2021) and Gensowski et al. (2021) explain that self-perceptions relate to achievement in a particular academic discipline and are essential for educational outcomes. The school environment contributes to either a positive or negative development of academic self-concept, which affects the students' well-being and, consequently, their academic achievement (Bowman et al., 2021). The students' perceptions of themselves in the classroom impact their academic achievement, emotional states, self-concept, and self-esteem (Palenzuela-Luis et al., 2022). However, in educational settings, academic self-concept is more pronounced for the student's academic success and educational transition than other forms of self-concept (González-Nuevo et al., 2023).

According to Marsh (1990) and Skaalvik and Hagtvet (1990), students' academic success is influenced by their perception of themselves. Enhancing students' academic self-concept is crucial for the students' educational outcomes. Several models have explained the academic self-beliefs and success, including self-enhancement, which states that academic self-concept determines academic achievement. The skills development model considers that prior academic achievement motivates the development of academic self-concept (Guay et al., 2003; Marsh et al., 2005). The reciprocal model explains that students' perceptions of their academic aptitude and success have an impact on one another (Green et al., 2006; Marsh & Craven, 2006; Marsh & Martin, 2011; Skaalvik & Hagtvet, 1990). The models show that developing positive academic beliefs triggers studying behaviour and, consequently, academic achievement. Bong and Skaalvik (2003) add that academic belief encompasses self-efficacy, which is the ability to accomplish a certain task. Bong and Skaalvik emphasize instilling self-awareness and self-efficacy among students for academic accomplishment. Supervia et al. (2020) and Acosta-Gonzaga (2023) noted that students come from diverse backgrounds; therefore, identifying and supporting them is crucial to addressing their academic challenges.

Additionally, a student's academic performance is influenced by their assessment of their academic abilities and their self-description, which can be both good and negative (Marsh et al., 1988; Marsh & Shavelson, 1985). Student's belief about their academic ability develops through interaction with other students, teachers, and significant others in the environment (Flowers et al., 2011; Hansen & Henderson, 2019; Marsh & Martin, 2011; Perinelli et al., 2022; Reynolds et al., 1980; Seaton et al., 2014). In education, students compare themselves with others in the class or school as well as against the set academic standards through which their academic self-concept develops and is altered (Holm et al., 2020; Marsh et al., 2014; Marsh & Seaton, 2015; Skaalvik & Skaalvik, 2002). Students with low perception about their academic ability have low academic achievement, low school motivation, drop out, and wrong choice of subjects for their educational and career pathways (Trautwein & Möller, 2016). Educators, administrators, and school counsellors must evaluate students' academic self-concept to identify and develop support and intervention programmes for students with negative self-perceptions regarding their studies (Perinelli et al., 2022). In this situation, Postigo et al. (2022) suggest that students require assistance from classmates, parents, instructors, and others to cultivate a positive self-perception.

Reynolds's Academic Self-concept Scale (1988)

The milestone of the academic self-concept scale can be traced from Reynolds et al. (1980). Reynolds and colleagues initially developed and validated the academic self-concept scale using 427 college students in New York. The authors used the seven characteristics of self-concept, namely multifaceted, hierarchical, organized, stable, developmental, evaluative, and differentiable psychological construct (Shavelson et al., 1976), to develop the scale. Reynolds and colleagues underscore the influence of school environmental factors on the development of academic self-concept, such as reinforcement from teachers, motivation, and interactions with other people. Reynolds and colleagues generated a total of 59 pool items through which the correlation technique was used; items that correlated above 0.3 were included in the scale items. In the analysis, out of 59 pool items, 19 items were excluded, and 40 items were retained to form the final scale. The scale was reliable ($\alpha=.91$) for assessing the college students' academic self-concept. Later, Reynolds (1988) validated the scale

developed by Reynolds et al. (1980) using 589 college students in New York State through which he grouped the scale items into seven dimensions: grade and effort, study habits, peer evaluation, self-confidence, self-doubt, self-evaluation, and satisfaction. The scale showed high reliability ($\alpha=.92$), whereas, among the seven dimensions, four showed adequate reliability of above 0.7, whereas the three sub-scales (Self-confidence, Satisfaction, and Self-evaluation) yielded low reliability ($\alpha <.70$) due to few items in the sub-scales. The analysis yielded 52.6% of the total variance.

Furthermore, there has been extensive use of Reynolds's academic self-concept in education contexts. For example, studies by Morris (2020); Archer (2022); Haktanir et al. (2021), and Karaman et al. (2021) revealed that the scale had strong dependability among college students. The studies also reported that academic self-concept predicted the students' academic performance. In South Africa, Burger & Naudé (2019) used Reynolds's academic self-concept scale to study the predictors of academic success among fourth-year university students. Data analysis showed Cronbach's alpha of 0.92 and academic self-concept was significantly related to academic success among university students. Zheng et al. (2021) selected nine items from the 40 items of Reynolds' academic self-concept scale relevant to studying the influence of learning environments on academic self-concept among Chinese University students. The nine-item scale showed a reliability of 0.92, and further findings revealed that academic self-concept influenced cognitive learning among university students.

Similarly, by focusing primarily on items with strong loading factors, Covarrubias et al. (2020) reduced the 40-item Reynolds scale to 24 items. The condensed scale was used to examine the parent-student dialogue around grades and academic self-concept among Midsize State University students in the United States. The results showed that university students' social environments significantly improve their academic performance and academic self-concept. Conversely, Reynolds' scale was used by Sherrill (2020) to investigate the connection between one's academic self-perception, perceived social support, and internal and extrinsic motivation among North Central University students in the United States. The study revealed no significant relationship among the factors of the scale.

Although Reynolds's scale was developed to assess college students' academic self-perception, the scale has also been used in other levels of education. For example, Griggs (2019) modified Reynolds's scale to study academic belief of dual credit secondary career technical education grade 11th and 12th students, Vermont State, U.S. The study revealed no significant difference in academic self-concept among high school students. Also, the experimental study (Zulkarnaen, 2019) adopted the 40 items of Reynolds's scale to the constructive model of learning Mathematics among 10th-grade senior high students from public schools in Java, Indonesia. The scale showed an adequate reliability of 0.87. The study also found that constructive learning environment contributed to the formation of a positive self-perception about studies. The findings indicate that Reynolds's scale is valid and reliable in various geographical areas and levels of education.

In Tanzania, studies have reported academic difficulties that require intervention. For example, Ndalichako and Komba (2014) found that secondary school students face challenges in selecting subjects as their career pathways due to perceived negative attitudes towards some subjects, especially science subjects. Also, secondary school students have negative attitudes and perceptions and a lack of career awareness due to their diverse backgrounds, which affect school attendance and academic achievement (Pezzulo et al., 2022). Lubawa et al. (2021) admit that psychological challenges are evident among secondary school students in Tanzania. Lubawa and colleagues emphasize providing guidance and counselling services to enhance academic performance among secondary school students. Likewise, Chua and Mosha (2015) stress that proper school administration enhances academic performance. Other studies in Tanzania (Ibrahim et al., 2023; Mbise & Lekule, 2023; Paschal & Mkulu, 2020) found that extracurricular activities and teacher-student interaction, learner-centered teaching and learning approaches are essential strategies for students' schooling motivation, developing self-awareness, and reducing school dropouts. The studies credit psychological support to students for promoting a positive perception of teachers, studies, and the school environment. In the same way, Vaghela (2019) and Mahende (2021) in Tanzania underline that helping students understand their academic abilities is essential for academic achievement. Rugimbana and Mwila (2023) found that female students believe they are

incompetent and low achievers, hence contributing to school dropout and poor academic performance among secondary school students in Tanzania. Rugimbana and Mwila advocate instilling self-awareness among students to realize their societal potential regardless of gender and other socioeconomic tailbacks. Kibona and Nkya (2024) noted gender difference in Science, Technology, Engineering, and Mathematics (STEM) among secondary school students in Tanzania, where male students performed higher than females. The findings call for psychological intervention to raise academic self-efficacy among students.

Overall, research on the adoption, adaptation, and validation of the Reynolds' scale in Tanzania is scarce, despite the fact that studies have shown that the scale has been widely used to assess students' academic self-perception across a range of educational levels and geographic regions. Therefore, the present study focused on validating Reynolds' academic self-concept scale (1988) among secondary school students of Mbeya City Council in Tanzania. The study would contribute to the applicability of the scale in diverse environments.

Materials and Methods

Participants

The present study is quantitative and used a cross-sectional survey design. The study focused on public secondary school students of the Mbeya City Council, Tanzania. Through convenient sampling, two independent groups of form three students from ten secondary schools were selected for two phases of the study: Exploratory factor analysis (EFA) used 294 respondents where among them, 122(41.50%) were males and 172(58.50%) females while confirmatory factor analysis involved 316 among them, 183(57.91%) were males and 133(42.09%) females. The students' age in both cases ranged between 14 and 16 years. According to the education system of Tanzania, form three refers to the third year of study in secondary school.

Instruments

The scale developed by Reynolds (1988) to assess students' belief about their academic ability was used in this study. The scale consists of 40 items rated at four-point Likert scale with rating "1= Strongly Disagree" to "4= Strongly Agree", whereby minimum score=40 and maximum=160. The scale rating ranged from 1= Strongly Disagree and 4= Strongly Agree, whereby the minimum score=40 and maximum=160. The scale has seven subscales: Grade and Effort has eight items (2, 3, 4, 7, 8, 15, 25, 33), for example, "If I try hard enough, I will be able to get good grades"; Study habits with six items (22, 34, 40, 29, 27, and 38) for example, "I feel I do not study hard before the test"; Peer evaluation has eight items (9, 36, 17, 13, 6, 37, 28, and 32), for example, "others view me as intelligent"; Self-confidence has three items (10, 23, 16), for example, "most of the time while taking a test, I feel confident" Satisfaction has four items (31, 35, 1, 20), for example, "Being a student is a very rewarding experience" self-doubt has eight items (11, 30, 39, 21, 14, 24, 26, 5), and self-evaluation consists of three items (19, 18, 12). According to Reynolds, the seven scale factors contributed 52.6% of the total variance explained. The Cronbach's Alpha for the scale was 0.92, indicating strong reliability.

Procedure

The study focused on validating Reynolds's academic self-concept scale among secondary school students of the Mbeya City Council, Tanzania. Secondary schools and higher education in the United Republic of Tanzania use the English language as a medium of instruction; therefore, there was no need to translate the scale because the original scale was in English language. However, due to the difference in study contexts and education level of respondents, the research sought experts' opinions from the Department of Education and Psychology at the University of Mbeya University of Science and Technology and secondary school teachers in Tanzania to modify Reynolds's academic self-concept scale items. As the scale was initially developed for college students, the scale items 13, 14, 15, 18, 20, 24, 25, 33, 35, 37, and 39 were reworded to suit the context of secondary schools. The study was conducted from January to March 2023.

Data Analysis

The study used a statistical package for social sciences (SPSS) and AMOS version 22.0 for data analysis. The collected data were cleaned and coded according to the suggested seven factors of the original scale as GE-Grade and effort, SH-study Habit, PE-Peer Evaluation, SC-Self-confidence, SD-Self Doubt, SE-Self-Evaluation, and SAT-Satisfaction. The negatively worded scale items (4, 5, 8, 11, 19, 21, 22, 24, 26, 29, 30, 34, 38, 39

and 40) were reverse-coded. Prior to doing CFA, the researcher employed EFA, which involved principal component analysis (PCA). PCA is a technique of reducing items to a manageable size and determining the structure of the variables (Field, 2018, p. 991). The present study set the extraction of the scale items to eigenvalues above one and a factor loading of 0.4, as used in the original scale (Reynolds, 1988). Also, the Varimax rotation technique was used to determine the distribution of items among factors.

Ethical Statement

Prior to conducting the study, the researcher requested a permission letter for conducting a study from the educational authority of Mbeya Region, Tanzania. Permission to conduct a study was granted in a letter dated 14th November 2022, Ref. No. DA.191/228/01/435. The heads of schools, teachers, and students were fully informed about the study, and the students consented to participate.

Results

In EFA, the investigator started with determination of sample adequacy before further analysis. The analysis provided sufficient Kaiser-Meyer-Olkin (KMO), as suggested by Field (2018, p. 1014) that a value greater than 0.5 is sufficient for the analysis. Table 1 shows the statistical analysis for the sample adequacy.

Table 1. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.806
Bartlett's Test of Sphericity	Approx. Chi-Square	4282.266
	df	780
	Sig.	.000

Source: Field Data (2023)

Also, the data set was approximately normally distributed with mean (M)=3.43, standard deviation (SD)=.46, and Skewness=-.32 and kurtosis=.23.

The researcher performed an EFA to determine the appropriate number of factors explaining the academic self-concept. In the first attempt, the cross-loading, low factor loadings of less than 0.4 and low correlation among scale items through the correlation matrix were used to exclude scale items step by step. The scree plot and eigenvalue above one guided the extraction of the factors (Figure 1). The eigenvalue of one is reasonable for extracting the factors of the construct under study (Field, 2018, p. 1005). The Varimax rotation was also used to determine the distribution of items among the three factors. Figure 1 represents the scree plot in which four ASC scale factors (1, 2, 3, & 4) have been extracted during EFA.

Figure 1. The Scree Plot.

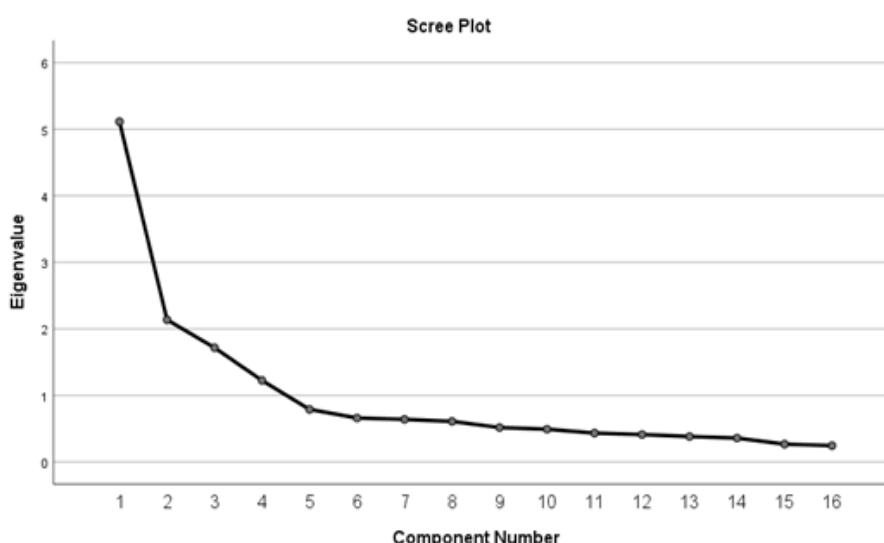


Table 2 shows the eigenvalues above 1 of the extracted factors as 31.96%, 13.35%, 10.73%, and 7.65% giving 63.70% of the total variance. The four-factor solution: grade and effort with six items, self-confidence with three items, study habits with four items and satisfaction with school having three items were extracted.

Table 2. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.113	31.956	31.956	5.113	31.956	31.956	3.603	22.518	22.518
2	2.137	13.353	45.310	2.137	13.353	45.310	2.468	15.423	37.941
3	1.717	10.732	56.041	1.717	10.732	56.041	2.104	13.149	51.090
4	1.225	7.654	63.695	1.225	7.654	63.695	2.017	12.605	63.695
5	.789	4.933	68.629						
6	.660	4.127	72.756						
7	.640	3.999	76.755						
8	.610	3.812	80.567						
9	.518	3.236	83.802						
10	.492	3.077	86.879						
11	.434	2.710	89.589						
12	.412	2.576	92.165						
13	.382	2.386	94.551						
14	.359	2.242	96.794						
15	.268	1.672	98.466						
16	.245	1.534	100.000						

Extraction Method: Principal Component Analysis.

Source: Field Data (2023)

Table 3. The Number of Items Extracted and Factor Loadings

Rotated Component Matrix ^a					
	Component				Communalities
	Factor 1	Factor 2	Factor 3	Factor 4	
GE7	.846				.739
GE2	.839				.591
GE25	.771				.734
GE3	.758				.610
GE15	.707				.623
GE33	.573				.439
SC23		.842			.742
SC10		.828			.659
SC16		.776			.730
SH34			.779		.629
SH38			.767		.692
SH29			.680		.613
SH27			.550		.495
SAT20				.779	.610
SATI				.737	.645
SAT35				.695	.642

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Source: Field Data (2023)

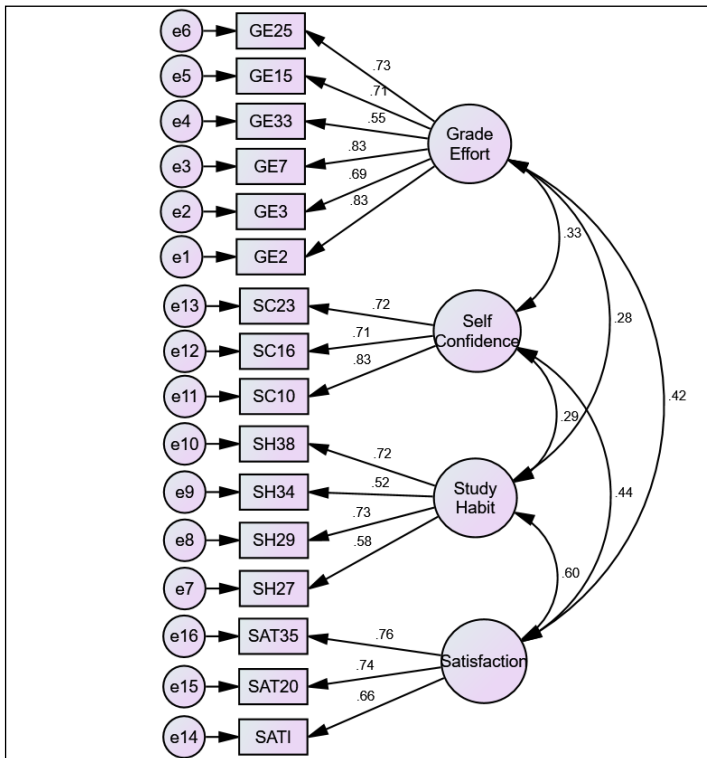
The reliability of the extracted factors in EFA showed adequate reliability: The 16-item ASC scale yielded Cronbach's Alpha (α) of .85, and its sub-scales showed adequate reliability: Grade and Effort (6 items) =.86, Satisfaction (3 items) =.72, study habit (4 items) =.71, Self-Confidence (3 items) =.72.

Table 4. The Scale Items Extracted

Factor		Item	Factor Loadings
Grade and Effort	GE2	"If I try hard enough, I will be able to get good grades in my studies"	.846
	GE3	"I am always rewarded at school when performing well in my examinations".	.839
	GE7	"I do well in my subjects when I spend enough time studying"	.771
	GE15	"In general, I am proud of my examination grades in school"	.758
	GE25	"For me, studying hard gives a good performance"	.707
	GE33	"I usually get the grades I deserve in my subjects"	.573
Study Habit	SH27	"I am good at scheduling my study time".	.779
	SH29	"I would like to be a much better student than I am now".	.767
	SH34	"I do not study as much as I should".	.680
	SH38	"In most of the subjects, I feel my classmates are better prepared than me"	.550
Satisfaction	SAT1	"Being a student is a very rewarding experience"	.779
	SAT20	"I am satisfied with the class assignments that I submit to my teachers"	.737
	SAT35	"I usually feel happy to complete my assignments on time"	.695
Self-Confidence	SC10	"Most subjects are very easy for me".	.842
	SC16	"Most of the time, while taking a test, I feel confident".	.828
	SC23	"Most of the examinations are easy for me".	.776

Source: Field Data (2023)

Figure 2. Confirmatory Factor Analysis Path Diagram



Source: Field Data (2023)

As a rule of thumb regarding CFA, Hu and Bentler (1999) suggest that “the Root-Mean-Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR)” range from 0 to 1, with a value of less than 0.08 acceptable for the good model fit, whereas Schumacker and Lomax (2010, p. 76) recommends a value of less than .05. Tucker–Lewis Index (TLI) and Comparative Fit Index (CFI) values close to 0.90 or 0.95 indicate a good model fit. CFI and TLI values closer to 1 indicate the best fit of the model (Bentler & Bonett, 1980; McDonald & Marsh, 1990). In addition, the ratio of chi-square to a degree of freedom (CMIN/DF) of 5 or less indicates a good model fit (Wheaton et al., 1977). Therefore, the researcher evaluated the model's fitness using RMSEA, SRMR, TLI, CFI, GFI and CMIN/DF indices. Table 4 represents the indices of the good fit model for CFA.

Table 5. Model Fit Index

Model-Fit Criterion	Acceptable Range	Model Output	Interpretation
X ² /DF	X ² /DF <5	2.42	“Good Fit”
CFI	Closer to 1 (CFI ≥ .90)	.93	“Good Fit”
TLI	Closer to 1 (CFI ≥ .90)	.91	“Good Fit”
GFI	Closer to 1 (CFI ≥ .90)	.91	“Good Fit”
RMSEA	RMSEA .05 to .08	.067	“Good Fit”
Standardized RMR	SRMR < .08	.062	“Good Fit”

Source: Schumacker and Lomax (2010); Hu and Bentler (1999).

Convergent Validity

In convergent validity, the factors measuring the same construct correlate significantly (Arthaud-day et al., 2005; Pike, 2006). The validity of the measurement model was assessed by “average variance extracted (AVE)” and “composite reliability (CR)”.

Fornell and Larcker (1981) suggest that convergent validity can be assessed by evaluating the AVE of the construct. The AVE of 50% and above is recommended. Fornell and Larcker caution that AVE is conservative, so the reliability of the entire construct can justify the convergent validity even though the value of AVE is less than 50%. According to the analysis, the sub-scales self-confidence, grade and effort, and satisfaction with school showed adequate reliability and AVE above 50% while the AVE of study habit was less than 50%, although its composite reliability (CR) is greater than the threshold value .70. According to the statistical analysis, the values of CR and AVE show that the four factors (Grade and Effort, Study Habit, Satisfaction, and Self-confidence) have convergent validity (See Table 6). Moreover, reliability is the measure of internal consistency of the scale in which a scale is said to be reliable when it has a value of 0.7 and above (Field, 2018, p. 1045). In the present study, the reliability of the scale and sub-scales were assessed using Cronbach's Alpha, where the 16-item ASC scale showed Cronbach's Alpha (α) of .85; and the four sub-scales showed adequate reliability above the threshold (0.7).

Table 6. Convergent Validity

Latent Variable	Number of Items	Cronbach's Alpha (α)	CR	AVE
Self_Confidence	3	.80	0.80	0.57
Grade_Effort	6	.87	0.87	0.53
Study_Habit	4	.74	0.74	0.42
Satisfaction	3	.76	0.77	0.52

In addition, Cheung and Wang (2017) clarify that when AVE and standardized factor loadings are less than 0.5, then the convergent validity is not significant. Table 7 shows the standardized loadings. According to Cheng and Wang, high factor loadings indicate convergent validity.

Table 7. Standardized Regression Weights

			Estimate
GE2	<---	Grade_Effort	.826
GE3	<---	Grade_Effort	.691
GE7	<---	Grade_Effort	.828
GE33	<---	Grade_Effort	.554
GE15	<---	Grade_Effort	.706
GE25	<---	Grade_Effort	.730
SH27	<---	Study_Habit	.577
SH29	<---	Study_Habit	.734
SH34	<---	Study_Habit	.523
SH38	<---	Study_Habit	.720
SC10	<---	Self_Confidence	.825
SC16	<---	Self_Confidence	.710
SC23	<---	Self_Confidence	.724
SATI	<---	Satisfaction	.664
SAT20	<---	Satisfaction	.742
SAT35	<---	Satisfaction	.757

Discriminant Validity

Discriminant validity is the tendency of the variables measuring the same construct to correlate more highly with each other than variables measuring different constructs (Schumacker & Lomax 2010). Fornell and Larcker (1981) state that the discriminant validity exists when the square root of the AVE of a latent variable is greater than its correlation with other variables of the construct under study. Also, Campbell and Fiske (1959) posit that discriminant validity can be seen when the variables measuring the same construct demonstrate higher intra-correlations than inter-correlations. Table 8 shows discriminant validity in which the square roots of AVE (the bolded diagonal values) are confined and concentrated to their own factors, which indicates discriminant validity. Also, the square roots of the AVE are greater than the correlations with other latent variables.

Table 8. Discriminant Validity

Latent variable	Self_Confidence	Grade_Effort	Study_Habit	Satisfaction
Self_Confidence	0.76			
Grade_Effort	0.33	0.73		
Study_Habit	0.29	0.28	0.65	
Satisfaction	0.44	0.42	0.60	0.72

Discussion

The present study aimed to validate the 40-item Reynolds ASC scale (1988) among public secondary school students of Mbeya City, Tanzania. Initially, the scale was developed to study ASC among college students in the U.S. (Reynolds et al., 1980). Due to respondents' differences in age, socioeconomic status, education, experience, and culture, it is crucial to evaluate a scale's applicability in a variety of settings (Ambuehl & Inauen, 2022). The study used EFA and CFA, as the steps are inevitable are essential for ascertaining the psychometric properties in developing, adopting, and adapting scales (Günel et al., 2020; Lirio et al., 2022; Matovu, 2014). In the current study, the researcher started with EFA, in which the factor loading of 0.4 and eigenvalue of one and above guided the extraction of scale factors. Through step-by-step in EFA, the seven factors of the original scale were reduced to four factors (Grade and Effort, Study habit, Satisfaction, and confidence) comprising 16 items (Fig. 1& Table 1). The four-factor solution yielded 63.70% of the total variance explained. Compared with the original academic self-concept scale, the EFA yielded a seven-factor

solution scale that explained 52.6% of the total variance, while in the present study, the four-factor solution accounted for 63.70% of the total variance. From the seven-factor of the original scale: Grade and Effort comprised eight items (2, 3, 4, 7, 8, 15, 25, 33); Study habits with six items (22, 34, 40, 29, 27, 38); Peer evaluation has eight items (9, 36, 17, 13, 6, 37, 28, 32); Self-confidence has three items (10, 23, 16); Satisfaction has four items (31, 35, 1, 20); self-doubt has eight items (11, 30, 39, 21, 14, 24, 26, 5), and self-evaluation having three items (19, 18, 12). The four-factor solution: grade and effort with six items (2, 3, 7, 15, 25, 33), for example, “If I try hard enough, I will be able to get good grades in my studies”; self-confidence with three items (10, 16, 23), for example, “Most subjects are very easy for me”; study habit with four items (27, 29, 34, 38), for example, “I am good at scheduling my study time” and satisfaction with school having three items (1, 20, 35), for example, “Being a student is a very rewarding experience”. The scale items of the four-factor solution loaded onto their respective latent variables.

In addition, the CFA ascertained the relationship among the four factors and variables of the validated ASC scale, as represented by Fig. 2. In addition, the statistical results showed the criteria for the model fit whereby relative Chi-square (X^2/DF) = 2.42, CFI = 0.93, TLI = 0.91, GFI = .91, RMSEA = 0.067, and SRMR = .062. According to the set standards (Hu & Bentler, 1999; Schumacker & Lomax 2010), the model fit indices indicate that the four factors adequately explain the academic self-perceptions of secondary school students. Using the AVE, CR, a comparison of the square roots of AVE and inter-correlations of the latent variables (Fornell & Larcker, 1981), the academic factor-solution of the ASC scale showed convergent and discriminant validity (See Tables 6 & 8). The findings indicate that the four factors feature to explain the ASC among secondary school students. The difference between the original scale and the validated one in the context of Tanzania reflects the idea by Cokley that the understanding of various academic self-concept expressions can vary across ethnic groups (Cokley et al., 2003). Similarly, it should be remembered that the original scale was developed for assessing academic self-concept among college students, so conceptualizing of things varies according to age and exposure to experience, as the present study used secondary school students (Marsh, 1990). The findings are consistent with Zheng et al. (2021), who found that nine items were reliable for studying academic self-concept among Chinese university students. Also, Covarrubias et al. (2020) found 24 items for students' academic self-concept among university students in the US. In addition, Griggs (2019) and Zulkarnaen (2019) in Vermont State, U.S. and Java, Indonesia, respectively, adapted the scale for assessing the academic self-belief of secondary school students. Although initially, the scale was developed and validated among college students, it is valid and reliable even for studying secondary school students' academic self-belief. The findings imply that although the scale can be valid and reliable in one context, it can differ according to the contexts and characteristics of the respondents, hence reflecting the idea that “no one size fits all.”

Nevertheless, students' beliefs about subjects and the school's psychosocial environment contribute enormously to the academic and career goals of the student (International Labour Organization (ILO) 2020; Stipanovic et al., 2017). Students in schools need support for academic achievement and promotion to higher education and career opportunities. So, supporting students facing academic challenges through individualized or group counselling and intervention services is central to students' academic prosperity. Research has indicated that students' self-beliefs about academic is one of the primary determinants affecting their academic performance (Burger & Naudé, 2019; Iyengar et al., 2021; Marsh et al., 1988; Shavelson et al., 1976; van der Aar et al., 2019). The scenario calls for assessing and monitoring the student's academic beliefs and inclination to academic undertakings. Therefore, the present academic self-concept scale for assessing students' academic beliefs has potential educational implications. The study findings have answered the pressing question of whether Reynolds's academic self-concept scale (1988) could be feasible for studying the secondary students' self-perceptions of their studies in Tanzania.

Limitations

The researcher used ordinary-level secondary school students of Mbeya City Council, Tanzania, to validate Reynolds's academic self-concept; therefore, it cannot be generalized to other levels of secondary schools. The study involved public secondary schools; the study could yield different results by using students from private and public secondary schools. Initially, the scale was developed for college students, but the present

study validates the scale using secondary school students, which might not adequately reflect the characteristics of the original scale, as some items were redundant for secondary school students.

Conclusion

The study aimed to validate the Reynolds academic self-concept measure among secondary school students in Mbeya City Council, Tanzania. The procedures for validating the scale led to the final model comprising four factors: grade and effort, study habits, satisfaction, and Self-confidence, making a total of 16 items. The statistical analysis in the present study established that the four-factor model acceptable the criteria for assessing secondary school students' academic self-concept. Therefore, the four extracted factors demonstrate characteristics for assessing the academic self-concept of secondary school students in Tanzania. However, the scale cannot fit all contexts as subjects differ in several factors, such as knowledge, culture, experiences, and attitude. The validated scale can be further validated in other contexts for scholarly advancement.

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Conflicts of Interest. The author declares no conflict of interest.

Data Availability. The data pertaining this study are available upon request from the corresponding author.

Ethics Approval and Consent to Participate. The approval to conduct the study was given by the respective authority with letter dated 14th November 2022, Ref. No.DA.191/228/01/435 and subjects' consent to participate in the study was sought.

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RESEARCH ARTICLE

A Systematic Review On Psychological Capital And Psychological Well-Being (1993-2023)

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ABSTRACT

In the literature, many studies have been conducted on the terms of psychological capital and psychological well-being over the last thirty years. However, it has been observed that the interest in these concepts has increased today. Most of the studies have been obtained at the relational level or with quantitative methods. However, the number of studies in which the constructs of psychological capital and psychological wellbeing are examined systematically or qualitatively is quite limited. In this research, a systematic mapping was made for the relevant concepts using R and Rstudio programs together, with the help of data obtained from Wos. In this way, potential researchers will be capable of seeing the conditions of the relationship between psychological capital and psychological well-being in the last thirty years and will be able to have deeper and clearer information about the levels of related concepts.

When we look at the most emphasised key concepts based on the analysis, it is sighted that keywords such as leadership, social capital, old age, hedonic well-being and good mood are at the forefront. When looking at niche areas of study, keywords such as climate change, adaptation, migration and innovation emerge. In other words, scientists doing research in the branches of administration and organisational or non-clinical psychology should look at graphs containing motor or basic concepts, if they want to do a deeper investigation and understand the subject in general. Based on these data, although the terms psychological capital and well-being are thought to be in the context of affirmative psychology, their relationship with the concepts that are popularly described as dark behaviours is also examined. By offering a systematic examination and guidance for the future, the data of the study adds something unique to the literature.

The term "Positive Psychological Capital" or "PsyCap" has been introduced into the managerial and organisational behaviour/psychology sciences in the last 20 years. The first studies in this field presented at inaugural annual Positive Psychology Conference held at the Gallup Organisation in 1999, following Martin Seligman's Presidential Address to the American Psychological Association in 1998. Rather than focusing primarily on the speech's flaws, he assigned the field the duty of identifying people's strengths. . Seligman sought a more equalised shift in study and practice that was focused on on greater optimism. Following the

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emergence of affirmative psychology, focusing on how psychology can move people from normal to extraordinary and successful, almost special care has been given to the correction of deviant and malfunctioning psychological issues rather than negative ones.

In mid-20th century, that is, for the following 50 years the Second World War, existence of organisations like the VA and the National Institute of Mental Health (VNIMH) contributed to many studies on negativities and how to cope with these negativities. This new impetus in psychological studies gave birth to affirmative psychology, which quickly led to Positive OCB and Psychological Capital, or PsyCap, seminal studies on psychological well-being and its impact on performance and, ultimately, well-being (Luthans & Broad, 2022).

Since it is hard to be mimicked by opponents, psychological capital is often seen to contribute greatly to a firm's competitive advantage. Psychological Capital (PsyCap) is generally known to influence workers' attitudes and behaviour, which in turn has a profound role in helping to enhance business performance (Newman et al., 2014).

PsyCap assesses the worker's sensitivity and emotional awareness and ensures that their motivation is unaffected by negative results. Therefore, it allows the person to foster creativity and novelty that can enhance business performance. A better comprehension of psychological capital will lead to improved personal and firm performance. In addition, affirmative psychological capital contributes to the firm's competitive advantage by helping to instil a motivating and empowering business climate. Hence, this will contribute to the efficient attainment of organisational goals with more strongly motivated members of the organisation. Psychological well-being was examined in this study together with psychological capital, and the situations between each other were tried to be presented homogeneously with the help of visual graphics.

Psychological Capital

With today's changes, the types of capital from which institutions gain competitive advantage have also changed. Types of capital that enable organizations to compete from past years to the present are financial, humanitarian, social, and psychological capital, which has gained importance recently (Luthans & Youseff, 2004; Akt: Güler, 2018). At this point, psychological capitalisation appeared in addition to other species of capital (social capital, humanitarian capital and financial capital) that ensure organizations with advantage of external competitiveness. Psychological capital is more advantageous than other types of capital (human capital, economic capital, social capital) in terms of providing competitive advantage (Polatçı, 2011). It finds new ways to develop especially the psychological capacities of human resources, in order to achieve sustainable sources of competitive advantage. Investing in, using, developing and managing psychological capital provides different sources of advantage, such as the development of human resources that can be sustained in the long term, in addition to the advantage provided by traditional resources (Luthans, Youseff & Avolio, 2007).

The notion of psychological capital has an essential value place in the business world to increase work efficiency and performance (Met, 2010; Cited in: Kaya, 2012). The notion of psychological capital is a superior positive construct made up of four facets: efficacy, positivity, hopefulness, optimism and tolerance. This structure is referred to as "positive psychological growth state of the self". In this context, psychological capital has four components, namely Self Efficacy, prospect, meliorism and flexibility, which are favorable, unique, measurable, improvable, and best explain the performance-related measures of organizations (Luthans et al., 2007).

Stajkovic and Luthans (1998) define self-efficacy as "a person's confidence in his or her incentive, cognitive sources, and abilities to fulfil a given task effectively" (Luthans, Youseff, & Avolio, 2007). Self-efficacy is not about how perfect a person is in her skills, but rather an indicator of her belief in her own skills (Özkalp, 2009). In this context, individuals with self-efficacy see the power to overcome the difficulties they face, thanks to their belief in their abilities. Being optimistic is linked to making favourable attributions and having positive anticipations for upcoming situations (Luthans et al., 2007). Most psychologists see the concept of optimism as an individual difference inherent in people and define optimism as the power of positive thinking (Coleman, 1995; Akt: Karacaoğlu & İnce, 2013).

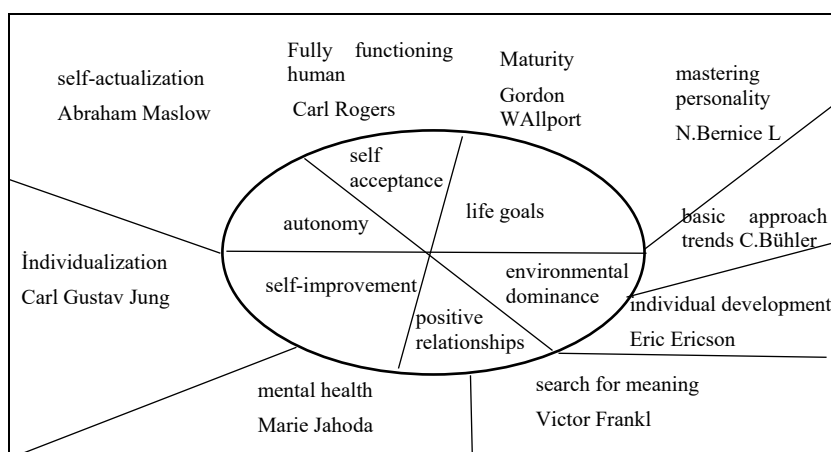
According to Snyder and Lopez (2007), hope is goal-oriented thinking by providing the necessary motivation to discover paths to success, one's desired targets and to progress on this path. This definition expresses the idea that individuals can set aims for them, draw the essential route to attain these targets, and achieve their goals by motivating themselves on this path. Resilience is defined as a person's ability to do the following; dealing with it effectively and smoothly when faced with a major shift, adversity or risk. This ability of the individual changes over time and the individual can be strengthened by ambient factors (Stewart, Reid, & Mangham, 1997).

Psychological Well-being

"Eudemonics (Psychological Functioning)", which is related to human potential, is a concept that emerged in the 1980s with clinical psychological studies that emphasize the realization of human potential and self-understanding (Ryan & Deci, 2001). According to Ryff and Keyes (1995), psychological well-being is the feeling of meaning, importance, and self-sufficiency; a sense of control and the power to live one's life in the face of all internal or external difficulties directed against the individual.

Ryff (1995) produced important studies on psychological well-being and drew attention to the positive functionality aspects that are missing in subjective well-being studies. In his work on the concept of psychological well-being, he investigated various approaches in indication psychology, psychic health, and developing psychology and developed a model that includes the basic dimensions and approaches to the basics of psychological well-being by integrating these approaches.

Figure 1. Theoretical Foundations and Basic Dimensions of Psychological Well-Being (Ryff and Singer, 2008)



This model was created to achieve psychological well-being as a result of Ryff's (1995) extensive literature; Maslow's (1968) understanding of self realization; Rogers' (1961) complete working capacity; Jung's (1933) individualization; Allport's (1961) basic concepts; Erikson's (1959) psychosocial stages; Buhler's (1935)'s life; Neugarten's (1968) definitions of identity transformation in adolescence and old adulthood; and Jahoda's (1958) positive benchmarks for emotional care. In this model, which includes theoretical expressions from which well-being is derived, some theories for each dimension are explained by combining different elements.

The components of psychological well-being encompass feelings of self-acceptance, which involves favourable views of one's previous experiences and of oneself; personal development, which involve a sense that one is growing and developing as an individual; meaning in life, which involves a feeling that one's life is meaningful and purposeful; and a sense of honesty and trust in quality interpersonal interactions. It consists of the concepts of positive interactions with other people, control of the environment, which includes the ability to effectively handle one's life and the life around one, and autonomy, which includes the ability to make self-decisions (Ryff and Keyes, 1995). Each component of psychological well-being expresses the ways

individuals can overcome various difficulties they encounter when they strive to live positively (Keyes, Shmotkin, & Ryff, 2002).

In this study, the notions of psychological capital and psychological well-being, which are highly valued in the field of management and business and non-clinical psychology, were discussed by scanning the WOS in the context of management, business, organisational behaviour and non-clinical psychology studies. Thus, potential researchers were both given information about the subject and the studies. Its tendency has been systematically examined with different evaluations.

Materials and Methods

Since the application of the research is done by interpreting ready-made data, no ethical permission is required. The study consists of research on psychological capital and psychological well-being in Web of Science (WoS) databases. Based on the review of the literature, it is stated that more than one bibliometric analysis or statistical package program can be used at the same time in making bibliometric analysis (Aria & Cuccurullo, 2017).

The research application was carried out on 05.05.2024 with the help of the R Studio scanning program added with the R program. While making the analyses, no year or language quota was imposed. However, in order to eliminate the complexity of the subjects and create a field-specific map, only non-clinical psychology, management, business concepts were preferred. The study included printed articles and articles that were considered to be in early view..

Donthu et al. (2021) emphasize that there are many techniques in the data regarding bibliometric analysis; some of them are basic techniques and some are auxiliary (enriching) techniques. Researchers have emphasized that performance analyses and science maps are among these basic techniques, and network analyses are among auxiliary techniques. These basic or auxiliary analyses are included in this study.

In the first stage carried out in the bibliometric analysis technique, research on the concepts of psychological capital and psychological well-being in WoS databases was analysed. Then, overall information about the subject is given. The relationships between these concepts are discussed with different techniques. At the same time, when these concepts are popular, which author is an authority in the field, whether the concepts have increased over the years, in other words, the level of interest has been revealed. Analyses WoS retrieved using database. Thus, it is thought that future research on the subject will make a unique contribution to the literature and provide guidance. In addition to all these, the countries of the scientists, their thematic development processes, and similar and different aspects draw an important road map on the subject. While conducting research in the application program, keywords and years should be taken into account. No limitation has been imposed. According to the analysis results, studies in the WoS database between 1993 and 2023 are discussed. The research seeks answers to the questions shown below:

Questions Regarding the Purpose of the Research

The paper is anticipated to respond to the following asks and contribute to the literature.

- Research on psychological capital and psychological well-being in the WoS database.
- What is common knowledge about psychological capital and well-being studies?
- What are the top journals, authors and keywords that publish the majority of studies on psychological capital and well-being?
- What is the density of use of keywords emphasised by researchers in psychological capital and psychological well-being papers by year?
- What keywords (thematic process) have been highlighted in psychological capital and psychological well-being studies from the past to the present?
- What is the rate of publishing journals on psychological capital and well-being research over time?
- What is the productivity level of authors who publish on psychological capital and psychological well-being research over time?

- What are the origins of researchers publishing on psychological capital and well-being?
- Who are the world's most frequently cited researchers in psychological capital and well-being?
- What is the concentration of keywords emphasised by writers in studies on psychological capital and psychological well-being?
- What is the connection between psychological capital and psychological well-being studies (peer-association network)?
- What are the keywords that are dense and central (engine themes) in the map?
- What does research on psychological capital and well-being mean for organisations?

Method

Interest in bibliometric analyses is increasing today. In parallel, there is a tendency to increase knowledge. For this reason, bibliometric analysis makes important contributions to studies in any field by providing a systematic perspective (Ellegaard, 2018). With today's technology, time passes faster and the number of studies increases rapidly to keep up with it, making it very difficult to follow up in the relevant scientific fields. For this reason, bibliometric analyzes offer valuable contributions as a guide to future researchers (Wang & Ngai, 2020). In other words, bibliometric analysis is a way of working that makes sense of global studies in certain fields based on academic publication outputs using databases such as Scopus, Web of Science (WoS), PubMed or OPenAlex (Alsharif et al., 2020).

Bibliometric analysis can reveal descriptive and related key figures. By research topic; charts can be generated by publication rate, date of publication, origin, country and institution. It is possible to draw conclusions about the key terms, notions, categories and links highlighted by the authors (Danvila-del-Valle et al., 2019). The methods and quantitative study of the production, growth, aging and use of scientific papers are revealed through the use of bibliometrics (Moral-Munoz et al, 2020, p. 2). Through bibliometric analysis, it contributes to the investigation of research topics that are of interest in the international literature and to the generation of new ideas or perspectives.

The R program is a very flexible program that can interpret many data at the same time (Aria & Cuccurullo, 2017). In the research, the RStudio package program, which does not need to enter syntax, was used to create mapping and graphics (Riahi et al., 2021). In the field, Khanra et al. (2020) list the steps to be followed for bibliometric analysis in intellectual applications as follows:

- Bibliographic links
- Quote analysis
- Prestige analysis
- Synonym analysis

Bibliographic links, citation analysis, prestige analysis and synonymy analysis are included in the bibliometric analysis method. These data are examined in terms of psychological capital or psychological well-being.

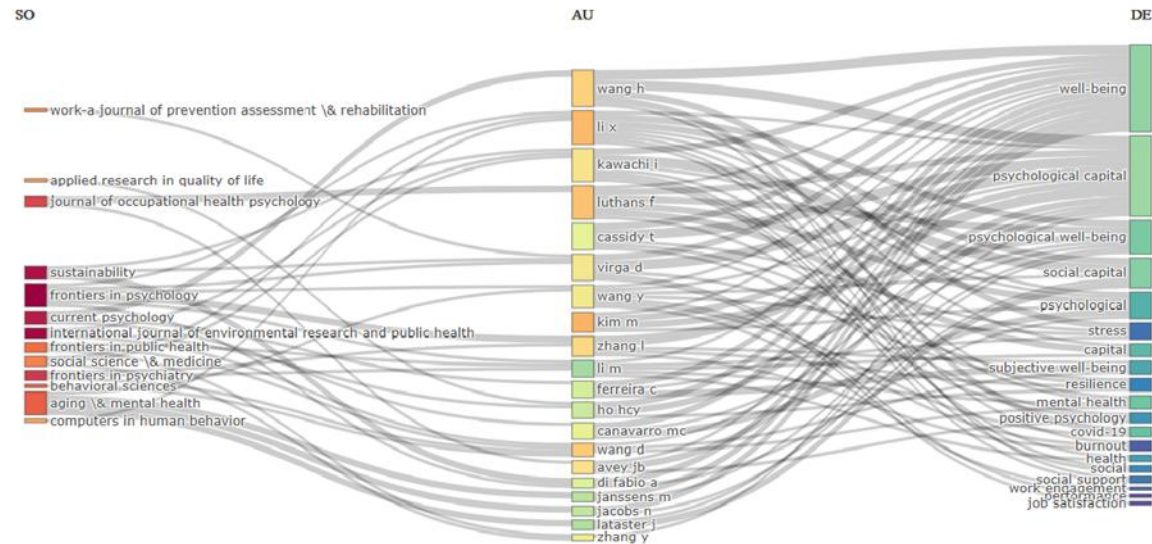
Findings

The conclusions of the bibliometric survey carried out with the R and RStudio programme under the title Studies on psychological capital and psychological well-being in Research WoS (dated 05.05.2024) are as follows. Accordingly, the research conducted on the notions of psychological capital and psychological well-being was carried out between 1993 and 2023 (year limit none) and has been seen broadcasting on WoS.

The analysis is accompanied by 431 sources from 228 different sources. Considering the annual growth rates of the notions of psychological capital and psychological well-being, it is 11.71%. It was observed that the total number of authors was 1642 and single-authored publications were 30. At the same time, it was observed that international co-authors were 29% and the rate of co-authors per document was 4.2%. It has been observed

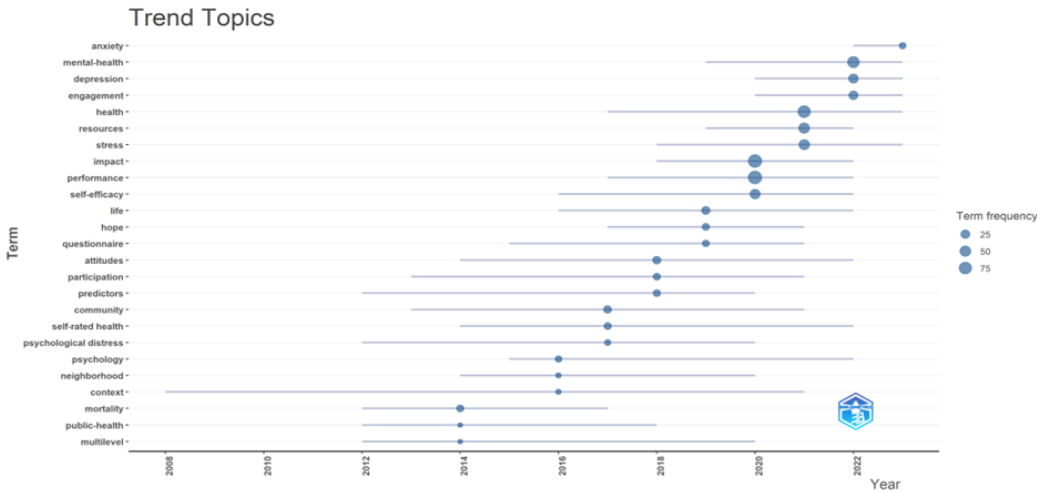
that the number of keywords used regarding the notions of psychological capital and psychological well-being is 1352 and the references used in these studies are 22436 in total. The average citation or impact factor of the studies is 32.93. Based on these basic analysis reports, studies on the relevant concepts in the field have attracted a lot of attention and it is possible to say that it is on an increasing trend. However, it can be said that although the studies have been carried out in the last thirty years, the interest in the notions of psychological capital and psychological well-being is increasing day by day.

Figure 2. Journal, author and keyword matching in the research (Three-Field Plot)



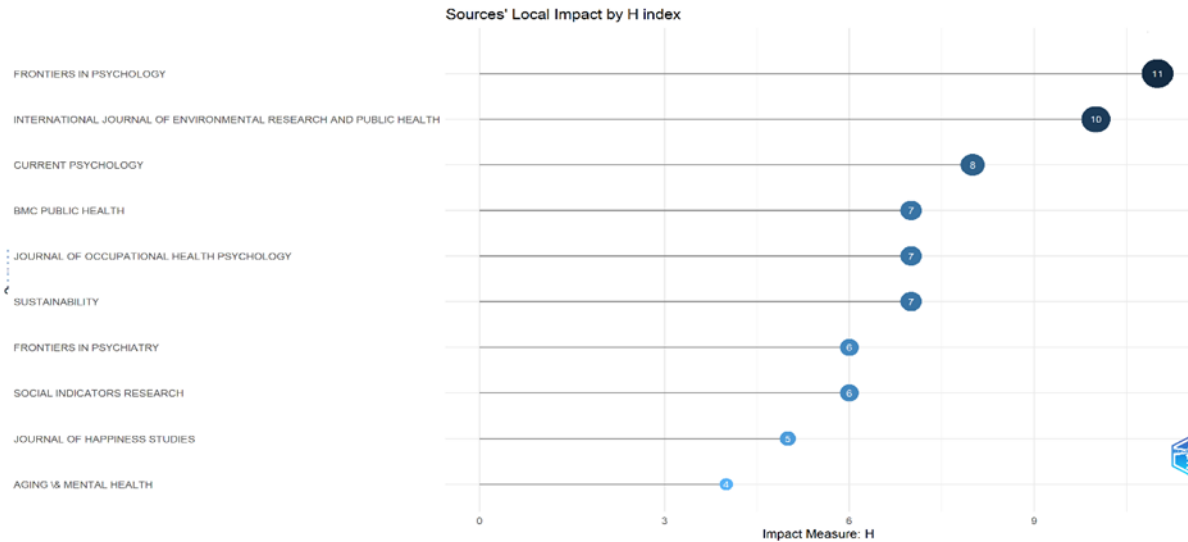
The journal, author and keywords of studies on the notions of psychological capital and psychological well-being are shown in Figure 2. When we look at the journals that publish the most on the relevant topics, it seems that there are Frontiers in Psychology Journal, Aging and Mental Health Journal and Current Psychology Journal. When we look at the authors who published the most about the notions of psychological capital and psychological well-being; It can be seen that Wang H, Kim M, Wang D, Luthans F, Li X, Zhang L, Avey Jb. When we look at the keywords used in psychological capital and psychological well-being studies, words like wellbeing, psychological capital, psychological wellbeing, social capital, subjective wellbeing, emotional wellbeing, good health and positive psychology are used.

Figure 3. Usage density of concepts related to psychological capital and psychological well-being research by years



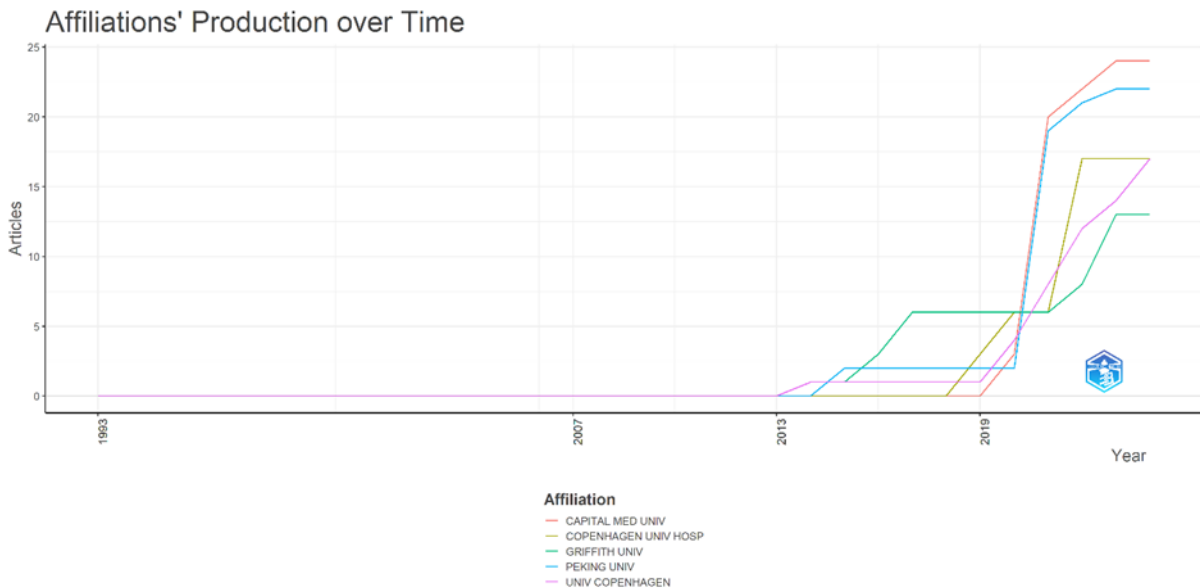
When we look at the notions of psychological capital and psychological well-being by year, the concepts discussed together are anxiety (2021-2023), mental health, trust, depression (2019-2022), life, hope, scale (2017-2022), behaviors, participation, predictions. It is revealed that the focus is on words such as (2013-2022), personal health level, psychological problems, and communication (2013-2022).

Figure 4. Local impact of resources on psychological capital and psychological well-being



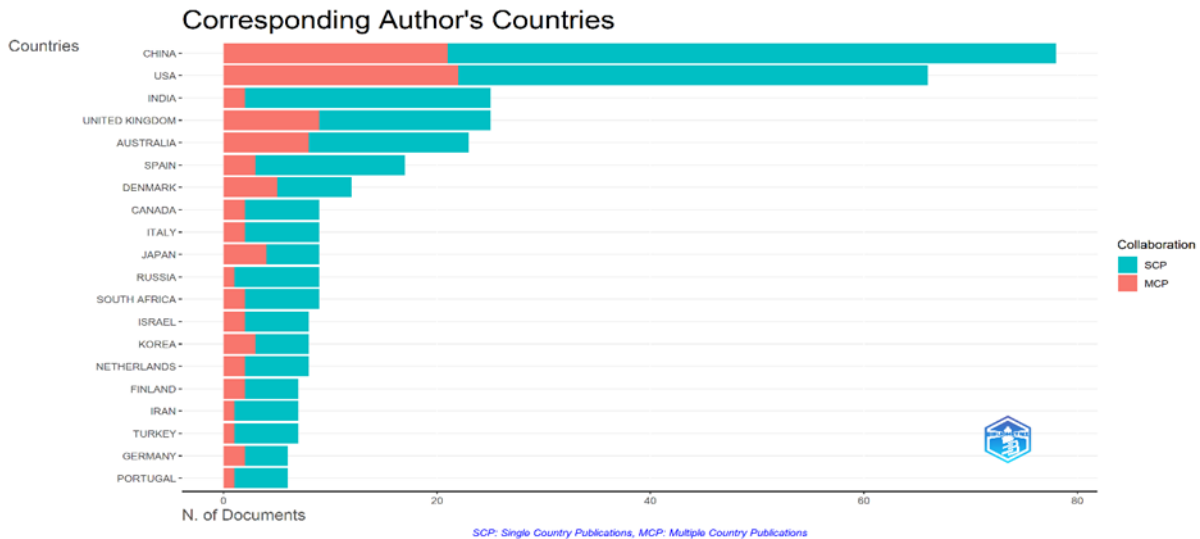
According to Figure 4, the H index values of the journals in their own countries are given on the horizontal axis, while the 10 most cited journals are listed on the vertical axis. Accordingly, the notions of psychological capital and psychological well-being have had the most impact at the local level in the journal (Frontiers' Psychology) (hindex: 11).

Figure 5. Production of affiliates over time using the notions of psychological capital and psychological well-being.



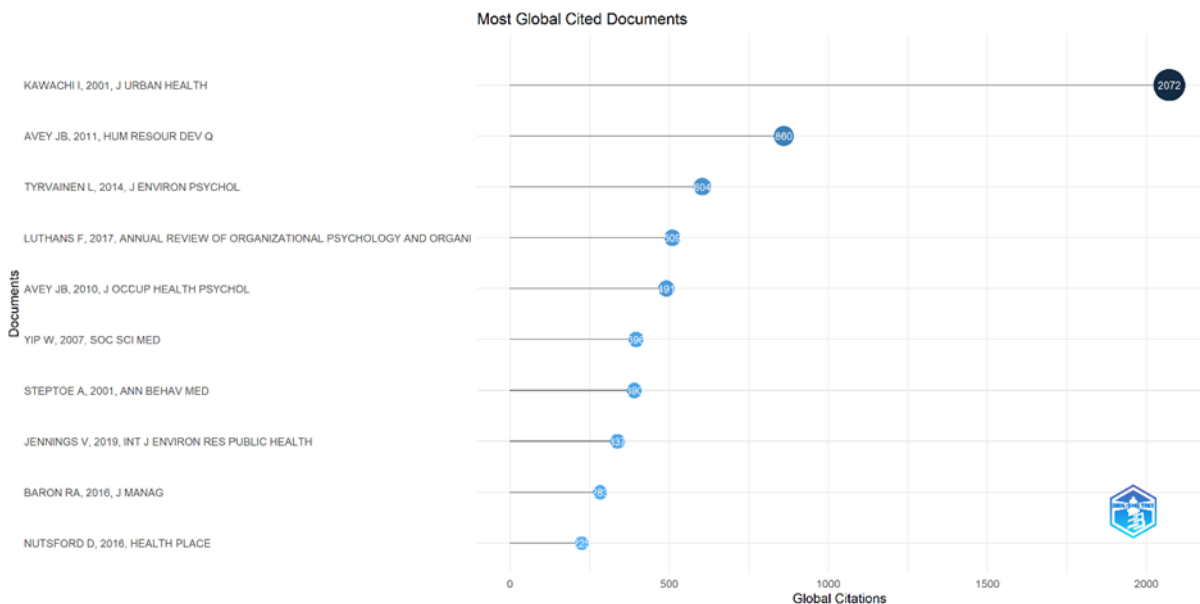
According to Figure 5, the graph shows which institutions published the most studies on psychological capital and psychological well-being. Accordingly, studies on relevant concepts were conducted in 1993; however, after 2020, Capital Medical University and Peking University peaked.

Figure 6. Countries of the responsible author of the notions of psychological capital and psychological well-being



When we look at the countries that publish the most on the subject, China, the USA, and India rank first; it is seen that the fewest studies on the concepts are in Turkey, Germany, and Portugal. Based on this, it is possible to say that the subject is not given sufficient importance in our country and studies should be increased.

Figure 7. Most cited studies globally



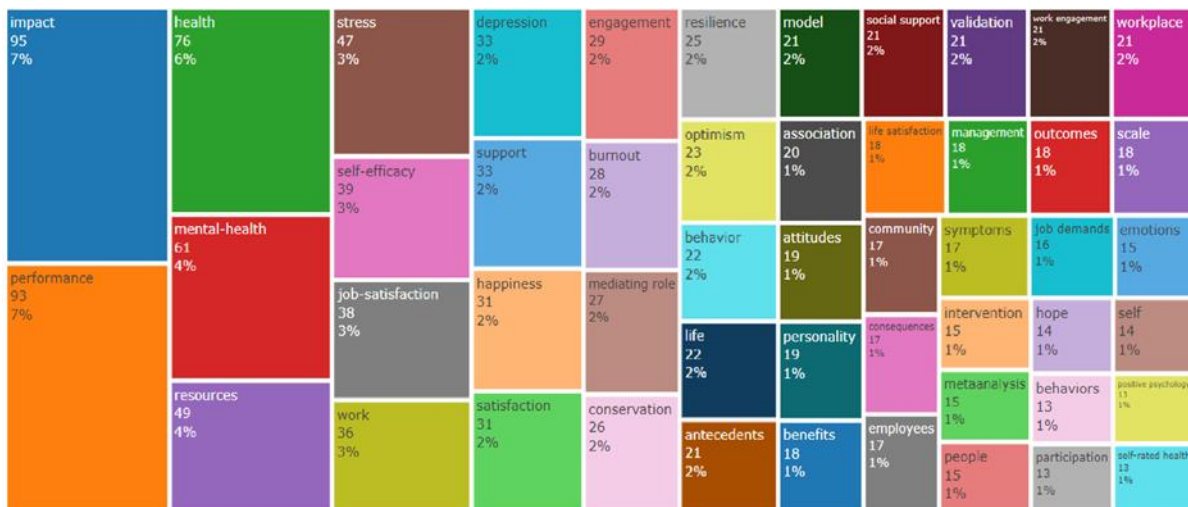
The study with the most citations at the global level belongs to the Journal Urban Health by Kawachi (2001). It received 2072 citations in total. When we look at the other authors following him, Avey JB (2014) received 604 citations and Luthans F (2017) received 509 citations.

Figure 8. Key words most emphasized by psychological capital and psychological well-being authors



The most frequently used words by writers are concepts such as psychological capital, well-being, psychological well-being, mental health, covid-19, social capital and positive psychology. Based on these concepts, it is seen that positive psychology concepts are being used globally along with related concepts in the domain of organisational behaviour. Additionally, less studied is the relevance of these concepts to dark (deviant) behaviour.

Figure 9. Psychological capital and psychological well-being tree map



According to the tree map, which shows the concepts that are used most frequently together with notions of psychological capital and psychological well-being, it is seen that they are performance (93%), health (76%), impact (75%), and mental health (61%).

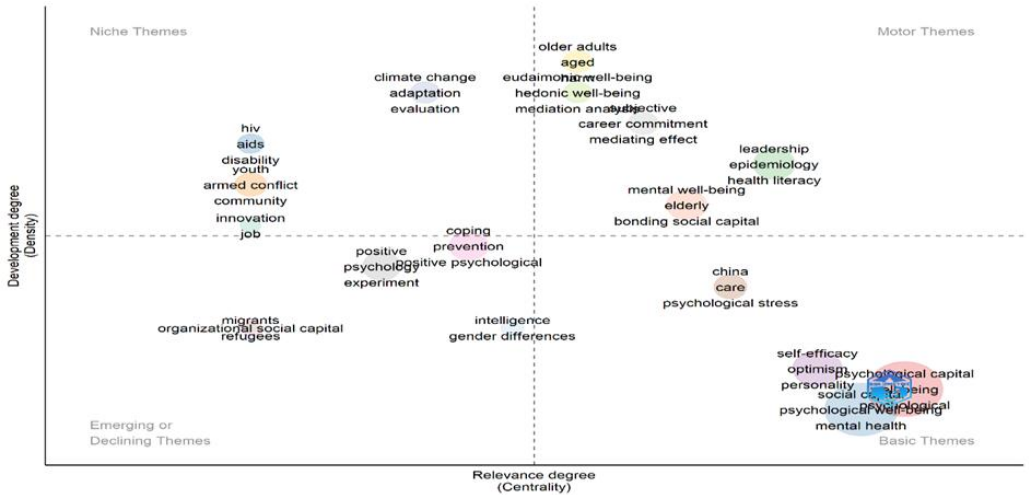
Figure 10. Collaboration network of prominent words in the notions of psychological capital and psychological well-being



Figure 10 shows the the associations among psychological capital and psychological well-being studies. Accordingly, we can state that the round symbols of the same color are studied together. In the studies conducted on psychological capital, it is shown with a blue circle and is related to performance, satisfaction, personal well-being, authentic leadership, and employees. It has been understood that concepts such as well-being have strong relationships together.

The concept of psychological well-being is shown with a red round symbol. Accordingly, it has been revealed that the relevant concept has a strong relationship with concepts such as psychological well-being, elderly people, social capital, human capital, leadership, Covid-19, and China. The results obtained reveal that there are many factors that affect the notions of psychological capital and psychological well-being. When these factors are examined, it is seen that they affect individuals in both socio-psychological and socio-economic aspects. For example, the concepts of anxiety, stress and depression, which can vary depending on the external environment or internal environment, are both related to psychological capital. The fact that they are related to psychological well-being shows that these concepts are influenced by each other. At the same time, when we look at common concepts, it is seen that variables such as positive psychology and job satisfaction are included in psychological capital, while concepts related to mental health or health management are examined within the scope of psychological well-being.

Figure 11. Thematic map of the concepts of psychological capital and psychological well-being



Thematic map of psychological capital or psychological well-being includes concepts that are studied intensively, moderately and rarely. When we look at the motor themes, it is possible to say that they are the most frequently discussed and popular study topics in the fields of psychological capital and psychological well-being. Accordingly, it is seen that concepts such as leadership, social capital, old age, hedonic well-being and good mood are studied more in motor themes. Niche themes, on the other hand, reveal that the studies are examined in more depth together with the relevant concepts. When examined in this way, it is evident that concepts such as climate change, adaptation, migration, and innovation are discussed. When we look at the part where the interest gradually decreases, we understand that concepts such as gender differences and immigrants are not studied much. Finally, in the section on self-efficacy, optimism, psychological stress, professional well-being, and work, it is seen that the concepts of performance and positive psychology are discussed. Based on the data in this graph, it is thought that achieving a level of spiritual health and hedonic welfare is the fundamental idea that employees or leaders in the organization look for in order to increase their psychological well-being and psychological capital levels.

Discussion Conclusion and Recommendations

The bibliometric analysis study conducted on the notions of psychological capital and psychological well-being has enabled some valuable relationships in socio-economic and socio-psychological aspects to be clearly revealed. The policies and methods put forward by leaders at the level of organizational behavior affect the perception levels of employees. However, in bibliometric analysis, relevant concepts and the variables considered together give a homogeneous image to the subject. Based on these data, it can be observed that the notions of psychological capital and psychological well-being are embedded in different disciplines other than organisational behaviour. Based on these data, studies related to the literature are mentioned below.

When we look at the analysis, we see that the interest or annual growth in the notions of psychological capital and psychological well-being is 11.71%. In other words, it is seen that the interest in the concepts in question tends to increase in a positive direction. At this point, positive psychology is the key word employed when focusing on journal, author and keyword matches. For this reason, positive psychology appears as a form of behavior that managers want in organizations. Competition in today's world directs organizations to identify and implement alternative strategies to continue their existence because it is becoming increasingly difficult for organizations to achieve corporate success and gain superiority over their competitors in today's conditions. Technological advances, increasing knowledge, changing economic life and business methods have brought about significant changes in the social and cultural life of societies and have paved the way for the adoption of new directions in organisational studies (Karatepe, Kuşçu & Karaman, 2019).

These approaches, which are developing in the area of affirmative psychology, attach importance to psychological capital beyond social capital in the right order to reveal true potential of individuals and understand the true value of individuals (Kutanis & Oruç, 2014). Businesses that have begun to realize that human resources are among the factors that provide significant competitive advantage have begun to add expressions that value human resources to their mission and vision statements. The quality of human resources has begun to be accepted as a valuable capital element that cannot be imitated for businesses. (Akçay, 2012). At this point, the concept of psychological capital has been examined frequently. In this study, it was seen that there are strong connections between positive psychology and psychological capital. When the notions of psychological capital and psychological well-being are examined by years, it is seen that in the last five years they have started to be discussed together with negative concepts such as anxiety, mental health, trust, and depression. In the age of technology, everything is in a very rapid cycle of change, which brings about major problems for those working in organizations. In this analysis, it can be thought that concepts related to negative psychology are discussed together to reveal the power of affirmative psychological capital and psychological well-being (Aykan & Karakuş, 2022).

As a result of the bibliometric analysis on psychological capital and psychological well-being, the countries with the most publications are China, the USA, and India, respectively. The countries where the fewest

research studies have been undertaken are Turkey, Germany, and Portugal. It can be said that there is not enough global interest in the subjects in our country and more studies need to be done. Managers who make policies can benefit from the qualitative and quantitative data obtained from the literature regarding the relevant concepts in the future. Thus, it might soon allow for more accurate managerial decision-making styles. .

Looking at the thematic map of psychological capital and psychological well-being, we can observe that there are basic, popular and rarely studied concepts. Accordingly, concepts such as leadership, social capital, old age, hedonic well-being, good mood are becoming more popular today. These concepts may be preferred in studies to be conducted among psychological capital and psychological well-being. When the literature is examined, similar examples can be found in domestic and foreign studies (Küçük, 2020; Demiray & İrge, 2022; Ryff, et.al, 2021).

In future research, relevant bibliometric analysis can be made by adding not only WoS data but also SCOPUS and PubMed data. Thus, comparison can be made in three different index types. The study has a very unique value as it provides a guiding and systematic review for potential researchers.

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RESEARCH ARTICLE

Predictors of Relationship Satisfaction in the Premarital Period: An Analysis of Personality, Family, Relationship, and Cultural Dynamics with "Before I Do"

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ABSTRACT

This study aims to examine the effect of personality dynamics, family background, couple interactions, and cultural factors on relationship satisfaction among 308 young adults in Türkiye who have decided to marry. Data were collected using the Comprehensive Premarital Assessment Scale Battery (Before I Do) and the Relationship Satisfaction Scale. The relationships between various dynamics and relationship satisfaction were analyzed, including personality dynamics (emotional stability, empathy, openness, self-esteem, secure attachment), family dynamics (family closeness, parental marital relationship, family-partner relationships), relationship dynamics (harmony and cooperation, relationship challenges), and cultural dynamics (religious belief, lifestyle, traditions, marriage preparation). Hierarchical multiple regression analysis was performed to determine the predictive power of these variables on relationship satisfaction. The analyses revealed that personality dynamics explained 36% of the variance in relationship satisfaction, family dynamics accounted for 46%, relationship dynamics contributed 52%, and the inclusion of cultural dynamics increased the explanatory power to 56%. These results enhance the understanding of factors contributing to relationship satisfaction. By addressing these comprehensive dynamics, premarital programs may better prepare couples for marriage and lead to more satisfying relationship outcomes.

Marriage is a significant process where couples unite their lives and build a future together. To ensure a healthy marriage, couples need to know each other well and evaluate their relationships before getting married (Özgüven, 2014). Premarital assessment tools allow couples to deepen their understanding of their relationship and proactively identify and address potential challenges they may face in their marriage (Dell'Isola et al., 2021; Larson & Holman, 1994). Assessment is a crucial component of premarital counseling, and some governments worldwide offer various incentives to support couples' participation in premarital evaluations (Markman & Ritchie, 2015). Evaluating premarital relationships allows couples to reconsider factors that could influence their future marriages from an objective perspective and helps them become aware of various areas that affect themselves, their partners, and their relationships (Busby et al., 2001; Le et al., 2010; Rahmati & Bahrami Nejad, 2019; Şen, 2015). Moreover, reassessing their relationships allows couples to understand how well their expectations are met, their degree of satisfaction, their emotions toward each other, and the problematic aspects of their relationship (Busby et al., 2007). A critical examination of their premarital

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relationships, guided by a preventive approach, can illuminate both the strengths and potential issues within these relationships (Holman et al., 1994). Through such evaluations, common challenges in relationships emerge, encompassing areas such as friendships, family ties, religious beliefs, leisure activities, sexuality, and financial matters. Identifying and addressing these problematic areas enables couples to seek appropriate support and make necessary improvements, thereby enhancing their overall relationship satisfaction (Bradbury & Lavner, 2012; Busby et al., 2001).

Recognizing the pivotal role of the premarital period in shaping future marital outcomes, numerous interventions have been established to fortify this foundation (Cordova et al., 2014; Halford et al., 2010, 2012; McGeorge & Carlson, 2006). As marital challenges and divorce rates rise, the demand for empirically robust measures to evaluate couples has increased, highlighting the necessity to develop tools that can adapt to societal changes (Bagarozzi & Sperry, 2019). The assessment of romantic relationships plays a crucial role in ensuring the accuracy and completeness of data on relationship functionality, which is fundamental for the quality and longevity of the partnership (Stanley et al., 2019). Such preventive measures have garnered significant attention in family research for their capacity to address and alleviate marital difficulties, thereby driving a demand for relationship enrichment programs and premarital evaluations (Fawcett et al., 2010; Fleming & Cordova, 2012; Jakubowski et al., 2004; Larson et al., 2002; Stahmann, 2000; Stanley et al., 2020). Among the assessment-focused approaches that have proven effective and are most widely used with premarital couples are programs such as FOCCUS (Markey et al., 1997), PREPARE/ENRICH (Olson & Olson, 1999), RELATE (Busby et al., 2001), and SYMBIS (Parrott & Parrott, 2003). These widely utilized assessment programs lay the groundwork for understanding and improving relationship dynamics, a foundational step toward addressing the broader concept of relationship satisfaction, which is pivotal in preventing marital distress and promoting long-term relationship health (Halford et al., 2010).

Relationship satisfaction is one of the most frequently examined outcome measures in romantic relationship research (Amato et al., 2007; Halford & Pepping, 2017; Hawkins & Booth, 2005). It refers to how happy individuals are with various aspects of their relationships, such as closeness, conflict, and equality (Gerlach et al., 2020). Recent studies on romantic relationships have aimed to explain the fundamental structure of romantic relationships by addressing concepts such as relationship satisfaction, stability, and happiness (Dwiwardani et al., 2018; Van Tongeren et al., 2014). Since premarital relationship satisfaction is seen as a protective factor against marital distress and separation, examining a couple's relationship history and identifying relationship strengths and challenges may constitute a useful strategy for improving marital health (Jackson, 2009). Addressing relationship satisfaction is particularly necessary for developing intervention studies that will enable couples to establish strong relationships, alleviate relationship problems, and prevent unwanted separations (Bradbury et al., 2000; Halford & Bodenman, 2013).

A variety of factors, including personality traits, relationship dynamics, and communication and personality history, can predict relationship satisfaction. Therefore, premarital programs focus on examining and developing these factors (Hahlweg & Richter, 2010; Montgomery, 2008). Studies examining premarital predictive factors influencing relationship satisfaction have reported that personality traits (Dyrenforth et al., 2010; Malouff et al., 2010; Schaffhuser et al., 2014), family background (Dennison et al., 2014; Kumar & Mattanah, 2016; Martinson et al., 2010), cultural background (Hilpert et al., 2016; Uhlich et al., 2022), and relationship factors (Eğeci & Gençöz, 2006; Godbout et al., 2017; Kochar & Sharma, 2015) significantly impact relationship satisfaction as both protective and risk factors (Jackson, 2009). Investigating these factors in relation to relationship satisfaction is crucial for addressing marital difficulties and mitigating the risks that could lead to the dissolution of marriage. Premarital counseling processes utilize comprehensive assessments and various theoretical frameworks to help couples establish healthier and more satisfying relationships. These processes have the potential to increase overall relationship satisfaction while ensuring that couples enter their marriages better prepared (Singer et al., 2015; Sperry, 2016).

The significance of the present study derives from its thorough exploration of factors that influence relationship satisfaction during the premarital period, a critical component for fostering strong and sustainable marriages. Therefore, this study aims to investigate the degree to which personality traits (emotional stability, empathy,

openness, self-esteem, secure attachment), family dynamics (family closeness, parental marital relationships, family-partner relationships), relationship dynamics (harmony and cooperation, relationship challenges), and cultural dynamics (religious belief, lifestyle, traditions, marriage preparations) relate to relationship satisfaction among young adults contemplating marriage. Additionally, the study seeks to determine how these various dynamics collectively predict relationship satisfaction.

Methodology

Participants

This research examined the relationships between premarital predictive factors and relationship satisfaction among young adults who have decided to marry. The study was approved by the Ethics Committee of Hacettepe University (No: E-3585317239900002708952). Participants were recruited using a convenience sampling method through social media platforms and university campuses in Ankara, İstanbul, and İzmir. Inclusion criteria required participants to be volunteers, over 18 years old, in a romantic relationship, and planning to marry, with the wedding scheduled at least six months later. Participants were informed about the study's purpose, procedures, and confidentiality assurances through an informed consent form. The consent form also highlighted that participation was voluntary, responses were anonymous, and participants could withdraw without consequences. Data collection took place in 2023, with partners in each couple invited to complete the survey online using Google Forms independently. After providing informed consent, both partners completed the surveys individually, which included demographic questions and various measures related to relationship satisfaction and predictive factors. The study group consisted of 308 individuals, with 50.6% female and 49.4% male participants. The age distribution was as follows: 35.6% were between 18-24 years, 32% were between 25-31 years, 16.8% were between 32-38 years, and 15.5% were between 35-49 years. Participants from all geographic regions of Türkiye were included in the study. According to the participants, 40.9% met their partners through social media, 28.9% through educational or work environments, 17.9% through arranged meetings, and 12.9% through mutual friends. Additionally, 32.3% of the participants had been with their partner for 0-6 months, 32% for 7-12 months, 21.5% for 1-3 years, and 14.2% for over 3 years.

Data Collection

In the study, the "Sociodemographic Information Form" developed by the researcher, the "Comprehensive Premarital Assessment Scale Battery (Before I Do)" developed by the researcher, and the "Relationship Satisfaction Scale" were used to collect data.

Sociodemographic Information Form: The sociodemographic information form was developed by the researchers. The form included questions such as gender, age, occupation, place of residence, economic income level, method of meeting the partner, and duration of the relationship with the partner.

Comprehensive Premarital Assessment Scale Battery (Before I do): The comprehensive Premarital Assessment Scale Battery (Before I Do), developed by the researchers for her PhD dissertation, consists of four subscales: Personality Dynamics, Family Dynamics, Relationship Dynamics, and Cultural Dynamics. The Personality Dynamics subscale includes items reflecting personality traits influencing the relationship. The Family Dynamics subscale covers the individual's relationships with their family, parental marital relationships, and family-partner relationships. The Relationship Dynamics subscale encompasses the dynamics of romantic relationships. The Cultural Dynamics subscale involves the cultural influences within the couple's relationship. The development of the scale was grounded in the ecological approach, which considers the complex interactions between individuals and their environments (Halford & Pepping, 2017). The items and subscales of the inventory were developed based on qualitative interviews with couples, the premarital couples' literature, and existing premarital assessment scales. The item pool was presented to three academic experts—one in couple and marriage therapy, one in measurement and evaluation, and one in Turkish grammar. After their feedback, adjustments were made, resulting in a Likert-scale inventory of 324 items rated from 1 (Strongly Disagree) to 5 (Strongly Agree), with four subscales. The trial form of the inventory was administered to 18 participants (9 women, 9 men). Adjustments based on participant feedback from this pilot

study led to a validation sample of 327 individuals. After the construct validity test, a 140-item form was presented to a sample of 308 individuals for confirmatory factor analysis. The final form of the scale battery comprises four subscales and 108 items. The Personality Dynamics subscale includes 35 items in five dimensions: emotional stability, empathy, openness to experience, self-esteem, and secure attachment, with a total Cronbach's alpha value of .93. The Family Dynamics subscale includes 33 items in three dimensions: family closeness, parental marital relationship, and family-partner relationships, with a total Cronbach's alpha value of .95. The Relationship Dynamics subscale includes 44 items in two dimensions: harmony and cooperation, and relationship challenges, with a total Cronbach's alpha value of .94. The Cultural Dynamics subscale consists of 28 items in four dimensions: spiritual beliefs, lifestyle, traditions, and marriage preparations, with a Cronbach's alpha value of .96. The model fit of the Comprehensive Premarital Assessment Scale Battery (Before I Do) was evaluated using confirmatory factor analysis with maximum likelihood estimation. The results indicated that the scale has acceptable construct validity across its four subscales. For the Personality Dynamics subscale, all fit indices demonstrated a good fit: χ^2 (df = 550) = 3.00, $p < .001$, RMSEA = .08, SRMR = .08, CFI = .99, TLI = .99, IFI = .99, PNFI = .91. Similarly, the Relationship Dynamics subscale also showed a robust fit with indices χ^2 (df = 944) = 1.99, $p < .001$, RMSEA = .06, SRMR = .06, CFI = .99, TLI = .99, IFI = .99, PNFI = .95. The Family Dynamics subscale displayed acceptable fit indices: χ^2 (df = 944) = 2.63, $p < .001$, RMSEA = .07, SRMR = .07, CFI = .92, TLI = .91, IFI = .92, PNFI = .78. Finally, the Cultural Dynamics subscale exhibited excellent fit indices: χ^2 (df = 344) = 1.56, $p < .001$, RMSEA = .04, SRMR = .04, CFI = .99, TLI = .99, IFI = .99, PNFI = .91.

The Relationship Satisfaction Scale: The Relationship Satisfaction Scale is a seven-item, 7-point Likert-type scale developed by Hendrick (1988) to measure relationship satisfaction in marriage. Originally developed for married couples, this scale has also been validated for measuring relationship satisfaction among university students in romantic relationships (Hendrick et al., 1998). Its Turkish adaptation was conducted by Curun (2001) with 140 university students in emotionally involved relationships. Factor analysis revealed that the scale is unidimensional, measuring a single factor. The internal consistency coefficient of the Relationship Satisfaction Scale is .86. Two items on the scale are reverse-scored, indicating that higher scores reflect greater relationship satisfaction. The validity of the scale was confirmed through confirmatory factor analysis, yielding satisfactory fit indices (RMSEA = .05, CFI = .95, TLI = .94). The Cronbach's alpha of this scale was found as .86 in the current study.

Data Analysis

SPSS v28 statistical software package was used for data analysis. Skewness and kurtosis values were examined to determine the distribution of the data. As the results of the normality analysis met the assumptions of normal distribution (Byrne, 2013), parametric analysis methods were employed for data analysis (see Table 1). Pearson correlation analysis was conducted to determine the relationships between personality dynamics, family dynamics, relationship dynamics, cultural dynamics, and relationship satisfaction. Additionally, hierarchical multiple regression analysis was performed to examine the effect of personality, family, relationship, and cultural dynamics (i.e., sub-scales of Before I Do) on relationship satisfaction.

Results

A Pearson's correlation was run to examine the associations between relationship satisfaction and subscales of Before I Do (i.e., personality, family, relationship, and cultural dynamics). Mean, SD, and correlations for the study variables are shown in Table 1. The results revealed that relationship satisfaction was statistically and positively associated with sub-dimensions of personality dynamics, including emotional stability ($r = .23$, $p < .05$), empathy ($r = .25$, $p < .01$), and secure attachment ($r = .58$, $p < .01$). However, there was no statistically significant relationships between relationship satisfaction and openness and self-esteem (i.e., sub-dimensions of personality dynamics). Relationship satisfaction was also statistically and positively associated with sub-dimensions of family dynamics, including family closeness ($r = .49$, $p < .01$), parental marital relationship ($r = .37$, $p < .01$), and family-partner relationships ($r = .48$, $p < .01$). Additionally, relationship satisfaction was statistically and positively associated with harmony and cooperation (i.e., sub-dimensions of relationship dynamics; $r = .57$, $p < .01$), and negatively associated with relationship challenges (i.e., sub-dimensions of relationship dynamics; $r = -.53$, $p < .01$). Finally, there were statistically significant relationships between

relationship satisfaction and sub-dimensions of cultural dynamics, including religious belief ($r = .25, p < .01$), lifestyle ($r = .47, p < .01$), and marriage preparations ($r = .24, p < .01$). However, there was no statistically significant relationships between relationship satisfaction and traditions (i.e., sub-dimensions of cultural dynamics).

Table 1. Descriptive Statistics and Correlations for Study Variables

	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. I.RS	43,21	5,29	-.056	-.24	1	.228*	.247**	.020	.064	.578**	.489**	.369**	.477**	.568**	-.527**	.248**	.474**	.115	.237**
2. Emotional stability ^a	26,14	3,88	-.46	.08	.228*	1	.496**	.390**	.585**	.254**	.213*	.269**	.222*	.076	-.333**	.010	.215*	.159	.170
3. Empathy ^a	28,57	3,26	-.39	.87	.247**	.496**	1	.364**	.503**	.489**	.394**	.419**	.448**	.352**	-.355**	.254**	.281**	.083	.271**
4. Openness ^a	24,04	5,72	-.76	-.22	.020	.390**	.364**	1	.595**	.187*	.135	.071	.112	.086	-.232*	.058	.098	.003	.070
5. Self-Esteem ^a	17,53	2,56	-1,04	.31	.064	.585**	.503**	.595**	1	.328**	.197*	.278**	.362**	.168	-.211*	.195*	.345**	.333**	.335**
6. Secure Attachment ^a	49,17	4,75	-.99	.81	.578**	.254**	.489**	.187*	.328**	1	.592**	.450**	.544**	.689**	-.520**	.331**	.353**	.094	.359**
7. Family closeness ^b	43,50	5,67	-1,41	2,97	.489**	.213*	.394**	.135	.197*	.592**	1	.699**	.253**	.524**	-.384**	.191*	.313**	.156	.216*
8. Parental marital relationship ^b	51,11	11,25	-2,07	2,83	.369**	.269**	.419**	.071	.278**	.450**	.699**	1	.446**	.354**	-.246**	-.029	.383**	.282**	.284**
9. Family-partner relationships ^b	40,53	7,50	-.760	-.23	.477**	.222*	.448**	.112	.362**	.544**	.253**	.446**	1	.479**	-.295**	.286**	.331**	.229*	.275**
10. Harmony and cooperation ^c	111,42	7,21	-1,73	2,47	.568**	.076	.352**	.086	.168	.689**	.524**	.354**	.479**	1	-.476**	.357**	.428**	.156	.528**
11. Relationship challenges ^c	49,81	9,63	-.14	-.45	-.527**	-.333**	-.355**	-.232*	-.211*	-.520**	-.384**	-.246**	-.295**	-.476**	1	-.135	-.384**	-.043	-.242**
12. Religious belief ^d	35,20	4,13	-.86	-.15	.248**	.010	.254**	.058	.195*	.331**	.191*	-.029	.286**	.357**	-.135	1	.071	.252**	.383**
13. Lifestyle ^d	34,55	3,85	-.77	.30	.474**	.215*	.281**	.098	.345**	.353**	.313**	.383**	.331**	.428**	-.384**	.071	1	.261**	.335**
14. Traditions ^d	21,75	3,58	-1,55	2,92	.115	.159	.083	.003	.333**	.094	.156	.282**	.229*	.156	-.043	.252**	.261**	1	.418**
15. Marriage preparations ^d	29,05	1,75	-2,20	2,56	.237**	.170	.271**	.070	.335**	.359**	.216*	.284**	.275**	.528**	-.242**	.383**	.335**	.418**	1

Note. N = 308. *M* = Mean value; *SD* = Standard deviation, RS = Relationship Satisfaction, ^aSubscale of Personality Dynamics, ^bSubscale of Family Dynamics, ^cSubscale of Relationship Dynamics, ^dSubscale of Cultural Dynamics. * $p < .05$, ** $p < .01$, *** $p < .001$.

Hierarchical multiple regression analyses were also run to predict relationship satisfaction scores based on the subscales of Before I Do (i.e., personality, family, relationship, and cultural dynamics). As shown in Table 2, the results illustrated that sub-dimensions of personality dynamics (i.e., emotional stability, empathy, openness, self-esteem, secure attachment) contributed significantly to the regression model in Model 1 ($F(5, 303) = 14.25, p < .001, \Delta R^2 = 0.36$). The sub-dimensions of personality dynamics explained 36% of the variance in relationship satisfaction in Model 1. The addition of sub-dimensions of family dynamics (i.e., family closeness, parental marital relationship, family-partner relationships) to the prediction of relationship satisfaction also led to a statistically significant increase in Model 2 ($F(8, 300) = 13.50, p < .001, \Delta R^2 = 0.46$). Including the sub-dimensions of family dynamics explained 46% of the total variance in Model 2. Furthermore, the addition of relationship dynamics sub-dimensions (i.e., harmony and cooperation, relationship challenges) to the prediction of relationship satisfaction led to a statistically significant increase in Model 3 ($F(10, 288) = 13.41, p < .001, \Delta R^2 = 0.52$). Including the sub-dimensions of relationship dynamics explained 52% of the total variance in Model 3. Finally, the addition of cultural dynamics sub-dimensions (i.e., religious belief, lifestyle, traditions, marriage preparations) to the prediction of relationship satisfaction led to a statistically significant increase in Model 4 ($F(14, 284) = 11.72, p < .001, \Delta R^2 = 0.56$). Including the sub-dimensions of relationship dynamics explained 56% of the total variance in Model 4.

Table 2. Regression Coefficients of Before I Do Scale on Relationship Satisfaction

Variables	Model 1			Model 2			Model 3			Model 4		
	<i>B</i>	<i>SE (B)</i>	β	<i>B</i>	<i>SE (B)</i>	β	<i>B</i>	<i>SE (B)</i>	β	<i>B</i>	<i>SE (B)</i>	β
Constant	11,957	4,522		11,831	4,314		18,126	8,352		11,172	8,714	
Emotional stability ^a	.336	.130	.247	.362	.120	.266	.310	.119	.228	.352	.114	.258
Empathy ^a	-.076	.158	-.047	-.251	.150	-.155	-.274	.143	-.169	-.289	.140	-.179
Openness ^a	-.029	.086	-.031	.010	.081	.010	-.019	.077	-.021	.029	.076	.032
Self-Confidence ^a	-.502	.224	-.243	-.621	.212	-.301	-.514	.204	-.249	-.751	.219	-.364
Secure Attachment ^a	.694	.095	.624	.359	.113	.323	.168	.121	.151	.194	.117	.175
Family closeness ^b				.315	.106	.338	.227	.104	.243	.203	.107	.217
Parental marital relationship ^b				-.050	.050	-.106	-.024	.048	-.051	-.026	.053	-.056
Family-partner relationships ^b				.269	.065	.381	.226	.064	.321	.206	.064	.291
Harmony and cooperation ^c							.130	.072	.178	.070	.080	.096
Relationship challenges ^c							-.126	.045	-.230	-.091	.044	-.166
Religious belief ^d										.149	.101	.116
Lifestyle ^d										.395	.105	.288
Traditions ^d										.001	.112	.000
Marriage preparations ^d										-.135	.262	-.045
<i>R</i> ²		.39			.50			.56			.61	
ΔR^2		.36***			.46***			.52***			.56***	

Note. N = 308, *B* = Unstandardized regression coefficient, *SE (B)* = Standard error of the coefficient, β = Standardized coefficient, *R*² = Coefficient of determination, ΔR^2 = Adjusted *R*². ^aSubscale of Personality Dynamics, ^bSubscale of Family Dynamics, ^cSubscale of Relationship Dynamics, ^dSubscale of Cultural Dynamics. * $p < .05$, ** $p < .01$, *** $p < .001$.

Discussion

This study aimed to investigate the multifaceted determinants of relationship satisfaction using a comprehensive assessment tool. Our findings reveal that several factors are predictors of relationship satisfaction. Notably, emotional stability, empathy, secure attachment, family closeness, parental marital relationships, harmony and cooperation, relationship challenges, religious belief, lifestyle, and marriage preparations were all significant predictors of relationship satisfaction. Moreover, the hierarchical regression analysis highlighted the cumulative impact of these dynamics, along with personality, family, relationship, and cultural factors, providing substantial insight into the complex ways in which relationship satisfaction is influenced. In exploring the dynamics that foster relationship satisfaction during the premarital period, our study has identified several key factors that exert substantial influence.

The findings indicate that certain sub-dimensions of personality dynamics are significantly associated with relationship satisfaction. Emotional stability, empathy, and secure attachment were all positively correlated with relationship satisfaction, suggesting that individuals who score higher on these traits tend to report higher levels of satisfaction in their relationships. These findings align with previous studies indicating a relationship between emotional stability and relationship satisfaction (Jackson 2009; Khalatbari et al. 2013; Vater & Schröder–Abé 2015). Similarly, secure attachment was strongly and positively correlated with relationship satisfaction. Research has shown that individuals with a secure attachment style report higher relationship satisfaction (Eğeci & Gençöz 2006; Jackson 2009; Kumar & Mattanah 2016). A meta-analysis examined the relationships between insecure attachment styles (anxiety and avoidance) and relationship satisfaction, reporting that anxious and avoidant attachment styles are negatively associated with relationship satisfaction (Candel & Turliuc, 2019). These findings are consistent with existing literature, suggesting that individuals who possess these traits are better equipped to navigate the complexities of romantic relationships, leading to higher levels of satisfaction. Higher emotional stability may contribute to relationship satisfaction by promoting the emotional regulation and resilience necessary for managing conflicts and stress within a relationship. A secure attachment style, characterized by trust and confidence in the partner's responsiveness and availability, may enhance relationship satisfaction by creating a safe and supportive relational environment. It was found that as scores on empathy, which is a sub-dimension of personality dynamics, increased, scores on relationship satisfaction also increased, although this increase was not statistically significant. However, openness and self-esteem did not show significant correlations with relationship satisfaction in this study. Previous research has found that empathy, openness, and self-esteem are associated with relationship satisfaction and relationship quality (Eğeci & Gençöz, 2006; Erol & Orth, 2017; Sciangula & Morry, 2009; Weidmann et al., 2017). Bartram (2008) stated that personality traits can be shaped by cultural influences and that cultural contexts play a significant role in the personality structures of individuals. These conflicting findings highlight the importance of cultural and contextual factors in psychological research. It is conceivable that the effects of personality traits on relationship outcomes may vary significantly depending on the sample group, cultural norms and values, and the specific aspects of relationship satisfaction being measured.

It has been observed that all sub-dimensions of family dynamics, including family closeness, quality of parental marital relationships, and family-partner relationships, have a significant correlation with relationship satisfaction. In the relevant literature, studies have reported that healthy family relationships and experiences (Jackson, 2009; Martinson et al., 2010), and parental conflicts and divorces (Dennison et al., 2014) are associated with relationship satisfaction. Enhanced familial closeness, marital quality between parents, and positive family-partner relations are closely linked to increased relationship satisfaction, underscoring the importance of healthy family interactions in fostering satisfying romantic relationships. In a collectivist cultural context like Türkiye, families inevitably play a significant role in individuals' relationships. Individuals often observe and model their relationships based on their family dynamics or, conversely, strive to create relationships different from those they experienced in their families. The relationship individuals have with their families occupies a central place in their romantic relationships. Studies conducted with premarital individuals in Türkiye have also highlighted the role of the family of origin in relationships (Kocadere, 1995; Saraç et al., 2015).

It has been noted that harmony and cooperation, which are sub-dimensions of relationship dynamics, have a significant association with relationship satisfaction. These results highlight the importance of partners' harmony, mutual trust and support, the effort they put into the relationship, and the presence of teamwork within the relationship. Existing research has also shown that harmony and cooperation between couples significantly influence relationship satisfaction (Dyrenforth et al., 2010; Heller et al., 2004; Malouff et al., 2010). As anticipated, the study revealed that an increase in scores for relationship challenges corresponds with a decline in relationship satisfaction. Moreover, a significant inverse correlation was established between relationship challenges and satisfaction. This negative association can be attributed to the sub-dimension of relationship challenges, which encompasses adverse elements such as issues of trust, critical attitudes, pressure, disagreements, and divergent views. These findings substantiate the proposition that escalating relationship challenges exert a detrimental impact on relationship satisfaction, underscoring the critical nature of addressing these factors in relational dynamics. Premarital couples have been categorized by Fowers and Olson (1992) into four types: vitalized, harmonious, traditional, and conflicted. A longitudinal study examining the relationship satisfaction among these types reported that vitalized couples exhibit the highest level of satisfaction, followed by harmonious, traditional, and conflicted couples (Kim et al., 2006). These results can similarly be interpreted in terms of harmony and cooperation and relationship challenges on relationship satisfaction.

The dimensions of lifestyle, religious beliefs, and marriage preparations are positively associated with relationship satisfaction. This suggests the benefit of individuals discussing and reflecting on their expectations and beliefs regarding lifestyle and shared values at the onset of their relationship. It has been reported in studies that religious values are significantly positively correlated with relationship satisfaction (Ahmadi & Beach, 2011; Saraç et al., 2015). The positive correlation with marriage preparations likely highlights the importance of shared goals and responsibilities related to the wedding. The traditions sub-dimension within the cultural dynamics factor did not show a significant correlation with relationship satisfaction. While traditions play a role in shaping overall cultural identity, their direct correlation with relationship satisfaction may be less pronounced compared to other cultural factors such as religious beliefs and lifestyle.

This study elucidated the multifaceted determinants of relationship satisfaction among premarital couples, highlighting not only individual, familial, relational, and cultural determinants but also revealing how these elements integrate through hierarchical regression analysis. Hierarchical regression analysis further clarifies the relative contribution of these dynamics, organized in layers, starting with personality dynamics, which alone explained 36% of the variance in satisfaction. The subsequent inclusion of family dynamics, relationship dynamics, and cultural dynamics gradually increased the explanatory power of our model (56%). This step-by-step approach highlights how interactions at multiple levels (personal, familial, relational, and cultural) collectively shape relationship outcomes and offers a comprehensive look at the factors that contribute to premarital satisfaction. In the literature on couple studies, premarital predictors of relationship satisfaction and stability are organized into three main categories. First, background and contextual factors which include familial dynamics, sociocultural factors like education and race, and support from friends and parents; second, individual characteristics and behaviors encompassing self-esteem, interpersonal skills, and physical and emotional health; and third, couple interaction processes involving similarities in race, religion, and socioeconomic status, as well as values, attitudes, and communication and conflict resolution skills (Bubolz & Sontag, 1993; Holman & Linford, 2001; Larson & Holman, 1994). Afterward, this model was conceptually expanded to include premarital predictors in four broad categories: familial factors, individual factors, contextual factors, and couple factors (Busby et al., 2001; Holman, 2001; Larson et al., 2008). This study presents a new premarital model consisting of four categories that conceptualize the factors influencing relationship satisfaction in premarital relationships within Turkish culture. The dimensions of our model are 1) Personality Dynamics, which includes emotional stability, empathy, openness to experience, self-esteem, and secure attachment; 2) Family Dynamics, which encompasses family closeness, parental marital relationships, and family-partner relationships; 3) Relationship Dynamics, which involves harmony and cooperation, and relationship challenges; and 4) Cultural Dynamics, which includes spiritual beliefs, lifestyle, traditions, and marriage preparations.

Limitations

This study presents some limitations that must be acknowledged to properly contextualize the findings. First of all, the research was conducted in a specific cultural environment in Turkey, which limits the generalizability of findings to other cultural contexts or populations. Second, the study is based on self-reported data, which is inherently subject to issues such as social desirability and recall bias. Using a combination of self-reports with observational or longitudinal data may reduce these biases.

Another important limitation is the cross-sectional design of the study. This design limits the ability to infer causality by capturing a snapshot of participants' perceptions and experiences at a single point in time. We recommend conducting longitudinal studies to observe changes and causal relationships over time. This provides a more dynamic understanding of the factors affecting relationship satisfaction.

Implications and Future Research

The findings of this study offer significant implications for premarital assessment, counseling, and relationship education programs. By identifying the critical predictors of relationship satisfaction—such as personality traits, family dynamics, relationship dynamics, and cultural factors—this research provides a foundation for developing more targeted and effective premarital interventions. These interventions can be tailored to address the dynamics identified in this study, thereby enhancing their efficacy in preparing couples for marriage and fostering long-term relationship satisfaction. Additionally, the study underscores the importance of considering cultural context in premarital assessments and interventions. Cultural dynamics, including religious beliefs, lifestyle, and marriage preparations, were found to significantly influence relationship satisfaction. Therefore, premarital programs should be culturally sensitive and adaptable to the unique cultural backgrounds of the couples they serve.

Future research should explore several areas. Firstly, longitudinal studies are essential to track changes in relationship satisfaction over time and establish causal relationships between the identified predictors and relationship satisfaction. Such studies can provide deeper insights into how these dynamics evolve and interact throughout the premarital period and into marriage. Furthermore, future research should focus on the development and testing of specific interventions targeting the identified predictors of relationship satisfaction. By designing and evaluating programs that address personality traits, family dynamics, relationship dynamics, and cultural factors, researchers can determine the most effective strategies for enhancing premarital relationship satisfaction.

Conclusion

This study provides valuable information about the complex interplay of personal, familial, relational, and cultural factors affecting relationship satisfaction in Türkiye. By identifying key predictors such as emotional stability, secure attachment, positive family dynamics, and cultural factors on the phenomenon of marriage, it underlines the importance of addressing these elements in premarital assessment, education, and counseling. The present study not only contributes to the existing literature by providing a cultural and contextual understanding of the premarital period but also proposes a comprehensive model that could be integrated into premarital programs.

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[Second Author]: Supervision, conceptualization, methodology writing—review and editing.

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Data Availability: The authors declare that they have no competing interests.

Ethics Approval and Consent to Participate: Before participating in the study, all participants were

informed about its purpose, potential risks, and benefits. Written consent was obtained from each participant. This study was approved by the Ethics Committee of Hacettepe University (24/02/2023 No: E-3585317239900002708952).

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RESEARCH ARTICLE

The Mediating Role of Life Satisfaction in the Relationship between the Lifelong Learning Tendencies of Teachers and Their Attitudes toward Teaching

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ABSTRACT

This study investigates whether life satisfaction serves as a mediator in the relationship between the lifelong learning tendencies of teachers and their professional attitudes toward teaching. The sample of the study comprised 361 teachers, and data were collected using instruments measuring tendencies toward lifelong learning, attitudes toward the profession of teaching, and overall life satisfaction. The data were analyzed using the IBM SPSS Version 27 and Process Macro 4.1 programs, employing independent-samples t-tests, Pearson's correlation analyses, and mediation analysis models. There were significant positive relationships among lifelong learning, life satisfaction, and professional attitudes. Female teachers demonstrated a higher tendency toward lifelong learning than male teachers, consistent with previous research suggesting women are more inclined toward self-improvement. However, no significant gender-based differences were observed in life satisfaction, indicating that professional satisfaction may be shaped more by individual experiences than by gender. Furthermore, life satisfaction was identified as a mediator, suggesting that teachers with high lifelong learning tendencies and life satisfaction levels displayed more positive professional attitudes. These results underscored the importance of promoting lifelong learning and the well-being of teachers to enhance job satisfaction and commitment. Educational policymakers are encouraged to develop structured lifelong learning programs and wellness initiatives to support the professional growth of teachers.

A Japanese proverb says, "teaching is learning". This saying suits the profession of teaching the best, because teaching is one of the main professions where learning while teaching and self-improvement in this process are essential. Considering that the age we live in is called the information age and that the greatest power in this age is knowledge, it is unthinkable for teachers not to improve themselves. In a world that is constantly renewing, changing, and developing, the teacher has to constantly improve themselves. For education to be successful, innovative, and developmental and catch up with the era, students need to be equipped with the motivation to learn. The primary person who will give this capacity to the student is the teacher. The teacher must first of all have a sense of curiosity and a love of learning so that they can transfer these characteristics to their students. One of the best examples of how education develops and changes societies is the case of Finland. Under the leadership of Johan Vilhelm Snellman, described in Gregory Petrov's book "In the Land of

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White Lilies", Finland made a great breakthrough with revolutionary changes in the field of education. The Finnish example showed that education is the first condition and initiator of development, transformation, and progress. In fact, long before the Finnish example, it was well-known that the opening and expansion of universities in Europe with the Renaissance and the emphasis on philosophy, art, and science changed the fate of countries to a great extent. Atatürk, too, wanted to start a Turkish Renaissance that would begin in Turkey and then inspire the entire eastern world. In line with Atatürk's vision, the Village Institutes were established, and Hasan Ali Yücel was appointed as the Minister of National Education, aiming to revolutionize Turkey's educational framework (Öztürk, 2015). The presence of solid, disciplined, and scientifically grounded educational systems in today's developed, modern countries helps us better understand why Atatürk placed such importance on education a century ago, with a view toward future progress (Çetin, 2018). These educational initiatives were the result of Atatürk's foresight and aimed to create a foundational structure for Turkey's advancement in education (Gökçe, 2020).

For education to remain progressive, developmental, and innovative, teachers should adopt a lifelong learning approach, which emphasizes a continuous commitment to self-improvement and learning (Smith, 2019; Gür Erdoğan & Arsal, 2016; Yılmaz, 2016). Lifelong learning is broadly defined as a process through which individuals enhance and apply knowledge and skills that they have accumulated over a lifetime (Candy, 1994; Rausch, 2003; Aspin & Chapman, 2000). Demirel (2008) further described this concept as a process that cultivates one's capacities and competencies throughout life. Those inclined toward lifelong learning tend to approach their educational goals selectively and strategically, drawing knowledge eclectically from diverse fields and employing effective learning strategies (Knapper & Cropley, 2000).

Information in the literature on continuous learning tendencies reveals that teachers are strongly devoted to maintaining learning across their lifespan (Yaman, 2014; Şahin & Arcagök, 2014; Yılmaz, 2016). Many studies have indicated that prospective teachers (Demirel & Akkoyunlu, 2010; Karakuş, 2013) and instructors (Konokman & Yelken, 2014) also display strong lifelong learning tendencies. Additionally, Konokman and Yelken (2014) found that female instructors demonstrated significantly higher lifelong learning tendencies than their male counterparts. Similarly, Yılmaz (2016) observed that the lifelong learning tendencies of teachers increased significantly with years of experience in the profession.

The high levels of tendencies toward lifelong learning among teachers can be attributed to the comprehensive and continuous education they receive, which equips them with essential skills and competencies throughout their careers. Başbay, Ünvar, and Bümen (2009) emphasized that beyond imparting sufficient knowledge and skills, fostering positive affective attitudes toward the profession is critical for training qualified teachers. Studies on attitudes toward the profession of teaching have revealed that individuals who choose teaching eagerly exhibit a more positive affective and behavioral orientation toward the profession (Bilgin, 1996; Üstün et al., 2004; Üstün, 2007). It was shown that the attitudes of teachers toward their profession were closely linked to the type of teacher they were likely to become (Seferoğlu, 2004). Similarly, Çam and Üstün (2016) found that a significant and positive association between the approaches of educators to lifelong learning and their professional attitudes toward teaching.

An essential factor for personal development is a genuine enjoyment of life which is closely tied to happiness and life satisfaction (Diener, 2000; Veenhoven, 1996a). Life satisfaction is widely studied in positive psychology and has various definitions. Diener and Suh (1997) defined it as a general assessment of quality of life according to one's criteria. Rice, Frone, and McFarlin (1992) described it as an overall attitude toward life. Haybron (2004) framed it as the balance between aspirations and achievements, while Veenhoven (1996a) considered it simply quality of life. In the existing literature, life satisfaction is commonly regarded as the cognitive dimension of subjective well-being, representing the evaluative perceptions of individuals regarding their own lives (Diener, 1984). Subjective well-being is generally conceptualized through three main elements: experiencing positive emotions, minimizing or lacking negative emotions, and the personal assessment of life satisfaction. While emotional states reflect the affective aspect of well-being, life satisfaction pertains to the cognitive and evaluative domain (Diener, Emmons, Larsen, & Griffin, 1985). Various factors influence one's sense of life satisfaction, including socioeconomic factors such as income, professional and social standing, access to opportunities and social mobility, living standards, governmental policies, and the quality of personal relationships and one's immediate environment (Appleton & Song, 2008).

Studies on life satisfaction have examined its relationship to various psychological and social factors, such as emotional intelligence (Castilho et al., 2017) and depressive symptoms (Castilho et al., 2017; Moksnes et al., 2014). Other variables include trait anger (Topbaşoğlu-Altan & Çivitçi, 2017), stress (Holinka, 2015), socioeconomic status (Boo, Yen, & Lim, 2016; Yıkılmaz & Demir-Güdül, 2015), psychological resilience, self-understanding (Alibekiroğlu et al., 2018), and school climate (Uz-Baş & Yurdabakan, 2017). In addition to these factors, life satisfaction may also influence professional attitudes and tendencies toward lifelong learning, as these aspects contribute to a person's overall sense of fulfillment and motivation in various domains, including their professional life.

As seen in the literature, life satisfaction is a phenomenon that impacts attitudes toward life, the environment, one's profession, and cognitive self-development. This multidimensional influence suggests that life satisfaction could play a crucial role in shaping the professional approaches of individuals, particularly in fields like education, where continuous self-improvement and a commitment to learning are essential.

Based on these considerations, this study aims to investigate the relationship between lifelong learning tendencies and attitudes toward the profession of teaching, with a specific focus on the mediating role of life satisfaction in teachers. By examining this relationship, it will be possible to clarify whether teachers with a high tendency for lifelong learning also exhibit positive attitudes toward their profession and if life satisfaction serves as a link between these two variables. This investigation is particularly relevant in the context of educational development, as understanding these factors can contribute to enhanced professional motivation and instructional effectiveness among teachers.

Methodology

In this study, a predictive correlational research design, in the context of quantitative research methods, was utilized to examine whether life satisfaction served as a mediating variable in the relationship between the lifelong learning tendencies of teachers and their attitudes toward the profession of teaching. As Creswell (2012) emphasized, this type of design seeks not only to determine relationships among variables but also to predict the value of one variable based on the other.

Participants

This study included a total of 361 teachers, comprising 177 female and 184 male teachers who were selected using the convenience sampling method. The data were collected cross-sectionally from teachers who voluntarily participated in the study over a period of approximately one month between May and June 2022. Data collection took place online via the Google Forms and Google Classroom platforms. Table 1 displays the demographic characteristics of the participants.

Table 1. Demographic Characteristics of Participants

Variable	Group	n	%
Gender	Female	177	49
	Male	184	51
	Total	361	100
Teaching Area	Primary School Teacher	132	36.6
	Subject Teacher	229	63.4
	Total	361	100
Years of Experience	1-5	13	3.6
	6-10	46	12.7
	11-15	70	19.4
	16-20	83	23.0
	21 or above	149	41.3
	Total	361	100

As shown in Table 1, 177 participants (49%) were female, while 184 participants (51%) were male. It was

determined that 132 participants (36.6%) were form teachers, and 229 (63.4%) were subject teachers. The professional experience of 13 participants (3.6%) was between 1 and 5 years, while 46 participants (12.7%) had 6 to 10 years of experience, 70 (19.4%) had 11 to 15 years of experience, 83 (23%) had 16 to 20 years of experience, and 149 participants (41.3%) reported having 21 years or more of experience.

Instruments

Lifelong Learning Tendency Scale (LLTS): This scale, originally developed by Gür Erdoğan and Arsal (2016), is a 5-point Likert-type instrument comprising 17 items. It encompasses two dimensions: “eagerness to learn” (items 1-11) and “openness to development” (items 12-17). The developers reported a criterion validity coefficient of .71. The internal consistency of the scale was established with a Cronbach’s alpha value of .86 and a McDonald’s omega (ω) value of .89. The reliability of the scale was reassessed in the sample of this study, yielding a Cronbach’s alpha of .93.

Attitude towards Teaching Profession Scale (ATTPS): This scale, developed by Kahramanoğlu et al. (2018), includes 12 items rated on a 5-point Likert scale and is structured as a single-factor measure. In the original study, the instrument yielded a Cronbach’s alpha of .85, demonstrating acceptable internal consistency. In this study, the reliability analysis revealed a Cronbach’s alpha coefficient of .84.

Satisfaction with Life Scale (SWLS): This scale, introduced by Diener et al. (1985) and adapted into Turkish by Dağlı and Baysal (2016), is composed of 5 items, each rated on a 5-point Likert scale. The scale is unidimensional and does not contain any items requiring inverse scoring. In its Turkish adaptation, the instrument demonstrated a Cronbach’s alpha coefficient of .88 (Dağlı & Baysal, 2016), reflecting sound psychometric properties. In this study, the measure of internal reliability was recalculated and found to be .88, mirroring the original reliability level.

Data Analysis

To determine the appropriate statistical techniques for data analysis, first, normality assumptions were assessed. As suggested by Tabachnick and Fidell (2013), skewness and kurtosis values falling within the ± 1.5 range and being close to zero are indicative of a normal distribution. In this study, the dependent variable—attitudes toward the profession of teaching—had a skewness coefficient of .051 and a kurtosis coefficient of $-.957$. The independent variable, lifelong learning, exhibited a skewness coefficient of $-.006$ and a kurtosis coefficient of $-.451$. The mediating variable, life satisfaction, showed a skewness coefficient of $-.133$ and a kurtosis coefficient of $-.595$. All variables demonstrated skewness and kurtosis values within the acceptable thresholds for normality. Additionally, multicollinearity was not present among the independent variables, and no outliers exceeding a standardized value of 3.3 were identified. Upon verifying that assumptions for parametric analyses were met, the data were analyzed using IBM SPSS version 27 and PROCESS Macro version 4.1.

Results

To examine whether tendencies toward lifelong learning, life satisfaction, and attitudes toward the profession of teaching varied based on gender, an independent-samples t-test was performed (Table 2).

Table 2. Independent-Samples t-Test Results for Gender Differences in Lifelong Learning, Life Satisfaction, and Attitudes toward the Profession of Teaching

Variables	Groups	<i>n</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>Cohen’s d</i>
LLTS	Female	177	74.12	7.21	355.23*	3.44	.000	.36
	Male	184	71.59	6.76				
SWLS	Female	177	14.42	3.94	359	.67	.498	
	Male	184	14.12	4.40				
ATTPS	Female	177	51.75	4.79	359	2.91	.004	.30
	Male	184	50.21	5.21				

Note: Degrees of freedom reported when variances are not homogeneous. LLTS = Lifelong Learning Tendency Scale; SWLS = Satisfaction with Life Scale; ATTPS = Attitude towards Teaching Profession Scale.

As seen in Table 2, a statistically significant difference was found in the lifelong learning attitudes of the participants based on gender, $t(355.23) = 3.44$, $p < .001$. This result suggested that women had higher levels of lifelong learning tendencies than men. The effect size (Cohen's $d = .36$) indicated a small difference between the groups.

No statistically significant difference was found in life satisfaction levels between the male and female participants, $t(359) = .67$, $p = .498$, suggesting that gender did not have a substantial impact on life satisfaction in this sample.

On the other hand, a statistically significant difference was observed in attitudes toward the profession of teaching based on gender, $t(359) = 2.91$, $p = .004$. The ATTPS scores of the female participants were significantly higher than those of the male participants, with a small effect size (Cohen's $d = .30$), indicating slightly more positive attitudes toward the profession of teaching among women.

Relationships between Life Satisfaction, Lifelong Learning Tendencies, and Attitudes toward the Profession of Teaching

To analyze the associations among the life satisfaction levels of the participants, their lifelong learning tendencies, and their attitudes toward the profession of teaching, Pearson's correlation coefficient was employed. The results of these analyses are presented in Table 3.

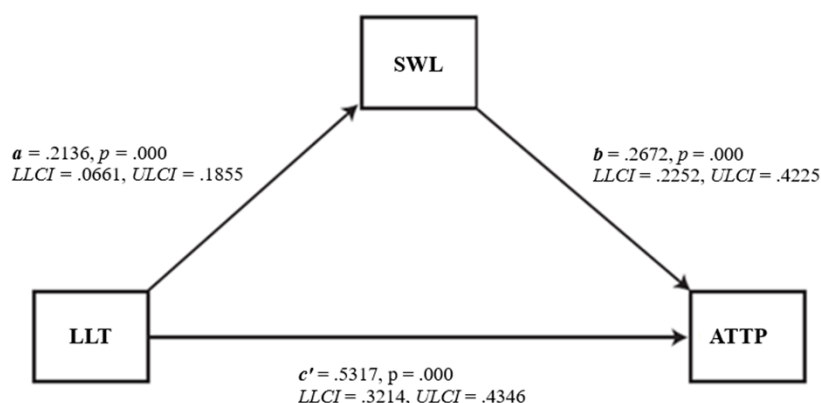
Table 3. Pearson's Correlation Analysis for the Relationships between Lifelong Learning Tendencies, Attitudes toward the Profession of Teaching, and Life Satisfaction

	LLTS	ATTPS	SWLS
LLTS	1		
ATTPS	.59**	1	
SWLS	.21**	.38**	1

There was a significant positive relationship between lifelong learning tendencies and attitude towards the profession of teaching ($r = .59$, $p < .001$). As the LLTS scores of the participants increased, their ATTPS scores also increased. A significant positive relationship was also found between tendencies toward lifelong learning and life satisfaction ($r = .21$, $p < .001$), indicating that higher tendencies toward lifelong learning were associated with a higher level of satisfaction with life. Finally, there was a significant positive relationship between life satisfaction and attitudes towards the profession of teaching ($r = .38$, $p < .001$), suggesting that as life satisfaction increased, attitudes toward the profession of teaching improved.

The results of the analyses examining the mediating role of life satisfaction in the relationship between lifelong learning tendencies and attitudes toward the profession of teaching are presented in Figure 1.

Figure 1. Model Diagram of the Mediating Role of Life Satisfaction in the Relationship between Lifelong Learning Tendencies and Attitudes toward the Profession of Teaching



In path a in Figure 1, it is observed that lifelong learning tendencies had a positive predictive effect on life satisfaction ($\beta = .2136$, 95% CI [.0661, .1885], $p = .000$). Similarly, in path b, it is observed that the mediator variable positively predicted the dependent variable ($\beta = .2672$, 95% CI [.2252, .4225], $p = .000$). Finally, in path c, it is observed that the independent variable positively predicted the dependent variable ($\beta = .5317$, 95% CI [.3214, .4346], $p = .000$). The results of the analyses regarding the significance of the indirect relationships showing the mediation effect in the model are presented in Table 4.

Table 4. Bootstrap Analysis Results for the Significance of Indirect Effects

<i>Independent Variable</i>	<i>Mediating Variable</i>	<i>Dependent Variable</i>	<i>Coefficient of Path (β)</i>	<i>% 95 CI Bias Corrected</i>
LLTS	SWLS	ATTPS	.0571	[.0284, .0900]

Note: β = Standardized beta coefficient.

The significance of the indirect effect of lifelong learning tendencies on attitudes toward the profession of teaching was analyzed using confidence intervals obtained with the bootstrap technique. The analysis indicated that the indirect effect was statistically significant. In other words, life satisfaction was found to mediate the relationship between lifelong learning tendencies and attitudes toward the profession of teaching ($\beta = .0571$, 95% CI [.0284, .0900]).

Discussion and Conclusion

This study examined whether life satisfaction served as a mediating factor in the relationship between the lifelong learning tendencies of teachers and their attitudes toward the profession of teaching. The results provided nuanced insights into gender-related variations across lifelong learning tendencies, life satisfaction levels, and professional attitudes, revealing that life satisfaction may act as a partial intermediary in these associations. Interpreted in light of previous research, these results offer a distinctive theoretical contribution to the literature concerning these interrelated constructs.

One notable result was that female teachers demonstrated significantly higher lifelong learning tendencies than their male colleagues. This aligned with earlier studies such as those conducted by Coşkun and Demirel (2012) and Evin Gencil (2013), which suggested that women tended to engage more actively in self-development and adaptive behaviors. Such differences may be contextualized within Social Role Theory (Eagly, 1987), which proposes that societal norms often encourage women to adopt roles emphasizing growth and nurturing. Nevertheless, studies like those of Çam and Üstün (2016) and Karaoğlu Yılmaz and Binay Eyüboğlu (2018), which found no significant gender-related differences in this variable, highlighted the role of contextual and institutional variables in shaping lifelong learning tendencies and called attention to the necessity of conducting comparative and cross-cultural research.

In the context of life satisfaction, no significant gender-related differences emerged in this study, corroborating findings by Şahin (2008), Atasoy (2014), and Akgün (2015). Life satisfaction, as a comprehensive evaluation of one's quality of life, tends to reflect individual experiences rather than demographic traits such as gender. Self-Determination Theory (Deci & Ryan, 2000) posits that the fulfillment of personal goals underpins life satisfaction. Within professional settings such as teaching—where intrinsic motivation is a central element—gender-neutral levels of life satisfaction are expected, suggesting that individual factors outweigh gender-based effects.

Another key outcome was that female teachers expressed more favorable attitudes toward the profession of teaching compared to male teachers in this study. This result was consistent with previous findings by Aydın and Sağlam (2012), Çapa and Çil (2000), and Oral (2004). Expectancy-Value Theory (Eccles & Wigfield, 2002) offers a framework to interpret this pattern, asserting that individuals develop more positive attitudes toward roles that align with their internalized values and social expectations. The profession of teaching may resonate more strongly with women due to both intrinsic motivations and cultural factors, implying that professional development initiatives should be sensitive to such gender-based motivational dynamics.

In this study, a positive association between lifelong learning tendencies and attitudes toward the profession of teaching was also identified. This result was in agreement with the conclusions of Alt and Raichel (2020), who argued that continued learning nurtures a more engaged and optimistic professional stance. According to Mezirow's Transformative Learning Theory (1997), critical reflection—cultivated through lifelong learning—can reshape perceptions and attitudes, thereby enhancing the professional engagement of educators. These insights underscore the need for institutional strategies and policies that cultivate a culture of lifelong learning to strengthen both teacher satisfaction and instructional quality (Arinaitwe, 2021).

Moreover, a significant link was established between lifelong learning and life satisfaction. This outcome was in line with foundational research by Shin and Johnson (1978) and Diener et al. (1985), which emphasized that sustained learning promoted personal growth and a sense of achievement. Self-Determination Theory (Deci & Ryan, 2000) suggests that accomplishing self-determined objectives contributes meaningfully to one's well-being. Teachers who actively pursue learning may derive deeper fulfillment from their roles, enhancing both their sense of meaning and life satisfaction. Furthermore, the relationships they foster with students may further amplify their sense of purpose and emotional well-being.

An additional contribution of this study lies in revealing the influence of life satisfaction on professional attitudes. The participants reporting higher levels of life satisfaction appeared more likely to embrace their professional roles with enthusiasm and commitment. From the perspective of Herzberg's Two-Factor Theory (1966), intrinsic motivators such as achievement and recognition are vital to job satisfaction, which in turn reinforces overall well-being. This observation highlights the importance of enhancing the well-being of teachers as a means of strengthening professional identity and commitment.

In conclusion, the results of this study suggested that life satisfaction may function as a partial mediator between lifelong learning tendencies and professional attitudes among teachers. The ability to maintain an ongoing learning tendency appears to indirectly enhance professional attitudes by fostering greater life satisfaction. In this sense, life satisfaction operates as a psychological bridge that connects the continuous learning engagement of teachers with their dedication to their profession.

Implications and Recommendations

The results of this study offer valuable guidance for educational policymakers and school administrators. Cultivating a culture of lifelong learning among teachers appears to be a promising pathway to strengthening both their professional attitudes and job satisfaction. To this end, well-structured professional development initiatives—such as training modules on innovative pedagogical approaches or peer mentoring systems—can serve to enhance the competencies of teachers while simultaneously supporting their psychological engagement with the profession. These practices resonate with the principles of Vygotsky's Social Development Theory (1978), which highlights the importance of social interaction in learning processes. Creating environments that encourage collaboration and shared professional growth may thus contribute meaningfully to the development of teachers.

Beyond skill enhancement, improving the overall well-being of teachers is crucial for promoting a positive professional outlook. Interventions like flexible scheduling, psychological counseling services, and wellness-based institutional policies may help educators maintain a healthier work-life balance and greater emotional resilience. Notwithstanding, the success of such initiatives depends on acknowledging practical constraints, such as limited funding or structural resistance within institutions. Effective planning and sustained administrative support are therefore necessary to ensure the long-term viability of these efforts.

Conclusion

In summary, the results of this study underscore the interconnected roles of lifelong learning and life satisfaction in shaping the professional attitudes of teachers. Educators who actively engage in continuous learning not only report greater fulfillment in their personal lives but also tend to adopt a more constructive and committed approach to their profession. As such, nurturing lifelong learning habits and addressing teacher well-being should be central priorities within educational institutions. These dual emphases can help cultivate a teaching workforce that is both highly motivated and resilient in the face of professional demands. Future

studies may build on these findings by examining the sustained impact of lifelong learning on the well-being of teachers and exploring other potential mediators and moderators that influence the development of professional attitudes over time.

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RESEARCH ARTICLE

The Role of Irrational Beliefs as a Mediator in the Relationship between Social Media Addiction and Depression among Adolescents

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ABSTRACT

This research aims to examine the mediating role of irrational beliefs in the relationship between social media addiction and depression among adolescents. This study was conducted with 522 high school students (301 girls, 57.7%; 221 boys, 42.3%) with an average age of 15.8. The one-dimensional Bergen Social Media Addiction Scale, the Reynolds Adolescent Depression Scale, the Irrational Beliefs Scale, and a personal information form were utilized in this research. For data analysis, descriptive statistics, Pearson correlation coefficient analysis and mediation analysis based on the Bootstrapping technique were employed to determine the mediating role of irrational beliefs in the relationship between social media addiction and depression. The research findings showed that irrational beliefs partially mediated the relationship between adolescents' social media addiction and depression.

As technology advances, the utilization of social media is increasingly pervasive (Avcu et al., 2019; Gündoğmuş et al., 2020; Seren, 2020). Social media, accessible through various devices, such as phones, computers, and tablets, is widely utilized across all age groups (Akyazı, 2019; Atalay, 2019; Mollaoğlu et al., 2019), with projections suggesting its continued significance and expanding usage in the future (Aydın, 2016; Bozkur & Gündoğdu, 2017; Çalışır, 2015). Initially emerging alongside the widespread adoption of the Internet, social media served as a platform for personal expression (West & Turner, 2009). The first recognized social media platform, SixDegrees.com, introduced in 1997, facilitated friendship lists and social sharing. Subsequently, in 2005, Facebook was founded at Harvard University, quickly gaining traction among adolescents and witnessing a surge in usage (Boyd & Ellison, 2007).

"Social media encompasses Internet applications founded on web 2.0 technology, empowering users to generate and distribute content" (Kaplan & Haenlein, 2010). "Moreover, social media is also defined as a web-based service that enables the sharing of profiles, which is mandatory in the system to connect with masses, allows users to add each other to their lists of connections, and simultaneously enables each person in the system to see each other" (Vural & Bat, 2010). "Over time, social media, part of Web 2.0 technology and is increasingly accessible, has become a platform that influences individuals' ways of forming relationships, socialization experiences, identity development, and private lives (Atalay, 2019). Adolescents are notably

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among those significantly impacted by this platform. Adolescents spend more time on the Internet and its social media extensions than middle-aged and older users (Kumcağız et al., 2019). Adolescents engaging in communication with others and gaining experiences in the digital realm tend to adopt social media into their lives hastily and flexibly (Vural & Bat, 2010). This situation raises concerns about adolescents' social media addiction issues.

Adolescence is the transitional period from childhood to adulthood. During this phase, it can be said that individuals are not fully aware of their personal and social responsibilities. However, it is also possible to define this period as a transitional phase where roles are explored, experimented with, and tested (Cloutier & Bekir, 1982). In this turbulent period, individuals are confused about identity and role regarding who they are, where they come from and where they are going (Erikson, 1959; 1968). Given that adolescence is characterized by ongoing biological and cognitive development, conflicts arising from role transitions during this period can lead to anxiety, stress, and psychological problems for individuals (Coleman, 1980). Spending a significant portion of their time on social media during such a crucial period, adolescents may develop social media addiction, followed by psychological problems (Eren et al., 2020). Consequently, feelings of hopelessness, helplessness, pessimism, and similar emotions experienced by adolescents with psychological distress due to this situation may bring about an irrational perspective on events (Göller, 2010). Thinking errors, irrational schemas, and defeatist patterns ranging from mild communication conflicts to severe psychological problems are referred to as irrational beliefs in Ellis's model and cognitive distortions in Beck's model (Türküm, 2016).

According to Ellis (1958), adolescents may excessively consider the need to be loved, respected, and approved by others. Instead of standing on their own feet, they may prefer to depend on individuals, objects, or various platforms. In light of the above information, it can be observed that adolescents have generalizations, false deductions, and selective abstractions (irrational beliefs) about their individual or social lives, and this situation plays a decisive role in their emotions and actions, thus negatively impacting many significant choices in their lives (Yılmaz-Erdem, 2006).

When examining the literature, studies indicate that as the use of social media increases, adolescents may experience a weakening of their sense of responsibility, a decrease in physical interaction with their environment, and disruptions in emotional balance (Bilgin & Doğrusever, 2018; Çayırılı, 2017). Moreover, research suggests that increased social media usage is associated with heightened levels of stress, anxiety (Chan & Sun, 2020; Dhir et al., 2018), exam anxiety (Güler, 2012), social anxiety, feelings of disappointment, helplessness (Bıyıklı, 2019; Marcotte, 1996; Nelson, 1977), as well as emotions such as anger-hostility and paranoid thoughts (Bilgin, 2018). There are studies finding that spending excessive time on social media causes sleep problems (Kaur et al., 2021; Levenson et al., 2016; Tandon et al., 2020; Usta, 2020). On the other hand, adolescents who spend excessive time on virtual platforms may experience communication conflicts (Söner & Yılmaz, 2018) and a decline in academic performance (Küçük et al., 2016). Furthermore, due to such factors, adolescents may even attempt suicide (Jasmine & Kumar, 2010; Rosas-Fuentes et al., 2023; Sampasa-Kanyinga & Lewis, 2015). Thus, it has been found that adolescents become addicted to social media when they disconnect from their physical environment and use it excessively and unconsciously (Balcı & Baloğlu, 2018). This addiction may increase irrational beliefs and also affect depression. When examining the literature, there is a prevalence of studies indicating that social media addiction increases depression (Arias-de la Torre, 2020; Balcı & Baloğlu, 2018; Bilgin, 2018; Bingöl & Çolak, 2023; Çağlayan & Arslantaş, 2023; Kircaburun, 2016; Li et al., 2018; Wang et al., 2018). On the other hand, there are studies indicating that as social media addiction increases, irrational beliefs also rise (Demirci, 2019; Can, 2020; Kutluca, 2020; Stojkovic & Vukosavljevic-Gvozden, 2021; Trevino-Benavides et al., 2023), and that as irrational beliefs increase, depressive symptoms also intensify (Ayğar & Çapri, 2018; Dozois et al., 2012; Gül, 2017; Küçük et al., 2016; Marcotte, 1996; Nelson, 1977; Rosas-Fuentes et al., 2023; Turner et al., 2019; Zhaleh et al., 2014). From this, it is believed that irrational beliefs mediate the relationship between social media addiction and depression levels in adolescents. Alternative hypotheses among the relevant variables can be examined; however, there has been no research directly addressing the mediating role of irrational beliefs in the relationship between social media addiction and depression in adolescents. Therefore, this study considers irrational beliefs as a mediating variable. Consequently, this research is limited to examining the mediating role of irrational beliefs in the relationship between social media addiction and depression. In light of the above explanations, this study

aims to investigate the mediating role of irrational beliefs in the relationship between social media addiction and depression in adolescents. To this end, the following questions are sought to be answered:

1. Do significant relationships exist between social media addiction, irrational beliefs and depression?
2. Do irrational beliefs mediate the relationship between social media addiction and depression?

Method

This study, which examines the relationships between irrational beliefs, depression and social media addiction in adolescents has been conducted using the quantitative research method with a correlational survey design. The correlational survey design was chosen as it allowed for the examination of the relationships between two or more variables and their co-variation (Karasar, 2014). The independent variable of this study is social media addiction, the dependent variable is depression, and the mediating variable is irrational beliefs.

The Study Group

The research data were obtained from high school students in a school under the Provincial Directorate of National Education in Kırıkkale province in 2023. Participation in this study was voluntary. In this research, the cluster sampling method was used. Cluster sampling involves selecting elements in bulk from pre-existing groups rather than selecting each element individually (Büyüköztürk et al., 2018). A total of 522 high school students took part, comprising 301 females (57.7%) and 221 males (42.3%). The average age of the adolescents participating in this study was 15.8 years old.

Demographic Profile of the Study Participants

As depicted in Table 1, this study included 522 participants, with 301 (57.7 %) females and 221 (42.3 %) males. Regarding age distribution, 75 (14.4 %) participants were 14 years old, 160 (30.7 %) were 15 years old, 112 (21.5 %) were 16 years old, 142 (27.2 %) were 17 years old, and 33 (6.3 %) were 18 years old high school students.

Table 1. Overview of the Demographic Characteristics of the Study Cohort

Variables	Categories	Count	Percentage
Gender	Female	301	57,7
	Male	221	42,3
Total		522	100
Age	14	75	14,4
	15	160	30,7
	16	112	21,5
	17	142	27,2
	18	33	6,3
Total		522	100

Data Collection Instruments

The Bergen Social Media Addiction Scale (BSMAS): The Bergen Social Media Addiction Scale (BSMAS) was developed by Andreassen, Pallesen, & Griffiths (2017) and adapted into Turkish by Demirci (2019). In the adaptation of the scale into Turkish, exploratory factor analysis and confirmatory factor analysis were used to examine construct validity. Reliability was assessed using internal consistency and test-retest methods. The exploratory factor analysis revealed that, as in the original scale, the scale is unidimensional. The results of the confirmatory factor analysis indicated that the unidimensional structure provided an acceptable fit. The scale consists of six items and is answered using a five-point Likert-type scale ranging from (1) very rarely to (5) very often. The total score on the scale ranges from 6 to 30, and a score of 19 or higher is evaluated as indicative of social media addiction. The internal consistency reliability coefficient of the scale was 0.88. The factor loadings of the items on the scale range from 0.60 to 0.90. The Cronbach's alpha internal consistency

coefficient of the scale was calculated as 0.83. Based on the findings of this study, it can be said that the Bergen Social Media Addiction Scale can be used in studies conducted in Turkey (Demirci, 2019).

The Reynolds Adolescent Depression Scale (RADs): The scale developed by Reynolds (1986) and adapted into Turkish by Oskay (1997) has undergone validity and reliability studies with 527 middle and high school students aged 13-18. The RADs is a 30-item instrument with no subscales, using a four-option Likert scale: 'never,' 'rarely,' 'sometimes,' and 'often.' Respondents indicate the extent to which each symptom is present for them. There are seven items with reverse scoring (items 1, 5, 10, 12, 23, 25, and 29). The total score on the RADs ranges from 30 to 120. The scale's reliability was calculated with a Cronbach's alpha internal consistency coefficient of .75. Reliability was determined through test-retest and parallel test methods, and validity was found to be .53 using similar scales. The results suggest that the scale is valid and reliable for Turkish adolescents (Oskay, 1997).

The Irrational Beliefs Scale (IBS): The Irrational Beliefs Scale (IBS) was developed by Türküm (2003). The IBS is a 30-item, unidimensional scale with responses marked on a five-point rating system. The lowest possible score on the IBS is 28, and the highest is 140. Higher scores indicate a higher level of irrational beliefs. The reliability of the IBS was assessed with a Cronbach's alpha internal consistency coefficient of .84 and a test-retest reliability coefficient of .93. Factor analysis results reflect that the IBS accounts for 50% of the total variance. Based on item analysis and validity studies using test anxiety, depression, and belief scales, the IBS is concluded to have adequate psychometric properties for use in the field (Türküm, 2003).

Personal Information Sheet, developed by the researchers to collect data on participants' gender and age.

Procedure

As part of this research, permission was first obtained for the scales to be used in this study. Subsequently, ethical approval for this research was granted by the Social and Human Sciences Board of XX University. After this, scales were administered face-to-face to participants who volunteered to take part in this study, and the obtained scores were transferred to a computer. The average administration time for the scales is 10 minutes.

Data Analysis

This study, aiming to investigate the mediating role of irrational beliefs in the connection between social media addiction and depression in adolescents, conducted descriptive statistics alongside normality analysis. Pearson's correlation analysis has been utilized to ascertain the relationships between variables. Afterward, conditional process analysis was performed via the Process Macro plug-in to reveal direct and indirect roles. Bootstrap procedures were applied to evaluate the significance of the mediation (Hayes, 2013; Preacher & Hayes, 2008). Data analysis was conducted using IBM SPSS® 27 statistical software, with a significance level of .05 employed.

Results

In this section, the normal distributions of the variables were examined first and then followed by the results of Pearson's correlation coefficients. Finally, the findings of the mediation test conducted using the Bootstrapping method were presented.

Normal Distribution

According to Hayes (2013), multivariate normality analysis is a statistical approach that assesses whether multiple variables simultaneously meet the assumption of normal distribution. Tests for skewness, which measure the asymmetry of the multivariate distribution, and kurtosis tests, which measure the peakedness of the distribution, are among the primary statistical tests used to evaluate multivariate normal distribution (Can, 2018). According to Tabachnick & Fidell (2013), if skewness and kurtosis coefficients fall within the ± 1.5 range, the research data are considered to be normally distributed. As shown in Table 2, the skewness and kurtosis values for each variable within the respective limits indicate that all research data are simultaneously normally distributed. This situation enhances the reliability of the analysis results.

Table 2. Normal Distribution of Adolescents' Scores on Social Media Addiction, Irrational Beliefs, and Depression

	Mean	Standard Deviation	Standard Error	Skewness Coefficient	Skewness Standard Error	Kurtosis Coefficient	Kurtosis Standard Error
Social Media Addiction	17,31	5.62	.25	.109	.107	-.599	.213
Irrational Beliefs	57,82	9	.40	-.405	.107	.123	.213
Depression	70,38	15.5	.68	.069	.107	-.622	.213

The results of the correlation analysis conducted to examine the relationships between variables are presented in Table 3 below.

Table 3. Results of Pearson's Correlation Analysis: Relationships between Adolescent Scores on Social Media Addiction, Irrational Beliefs, and Depression

Correlation	1	2	3
1. Social Media Addiction	—		
2. Irrational Beliefs	.30**	—	
3. Depression	.39**	.24**	—

*p<.05**p<.01***p<.001

After examining the analysis results presented in Table 3, adolescents' social media addiction exhibited significant positive correlations with irrational beliefs ($r = 0.30$; $p < .001$) and depression ($r = 0.39$; $p < .001$). Additionally, significant positive correlations were observed between irrational beliefs and depression ($r = 0.24$; $p < .001$).

After observing the relationships between variables, a mediation test was conducted using the bootstrapping method.

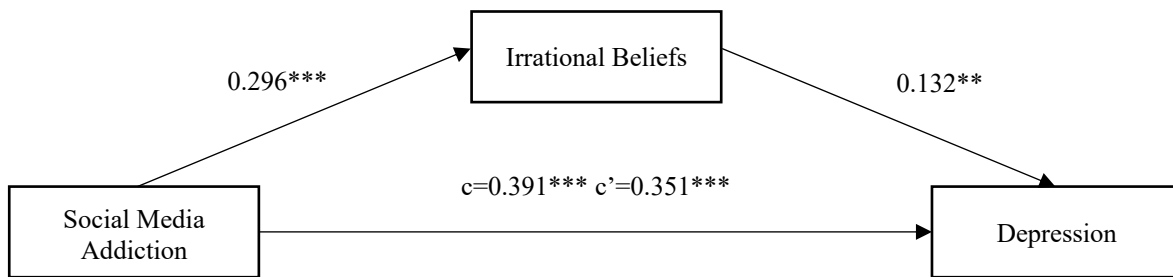
As shown in Table 4, the analysis results concerning the mediating role of irrational beliefs in the connection between adolescents' social media addiction and depression revealed a partial mediation effect of irrational beliefs ($\beta=0.039$, $SE=0.037$, 95% CI [0.035, 0.182], $p<0.01$). When considering irrational beliefs within the correlation between social media addiction and depression, the association between depression and social media addiction remains significant. However, the β coefficient for the direct effect decreases relative to the total effect ($\beta=0.351$, $SE=0.115$, 95% CI [0.743, 1.195], $p<0.001$).

Table 4. The Role of Irrational Beliefs as a Mediator in the Relationship between Adolescents' Social Media Addiction and Depression

		%95 CI						
	Effect	Estimate	SE	Low	High	β	z	p
Indirect Effect	1→2→3	0.108	0.037	0.035	0.182	0.039	2.89	0.004
Mediator	1→ 2	0.477	0.067	0.345	0.609	0.296	7.09	0.000
	2→ 3	0.227	0.071	0.086	0.367	0.132	3.17	0.002
Direct Effect	1→ 3	0.969	0.115	0.743	1.195	0.351	8.41	0.000
Total Effect	1→ 3	1.078	0.111	0.860	1.296	0.391	9.68	0.000

*Social media addiction (1), Irrational beliefs (2), Depression (3)

Figure 1. The Role of Irrational Beliefs as a Mediator in the Link Between Adolescents' Social Media Addiction and Depression



Discussion

In this study, we examined the role of irrational beliefs in the association between social media addiction and depression among adolescents. The research findings suggest that irrational beliefs partially mediate the relationship between adolescents' depression and social media addiction. This implies that social media addiction influences levels of depression among adolescents through irrational beliefs. However, the partial mediation finding indicates that other variables may mediate this relationship. A review of the literature reveals several other potential mediators, including rumination (Wang et al., 2018), self-esteem (Leung et al., 2021), unconscious prejudice (defined as "forming judgments about people or situations without having sufficient knowledge or data"; Xiao et al., 2022), loneliness, and unmet interpersonal needs (Gong et al., 2021), as well as mindful awareness (Jones et al., 2022). On the contrary, factors influencing the relationship between depression and social media addiction encompass social phobia (Durar, 2018), anxiety, and stress (Bilge et al., 2020; Şahin et al., 2021; Şeker, 2018), obsessive-compulsive disorders, somatization (Karadağ & Akçınar, 2019), paranoid thoughts, psychoticism, phobic anxiety, anger-hostility (Bilgin, 2018), as well as anxious and ambivalent attachment styles (Bayraktar, 2020; Düşünceli et al., 2022). These factors, directly related to irrational beliefs, further corroborate the findings of the study. Indeed, negative self-esteem influences both irrational beliefs and depression (Burnett, 1996), while mindful awareness and self-confidence impact social media addiction and fundamental negative beliefs (Perez, 2022; Ergün-Başak & Aydın, 2019).

Another significant finding of this research pertains to the direct impact of social media addiction on depression among adolescents. This implies that as adolescents' addiction to social media increases, their levels of depression also increase. Many studies in the literature support this notion (Aalbers et al., 2019; Balcı & Baloğlu, 2018; Cunningham et al., 2021; Demirci, 2019; Dikmen, 2021; Doğan, 2021; Haand & Shuwang, 2020; Karaçor, 2018; McCrae et al., 2017; Keles et al., 2020; Lin et al., 2016; Özkapı, 2021; Şeker, 2018; Yalçın, 2015). Adolescents who experience reduced connection with real-life interactions due to excessive social media usage are observed to encounter sleep problems (Kaur et al., 2021; Levenson et al., 2016; Tandon et al., 2020; Usta, 2020; Woods & Scott, 2016). Consequently, emotional imbalance in adolescents leads to anxiety issues alongside a fear of missing out on events and updates (Çağlayan & Arslantaş, 2023; Çelik & Diker, 2021; Chan & Sun, 2020; Dhir et al., 2018; Keles et al., 2020; Lopes et al., 2022). Moreover, excessive social media use correlates with communication conflicts and declining academic performance among adolescents (Söner & Yılmaz, 2018; Küçük et al., 2016). These challenges eventually contribute to diminished self-esteem (Yüksel-Şahin & Öztoprak, 2019) and life satisfaction (Soydan, 2015), adversely impacting overall psychological well-being (Söner & Yılmaz, 2018). Additionally, this scenario can trigger the development of paranoid thoughts and psychological symptoms such as anger and hostility (Macit, 2019; Bilgin, 2018), and in severe cases, may even lead adolescents to contemplate or attempt suicide (Jasmine & Kumar, 2010; Rosas-Fuentes et al., 2023; Sampasa-Kanyinga & Lewis, 2015). Based on the findings of these studies supporting our research, it can be concluded that social media addiction indeed causes elevated levels of depression among adolescents.

Another significant finding from this research is the direct impact of social media addiction on irrational beliefs among adolescents. This finding suggests that adolescents' engagement with social media increases, so does

their propensity for irrational beliefs. Indeed, studies investigating the association between social media addiction and irrational beliefs corroborate the findings of this study (Can, 2020; Demirci, 2019; Kutluca, 2020; Perez, 2022; Pontes et al., 2018; Stojkovic & Vukosavljevic-Gvozden, 2021; Trevino et al., 2023). Adolescents who exhibit a loss of control while using social media, and engaging in random and excessive usage, experience significant cognitive-emotional and behavioral issues alongside maladaptive cognition and emotions (Aşantüğrül, 2020; Wang et al., 2015). These issues encompass cognitive distortions like rumination, perfectionism, excessive need for approval (Bilgin & Doğrusever, 2018), catastrophizing, and labeling (Keleş, 2020). Consequently, adolescents may develop irrational beliefs by excessively valuing love, respect, and approval from individuals, objects, and social media platforms (Yılmaz-Erdem, 2006). This irrational perspective may lead them to approach individual or social events with generalizations, false inferences, or selective abstractions (Göller, 2010).

Another key finding from this research is the direct impact of irrational beliefs on depression among adolescents. This implies that as adolescents' irrational beliefs escalate, so do their depression scores. Many studies in the literature support this finding (Ayğar & Çapri, 2018; Buschmann et al., 2018; Dozois et al., 2012; Göller, 2010; Gül, 2017; Kınık, 2015; Küçük et al., 2016; Nelson, 1977; Rosas-Fuentes et al., 2023; Stanciu et al., 2014; Tanhan, 2014; Turner et al., 2019; Zhaleh et al., 2014). Indeed, studies conducted with young adults suggest that irrational beliefs are linked not only to depression but also to feelings of hopelessness, anxiety, and stress (Karlukaç & Kılıç, 2021), as well as paranoid thoughts, psychoticism (Kaya, 2020). Furthermore, significant associations have been found between irrational beliefs in adolescents and depression, anxiety, negative self-perception, and somatization (Karaman, 2018). It is noted that irrational beliefs among adolescents contribute to lower levels of hope (Kepir, 2011), self-esteem (Deniz, 2018; Kınık, 2015), and life satisfaction (Demir & Çolakkadıoğlu, 2023) while increasing social anxiety (Kodak, 2020), persistent anxiety (Bridges & Harnish, 2010; Çivitçi, 2006; 2009), and exam anxiety (Güler, 2012).

Conclusion and Recommendations

This study identified a significant correlation between adolescents' social media addiction and their levels of depression, with irrational beliefs partially mediating this connection. Consequently, as adolescents' social media addiction intensifies, their levels of depression directly increase, while irrational beliefs also indirectly influence depression. Although it was essential for this research to unveil the mediating role of irrational beliefs in the relationship between social media addiction and depression within a Turkish sample, there are several limitations to consider. This study adopted a correlational model, thus neglecting to address causal relationships between variables. Moreover, the research sample comprised exclusively of adolescents, specifically high school students. For further investigations, exploring the relationship between irrational beliefs, depression and social media addiction across different demographic groups could be beneficial. Further studies may delve into potential mediating factors such as mindful awareness, rumination, unconscious prejudice, self-esteem, emotional balance, and problematic internet use in the relationship between depression and social media addiction.

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Data Availability. The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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RESEARCH ARTICLE

Assessing Mindfulness Barriers: Turkish Validation of the Fears and Resistances to Mindfulness Scale (FRM) via a Bifactor Model Approach

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ABSTRACT

The Fears and Resistances to Mindfulness Scale (FRM) is a self-report measure to help identify who may fear of, have blocks against, and show resistances to mindfulness. The goal of the present study was to evaluate psychometric properties of the Turkish version of the FRM. The study recruited a sample of 448 participants. Participants completed several instruments including the Fears and Resistances to Mindfulness Scale, Depression, Anxiety, and Stress Scales, Multidimensional Existential Meaning Scale, Satisfaction with Life Scale, and Mental Health Continuum-Short Form. Factor analyses confirmed the original two-factor structure of the FRM with good internal consistency and a bifactor model of the FRM. Measurement invariance analyses across gender showed consistent psychometric properties across gender. The subscales and the general factor had positive associations with depression, anxiety, and stress, whereas they predominantly were negatively associated with well-being indicators or irrelevant. This study confirms the original factor structure of the FRM in a non-Western context with a bifactor model. The Turkish version of the FRM is a valid and reliable instrument.

Mindfulness is broadly described as receptively being open to what happens in the present moment (Brown & Ryan, 2003). Being conceptualized in various ways, it includes being open to novelty, sensitive to contexts, oriented to the moment, aware of implicit motives, and alert to distinction (Langer, 2016). Mindfulness can be regarded as a non-judgmental awareness based on deliberately directing one's attention towards what is happening in the present moment such as thoughts, feelings, or bodily senses by being open to the experience without reaction, suppression, and judgment (Kabat-Zinn, 2015). It can be divided into two types: deliberate and effortless mindfulness. Deliberate mindfulness refers to purposefully cultivating mindfulness whereas effortless mindfulness stands for cultivating spontaneous mindfulness through intentional efforts.

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Mindfulness has repeatedly been found to be beneficial for health, well-being, motivation, symptom reduction in psychopathologies, and more in various fields such as education, psychotherapy, workplace, and health (Brown & Ryan, 2003; Davis & Hayes, 2011; Gong et al., 2023; Hülsgesher et al., 2013; Keng et al., 2011). It helps people regulate their activities, fulfill their needs, help them liberate themselves from automatic thinking, and reap greater levels of well-being (Ryan & Deci, 2017). To illustrate, a recent meta-analysis indicates that mindfulness consistently anticipates autonomous motivation, less controlled motivation, and less amotivation (Donald et al., 2020).

Mindfulness can be taught through practice and training to discern the differences between consciousness and awareness (Crane et al., 2012). However, it may be challenging to observe and non-judgmentally pay attention to their mind for certain individuals since mindfulness may be connected to individual experiences, disturbing images, intense emotions, and a sense of losing control. People may get stuck in difficult feelings and thoughts, and may not let them go (see a recent meta-analysis, Taylor et al., 2022). Understanding the dynamic nature of mind and distinguishing it from its contents may be very distressing or challenging for some people (Van Gordon et al., 2021). People may experience complex physical and mental states, and interpreting the emotions following these states can be very challenging (Gilbert, 2022). These experiences can be connected to feeling unsafe and under stress, triggering unwanted memories, and feeling overwhelmed as observing one's mind is compelling (Germer et al., 2013). Indeed, these can activate avoidance and may require further assistance by psychotherapy (Gilbert & Simos, 2022).

Despite the positive outcomes of mindfulness, recent research has pointed out potential adverse effects of mindfulness (Aizik-Reebs et al., 2021; Cebolla et al., 2017; Farias et al., 2020; Kuijpers et al., 2007; Lindahl et al., 2017; Shapiro, 1992; Shonin et al., 2013). Shapiro (1992) demonstrated that most participants (60%) who practiced meditation for a long period of time experienced adverse effects such as depression, anxiety, self-criticism, and panic during and after meditation sessions. Likewise, Britton et al. (2021) documented in their study using the meditation experiences interview that a range of 37% to 58% among participants reported adverse experiences, with a range of 6% to 14% having long-term effects. These experiences were trauma recollection, anxiety, panic, and distortions in time and space.

In a similar context, Aizik-Reebs et al. (2021) conducted a study on the practice of mindfulness meditation over the course of three weeks through experience sampling. They revealed that 87% of participants experienced no less than one temporary negative effect during meditation. Participants mostly reported anxious moods as well as rumination and feeling depressed, sad, and nervous. Similarly, Kaufmann et al. (2021) assigned participants to either a waiting list control group or a 90-minute mindfulness training plus 5-minute retreatment (Study 1 $N = 54$, Study 2 $N = 155$). Participants with a high level of state orientation had higher significant scores in alienation in the mindfulness group compared to the control group. They concluded that mindfulness training may lead to alienation among people who are inclined to be state-oriented and impede their intrinsic interests with emotional contents.

Similarly, Baer et al. (2021) examined the potential negative effects of a 8-week course of Mindfulness-Based Cognitive Therapy among school teachers and university students without any diagnosis of mental disorders. Combining the results ($N = 158$), they explored that a range of 3% and 7% had challenging experiences and symptom deterioration. They also discovered that certain participants initially encountered challenging experiences including restlessness against the practice and handling unpleasant feelings although the majority of participants addressed these obstacles. Moreover, people who have poorer self-control and self-regulation skills with greater inclination towards maladaptive reflection patterns such as quasi-reflection and rumination may not view meditation as enjoyable and beneficial. They are inclined to experience it demanding and/or uninteresting and thus, are more likely to discontinue their meditation practice (Osin & Turilina, 2022).

Although researchers maintain it is important to keep in mind that in what ways and how mindfulness is practiced can strongly affect mindfulness practice and research, current findings underscore the importance of measuring potential problems that people may face regarding mindfulness. Such instruments can help identify these problems and improve the quality of mindfulness experiences/training/research with potential solutions.

Available instruments such as the Mindful Attention Awareness Scale (Brown & Ryan, 2003) and the Five Facet Mindfulness Questionnaire (Baer et al., 2006) do not directly evaluate potential problems that people may have with mindfulness. Currently, researchers do not have an informed understanding when it comes to who can be prone to suffer from mindfulness or undergo its negative effects and reasons behind this phenomenon. To illustrate, Binda et al. (2022) suggest that researchers should particularly focus on adverse events in their mindfulness meditation research. People may fear mindfulness or consider it a waste of time, and thus, may not commit themselves to mindfulness or engage in mindfulness research, which may crucially impact potential results of mindfulness. To obtain comprehensive findings on the impact of mindfulness, it is important to investigate these fears, blocks, or resistances within the wider population (Gilbert et al., 2023).

In this respect, Gilbert et al. (2023) developed a fears and resistances to mindfulness scale (FRM). Fears of mindfulness refer to concerns about getting involved in activities and their consequences. Resistances to mindfulness refer to actively rejecting mindfulness or mindful activity because of time, resources, and meaningfulness or considering it incongruent with one's personal values. When developing the FRM, Gilbert et al. (2023) respectively asked concerns that are faced by one of the authors as a mindfulness practitioner and mindful compassion retreats. They additionally asked what sort of difficulties mindfulness practitioners in the UK connected to <https://www.mindfulnessassociation.net> have when practicing mindfulness and the following themes appeared in their analysis: the difficulty of sitting and concentrating on breathing and what emerges, the challenging nature of the content arising in mind, and criticizing oneself when they do not correctly practice. They generated items and selected 31 items to perform factor analyses in British, Australian, and Portuguese samples. They provided the following instructions with participants before they rated the items: "We can often experience our minds as full of different thoughts, feelings, desires, wants and wishes. One thought can lead to another and we can get caught up in loops of thoughts and feelings. To help us not get so caught up in these "loops," it can be useful to help the mind to settle just by paying attention, becoming observant and noticing what is in our minds, without following or reacting to these thoughts, feelings, or desires. This is sometimes called mindfulness or being mindful. We are interested in how people experience times when they let their minds settle by being mindful—just observing the flow of one's thoughts or feelings. Some people try to have experiences like this, letting their mind settle and becoming stiller, whereas other people do not like having something to focus on or being less active. We are just interested in your experiences. There are no right or wrong answers." Exploratory factor analysis demonstrated a two-factor solution consistent with the literature that explained 54.56% of the variance, and confirmatory factor analysis showed a good fit upon four modifications among Items 5 and 10; 4 and 21; 19 and 22; 10 and 15. The number of the items was reduced to 19 items resulting from high loadings or low communalities.

The FRM includes 19 items and consists of two subscales: Fears of mindfulness and resistances to mindfulness. Reliability scores for the fears of mindfulness subscale ranged from .87 to .91 while ranging between .89 to .91 for the resistances to mindfulness through Omega and Cronbach's alpha coefficients. Test-retest reliability was only conducted in the British sample with 29 participants over a two-week period, and its score was .84 for both subscales. There was no significant difference between male and female participants for the fears of mindfulness and the resistances to mindfulness scales in all samples except for the significant difference between male and female participants for the resistances to mindfulness scales in the Australian sample. Fears of mindfulness and resistances to mindfulness had low and/or medium level positive associations with depression, anxiety, stress, fears of compassion for self and others, fears of compassion from others, inadequate self, hated self while having low and/or medium level negative relationships with reassured self, observation, description, awareness, nonreactivity, and nonjudgement. The FRM is a validated instrument to identify the reasons behind potential struggles with mindfulness that people have and who tends to get challenged. The FRM can help increase awareness among mindfulness participants, and raise awareness among mindfulness trainers and facilitate mindfulness research and practice to provide novel solutions with them. Given that the theoretical structure of the FRM suggests the existence of a unifying construct extending beyond the subscales, we reason that a bifactor model may offer a practical approach to measure the overarching construct of

“mindfulness avoidance” as the FRM attempts to assess individual differences in fears and resistances to mindfulness. A general “mindfulness avoidance” factor may explain shared variance among all items, more accurately representing the relationships among the measured variables while still considering the explanatory power of the subscales. A bifactor model of the FRM may also have practical implications as well as its theoretical implications. A bifactor model of the FRM can shed light on individual differences in mindfulness avoidance and inform researchers and practitioners about potential tailored approaches addressing obstacles to mindfulness engagement and practice. The primary goal of this research is to evaluate psychometric properties of the FRM among Turkish-speaking participants. The secondary goal of the study is to test a bifactor model of the FRM, several types of validity, and measurement invariance analyses.

Methodology

Measures

Fears and Resistances to Mindfulness Scale (FRM) (Gilbert et al., 2023): The FRM assesses fears of mindfulness and resistances to mindfulness with a total of 19 items. It is rated on a 5-point Likert scale ranging from “1 = Not at all like me” to “5 = Extremely like me”. In this study, the FRM subscales demonstrated good internal consistency: Fears of Mindfulness ($\alpha = .87$); Resistance to Mindfulness ($\alpha = .83$).

Depression Anxiety Stress Scale-21 (DASS-21) (Lovibond & Lovibond, 1995; Turkish version: Yildirim et al., 2018): The DASS-21 measures individuals’ depression, anxiety, and stress levels with a total of 21 items. It has three subscales rated on a 4-point Likert scale ranging from “0 = did not apply to me at all” to “3 = applied to me very much or most of the time”. Higher scores in each subscale demonstrate higher levels in that subscale. In this study, the subscales of the DASS-21 exhibited adequate internal consistency: Depression ($\alpha = .88$); Anxiety ($\alpha = .87$); Stress ($\alpha = .87$).

Multidimensional Existential Meaning Scale (MEMS) (George & Park, 2017; Turkish version: Subasi et al., 2024): The MEMS measures meaning in life with comprehension, purpose, and mattering subdimensions. Each subscale has 5 items (e.g., “I can make sense of the things that happen in my life”; “I have overarching goals that guide me in my life”; “I am certain that my life is of importance”) rated on a 7-point Likert scale ranging from “1 = Very strongly disagree” to “7 = Very strongly agree”. Internal consistency scores of the subscales demonstrated high levels of reliability in this study: Comprehension ($\alpha = .88$); Purpose ($\alpha = .92$); Mattering, ($\alpha = .84$).

Satisfaction with Life Scale (SWLS) (Diener et al., 1985; Turkish version: Köker, 1991): The SWLS measures life satisfaction through one factor and includes 5 items (e.g., “I am satisfied with my life”) rated on a 7-point Likert scale ranging from “1 = Strongly disagree” to “7 = Strongly agree”. In this study, the SWLS showed adequate internal consistency ($\alpha = .87$).

Mental Health Continuum-Short Form (MHC-SF) (Keyes et al., 2008; Turkish version: Kardaş & Yalcin, 2018): The MHC-SF measures well-being with a total of 14 items rated on a 6-point Likert scale ranging from “0 = Never” to “5 = Every day” considering the question stem “During the past month, how often did you feel ...” for each. It has a total score and three subscales: Emotional well-being (EWB) (e.g., “... happy”; 3 items); Social well-being (SOWB) (e.g., “... that you had something important to contribute to society”); Psychological well-being (PWB) (e.g., “... that your life has a sense of direction or meaning to it”). In this study, the MHC-SF and its subscales demonstrated adequate internal consistency: MHC-SF ($\alpha = .92$); EWB ($\alpha = .86$); SOWB ($\alpha = .85$); PWB ($\alpha = .87$).

Turkish Validation of the FRM

We received permission to adapt the FRM into Turkish from the team of the FRM developers. We followed the double-translation method. Two Turkish psychologists (PhD students in psychology and counseling psychology) translated the FRM items into Turkish. Two experts in psychology and social work and three Turkish language specialists reviewed and revised the items. One PhD student in psychology and one social worker translated the revised version back to English. The finalized version was reviewed by two experts in psychology. The final version of the FRM was tested with a total of 60 participants in a pilot study. Fears of Mindfulness ($\alpha = .87$) and Resistance to Mindfulness ($\alpha = .76$) showed adequate reliability with good item-rest correlations ranging from .30 to .77.

Data Collection

This cross-sectional study employed the following criteria to participate in the study: being at least over 18 years old and being a student of preparatory, undergraduate, or graduate programs. The present research utilized a convenience sampling by collecting data online through a Google Forms link in the first semester of the 2023-2024 academic year in Türkiye. The present research adhered to the Helsinki Declaration and its later amendments, and followed ethical principles such as anonymity, confidentiality, and right to withdraw from the study.

A sample of 450 participants granted informed consent on a voluntary basis. Two participants were under 18 years old and thus, their data were excluded. A total of 448 (369 female participants) were included in the analyses. The age range of the participants ranged from 18 to 57 ($M = 22.27$; $SD = 4.14$). 4 participants were pursuing PhD, 41 participants were doing a master degree, 389 participants were pursuing an undergraduate degree, and 14 participants were preparatory students. 101 participants reported low economic level, 329 had middle economic level, and 18 reported high economic level.

Data Analysis

The present research employed Jamovi 2.3.21 and JASP 0.18.1.0 to conduct the analyses. All raw data was evaluated for missing values, outliers, and normality assumptions. There was no missing data. After checking z-scores of each FRM item considering extreme values, 2 scores were detected as outliers ranging out of -3 and +3, which was assumed not to have a significant effect on the findings. We removed them from the data set. It is recommended that a sample size should be higher than 200 participants for most models (Kline, 2015). The FRM items were mainly close to normal distributions between -1 and +1 considering skewness and kurtosis.

First, we calculated descriptive statistics, skewness, and kurtosis. Second, we conducted a Confirmatory Factor Analysis (CFA) to evaluate the structural validity of the FRM, and carried out measurement invariance analyses of the FRM across gender groups with Mplus and Diagonally Weighted Least Squares (DWLS) with robust standard error and Listwise deletion. We assessed fit indices following the guidelines in CFA (Byrne, 1994; Fabrigar et al., 1999; Kline, 2015): the chi-square, the Comparative Fit Index (CFI) (values higher than .90 demonstrate acceptable fit; values higher than .95 show a good fit), the Tucker–Lewis index (TLI) (should be higher than .90), the (Standardized) Root Mean Square Residual (SRMR) (values lower than .08 show acceptable fit), the Root Mean Square Error of Approximation (RMSEA) (values lower than .08 show acceptable fit). Third, we tested a bifactor model of the FRM through a structural equation model following the suggestions by Rodriguez et al. (2016) with Mplus and Diagonally Weighted Least Squares (DWLS) with Listwise deletion. We calculated explained common variance (ECV), the percent of uncontaminated correlations (PUC), omega indices of each factor (ω_{HS}), hierarchical omega indices of the general factor (ω_H) and specific factors (ω_{HS}), item-level explained common variance (IECV), factor determinacy (FD), H index by Hancock and Mueller (2001) by a formula in excel (Dueber, 2017). When ECV is greater than $> .60$ and $PUC < .80$, and the omega index of the general factor is greater than .80 and hierarchical omega indices of the specific factors are lower than .50, the general score of the items can be considered unidimensional (Reise et al., 2013). IECV values greater than .80 or .85 provide a set of unidimensional items representing the general factor's content (Stucky & Edelen, 2015). Factor determinacy value should be higher than .90 (Gorsuch, 1983). H index value should be higher than .80 to prove a well-conceptualized underlying construct (Hancock & Mueller, 2001). Finally, we analyzed the concurrent and divergent validity of the FRM by correlations with psychopathology and well-being indicators.

Descriptive statistics, Pearson's correlation tests, regression analyses, and reliability analyses were performed through Jamovi 2.3.21. The confirmatory factor analysis and bifactor model were carried out through JASP 0.18.1.0. with Mplus.

Results

Descriptive Statistics of the Scales

Table 1 demonstrates the following statistics for the scales used in the study: means, standard deviations (SD), skewness, kurtosis, Cronbach alpha, and item-rest correlations. The statistics show that the scales were normally distributed.

Table 1. Descriptive Statistics of the Scales.

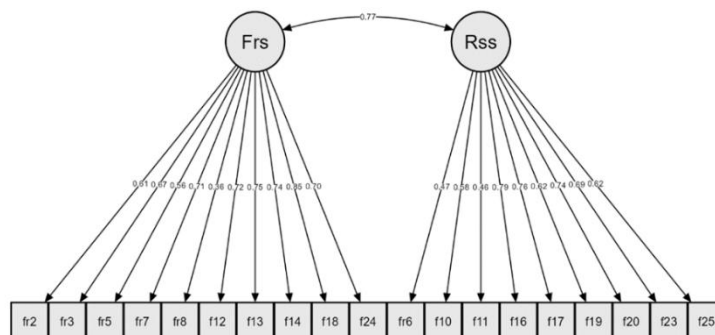
	C	P	M	SWLS	EWB	SOWB	PWB	MHC	D	A	S	FM	RM
M	18.49	19.78	18.15	19.85	11.98	17.15	24.93	54.06	9.61	8.76	10.77	27.25	21.52
SD	4.62	4.62	4.93	6.67	3.28	5.79	6.38	13.53	5.68	5.62	5.46	8.46	7.03
S	-0.62	-0.95	-0.51	-0.14	-0.30	0.04	-0.51	-0.31	0.19	0.33	-0.17	0.23	0.43
K	0.05	0.76	-0.36	-0.51	-0.21	-0.64	0.07	-0.12	-0.85	-0.83	-0.79	-0.53	-0.40

Note. $N = 448$. M = Mean; SD = Standard Deviation; S = Skewness; K = Kurtosis; α = Cronbach's Alpha. C = Comprehension; P = Purpose; M = Mattering; $SWLS$ = Life Satisfaction; EWB = Emotional Well-Being; $SOWB$ = Social Well-Being; PWB = Psychological Well-Being; MHC = Mental Health Continuum-Short Form; D = Depression; A = Anxiety; S = Stress; FM = Fears of Mindfulness; RM = Resistance to Mindfulness. Skewness Standard Error was 0.12. Kurtosis Standard Error was 0.23.

Structural Validity

As illustrated in Figure 1, the FRM subscales demonstrated a good fit (Figure 1): [$\chi^2 = 631.54$, $df = 151$, $p = .00$], $CFI = .976$, $TLI = .973$, $RMSEA = .08$, $90\%CI[.08, .09]$, $SRMR = 0.07$. The indices indicated that the FRM subscales fitted well with the data, representing the latent constructs.

Figure 1. Path Diagram for the CFA of the FRM.



Measurement Invariance Analyses Across Gender Groups

As shown in Table 2, indices for each type of measurement invariance analyses demonstrated that the FRM subscales exhibited consistent measurement properties across gender (calculate the differences of CFI and RMSEA). This provided support for the cross-group validity of the subscales.

Table 2. Measurement invariance analyses of the FRM subscales across gender groups.

	χ^2	df	P	CFI	TLI	RMSEA	SRMR
Configural Invariance	829.32	355	< .001	0.98	0.98	0.08	0.08
Metric Invariance	900.81	317	< .001	0.97	0.97	0.09	0.08
Scalar Invariance	885.48	374	< .001	0.98	0.98	0.08	0.08
Strict Invariance	885.48	374	< .001	0.98	0.98	0.08	0.08

Note. χ^2 = Chi-square; df = Degree of Freedom; p = Probability; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; $RMSEA$ = Root Mean Square Error of Approximation; $SRMR$ = Standardized Root Mean Square Residual.

A Bifactor Model of the FRM

The bifactor model was found to be the best model compared to the two-factor model of the FRM (Table 3). The results showed that the bifactor model demonstrated a superiority in all the indices: [$\chi^2 = 374.78$, $df = 133$, $p = .00$], CFI = .99, TLI = .98, RMSEA = .06, SRMR = .05. The Explained Common Variance (ECV) index was .70. This index predominantly accounted for the observed variance across all the items by the general factor. Furthermore, the subscales had unique contributions and the PUC value was .53. These findings pointed an underlying fears and resistances to mindfulness construct with a general factor. The omega coefficients were between .87 and .90 for the subscales while the omega coefficient of the general factor was .93, showing good reliability. The hierarchical omega coefficients for the subscales ranged from .19 to .29, demonstrating explained variance by the subscales remaining after the contribution of the general factor. These results both supported the multidimensional and unidimensional structure of the FRM with a strong support to the discriminant and convergent validity of the subscales. Seven items of the FRM general were greater than .80 based on the IECV values, allowing to compose a set of unidimensional items (shown italic in Table 3). H index value was .92 and FD value was .94. These values indicated high correlations between the subscales and general factors, providing evidence for a well-defined latent construct. The bifactor model can be regarded as a better representation of the FRM pursuant to the findings obtained.

Table 3. Bifactor model of the FRM.

Item No	FRM General	Fears of Mindfulness	Resistance to Mindfulness	IECV
Item 2	.500	.380		.634
Item 3	.540	.430		.612
Item 5	.450	.360		.610
Item 6	.400		.320	.610
Item 7	.610	.350		.752
Item 8	.190	.500		.126
Item 10	.480		.410	.578
Item 11	.370		.360	.514
Item 12	.570	.470		.595
Item 13	.560	.610		.457
Item 14	.650	.330		.795
Item 16	.710		.330	.822
Item 17	.680		.300	.837
Item 18	.850	.110		.984
Item 19	.500		.510	.490
Item 20	.670		.280	.851
Item 23	.620		.310	.800
Item 24	.620	.310		.800
Item 25	.670		-.120	.969
PUC	.526			
FD	.937			
H	.921			

Note. IECV = Item-level Explained Common Variance, PUC = Percent of Uncontaminated Correlations, FD = Factor Determinacy, H = H Index.

Concurrent Validity

Table 4 shows the relationships between the FRM general, fears of mindfulness, resistance to mindfulness, depression, anxiety, and stress. Fears of mindfulness subscale has medium positive associations with depression, anxiety, and stress (.52, .59, and .56). The FRM general has medium positive associations with depression, anxiety, and stress (.43, .50, and .46). Resistance to mindfulness subscale has low positive associations with depression, anxiety, and stress (.23, .28, and .24). The FRM general and fears of mindfulness show similar associations with depression, anxiety, and stress. These results demonstrate the concurrent validity of the FRM.

Table 4. The Associations between the FRM.

	Fears of Mindfulness	Resistance to Mindfulness	FRM
Depression	.52 ***	.23 ***	.43 ***
Anxiety	.59 ***	.28 ***	.50 ***
Stress	.56 ***	.24 ***	.46 ***

Note. *** $p < .001$

Divergent Validity

Table 5 shows the relationships between the FRM general, fears of mindfulness, resistance to mindfulness, satisfaction with life, emotional well-being, social well-being, psychological well-being, mental health continuum, comprehension, purpose, and mattering. Fears of mindfulness had low negative associations with well-being indicators and no association with social well-being. Resistance to mindfulness had low negative associations with purpose and mattering, a low positive association with social well-being, and no associations with satisfaction with life, emotional well-being, psychological well-being, mental health continuum, and comprehension. The FRM general had low negative associations with emotional well-being, psychological well-being, comprehension, purpose, and mattering, and no associations with satisfaction with life, social well-being, and mental health continuum.

Table 5. The associations between the FRM general, the FRM subscales, and well-being indicators.

	Fears of Mindfulness	Resistance to Mindfulness	FRM
Life satisfaction	-.19 ***	.06	-.09
Emotional well-being	-.21 ***	.01	-.12 *
Social well-being	-.09	.18 ***	.04
Psychological well-being	-.22 ***	-.04	-.15 **
Mental health continuum	-.19 ***	.06	-.09
Comprehension	-.28 ***	-.09	-.21 ***
Purpose	-.18 ***	-.12 **	-.17 ***
Mattering	-.27 ***	-.12 **	-.23 ***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

Our results indicate that the original two-order factor model of the FRM has been replicated in a Turkish sample by a good fit. The FRM subscales, fears of mindfulness and resistance to mindfulness, demonstrate acceptable indices and good internal consistency. Measurement invariance analyses of the FRM subscales show that the FRM subscales have consistent psychometric properties across gender groups. The bifactor model of the FRM demonstrates that a general factor of the FRM with high reliability shows a better fit in comparison to the original two-factor structure. The FRM general may be used as a higher-order factor both in research and clinical practice as it can reflect a better representation of the FRM. This higher-order factor can be helpful in measuring fears and resistances to mindfulness and be considered “mindfulness avoidance.” Our research is the first study to provide a second-order factor to holistically measure fears and resistances to mindfulness.

The FRM subscales and the FRM general indicate structural validity, discriminant validity, concurrent validity, and divergent validity. In relation to concurrent validity, the FRM subscales and the FRM general demonstrate moderate positive relationships with depression, anxiety, and stress. These results are in line with the findings of the original FRM study. Gilbert et al. (2023) has also found that fears of mindfulness has moderate positive relationships with depression, anxiety, and stress, and that resistance to mindfulness has low moderate positive relationships with depression, anxiety, and stress. These findings lend nice support for the fact that people may have difficulties with observing their emotional states and thoughts; consequently, they are likely to fear mindfulness and show resistances to it. These suggest that adverse effects observed in previous mindfulness research may be closely related to individual differences in fears and resistances to mindfulness. Fears and resistances to mindfulness may be connected to depression, anxiety, self-criticism, and panic (Shapiro, 1992), restlessness (Baer et al., 2021), rumination (Aizik-Reebs et al., 2021), alienation (Kaufman et al., 2021), and poorer self-control (Osin & Turilina, 2022).

With regard to divergent validity, the FRM subscales and the FRM general show either negative low or no associations with well-being indicators (i.e., life satisfaction, mental health continuum, and meaning in life) except a weak positive relationship between resistances to mindfulness and social well-being. These results indicate initial discoveries with well-being indicators in the context of fears and resistances to mindfulness. These may emerge from previous adverse experiences attached to mindfulness (Gilbert et al., 2023). Mindfulness practices can trigger negative symptomatology and undermine mental health among certain individuals. These may cause these individuals to develop fears and resistances to mindfulness, which consequently limits them to have the benefits of mindfulness. As mindfulness may be challenging for certain individuals, they may already have higher levels of fears and resistances to mindfulness. These individuals tend to not engage in mindful practice and thus, are less likely to have beneficial well-being outcomes due to mindfulness (e.g., Brown & Ryan, 2003; Gong et al., 2023). Ultimately, this suggests that these individuals may have less satisfaction with their life, experience worse mental health outcomes, and feel less meaningful in their lives.

In terms of the bifactor model, the FRM offers a valuable tool to identify fears and resistances to mindfulness as an individual trait that the current study terms as “mindfulness avoidance.” This model is likely to precisely offer a more comprehensive representation of mindfulness-related barriers compared to fears and resistances to mindfulness themselves (Gilbert et al., 2023). However, this does not diminish the importance of measuring the FRM subscales. Mindfulness avoidance can simplify assessment, providing an accurate measure that can guide interventions and facilitate the identification of individuals who may struggle with mindfulness given individual differences. Mindfulness avoidance is closely associated with worse outcomes in well-being and greater depression, anxiety, and stress. These findings imply that measuring and accordingly addressing it can improve mental health outcomes. As the present research is the first study to introduce mindfulness avoidance as a higher-order factor, this study opens new avenues for revealing its associations with and/or outcomes in variables such as rumination, self-criticism, self-guilt, and internalized shame, suggesting further research areas.

Mindfulness is beneficial for improving mental health outcomes, promoting well-being, and reducing mental health symptoms (e.g., Davis & Hayes, 2011; Keng et al., 2011). It is important to address why people struggle with mindfulness and who is more likely to avoid mindfulness. The Turkish version of the FRM provides a valuable tool to measure both distinct subscales (fears of mindfulness and resistance to mindfulness) and a general factor (mindfulness avoidance) to handle this. The Turkish FRM can serve as a facilitator to identify individuals’ attitudes and barriers towards mindfulness. Accordingly, researchers can identify and control potential challenges against mindfulness practice or cultivating mindfulness in research in various populations. Longitudinal research can focus on individual changes in fears and resistances to mindfulness. Practitioners can facilitate people to engage in mindfulness when presenting it by training on the potential benefits of mindfulness upon identifying fears and/or resistances to mindfulness. Clinicians can tailor treatment plans and interventions, and monitor changes or progress during psychotherapy using the FRM.

This study has several limitations. The cross-sectional nature of the study does not allow to speculate any causality, requiring further experimental and longitudinal research. The present study recruits preparatory, undergraduate, and graduate students. The Turkish version of the FRM can be tested in different populations and clinical groups. The current study utilized self-report measures, which may raise concerns about subjective perceptions and social desirability. The present research does not extensively control personality traits or prior or present mindfulness experience, which should be addressed in future studies.

Conclusion

The current research replicates the original two-factor of the FRM and provides a novel psychometric property to measure the FRM as a general factor among Turkish-speaking participants. The Turkish FRM fully confirms the original findings of the FRM. The Turkish FRM is a reliable and valid instrument to identify fears and resistances to mindfulness both through distinct factors or a higher-order factor.

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RESEARCH ARTICLE

Investigation of the Serial Mediation Role of Life Satisfaction and Self-Esteem in the Relationship between Ruminative Thought and Forgiveness in University Students

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ABSTRACT

Frequent problems in human relationships cause rumination, which involves repetitive thoughts. The concept of forgiveness plays an important role in solving problems. In this context, life satisfaction and self-esteem, which are thought to have an important role in the relationship between forgiveness and rumination, are discussed. The purpose of the current study is to determine whether life satisfaction and self-esteem have a serial mediation role in the relationship between rumination and forgiveness. The current study employed the relational survey model. The study group is comprised of a total of 313 university students in the 2022-2023 academic year. The findings obtained from the analyses revealed that rumination predicted forgiveness negatively and significantly. Finally, it was determined that self-esteem played a mediator role in the relationship between rumination and forgiveness, while life satisfaction did not. However, it was found that while life satisfaction did not mediate by itself, it had a serial mediation role through self-esteem. The findings of the study were discussed in light of the literature. With these findings, it can be said that rumination, which has a negative effect on university students' forgiveness processes, can be reduced by increasing life satisfaction and self-esteem. On the basis of the findings, suggestions were made for researchers and practitioners.

Today, the rapidly increasing population and the globalizing world order have also increased interpersonal relations. People communicate with each other directly or indirectly and sometimes experience conflicts. Another group in which intense relations are established is university students. Young people from different cultures carry out many activities together while living together, having fun and studying. Of course, they may experience conflicts and problems during these processes.

People tend to avoid the violations against them or to take revenge by responding more severely. While both of these motivations are destructive, the tendency to take revenge often predominates (Snyder & Lopez, 2002). Individuals have formulated a range of potential remedies for the harmful consequences of interpersonal violations (Fry & Björkqvist, 1997). One of these approaches is forgiveness. Forgiveness suppresses people's

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natural negative reactions to violations and instead motivates them more to bring positive ones to life (McCullough & Worthington, 1999). According to McCullough (2000), forgiveness refers to a decrease in the desire to avoid the violator and to hurt or take revenge on that person, and an increase in the desire to behave positively towards that person. Similarly, Hargrave and Sells (1997) define forgiveness as renouncing the anger and desire to take revenge against the person who made the mistake, repairing the relationship and healing the internal emotional damage. Barnes et al. (2010) stated that forgiveness develops positive thoughts, feelings and behaviours towards the guilty party and other people, and that voluntarism, tolerance and altruistic behaviours increase with forgiveness.

The existing research on forgiveness has revealed that forgiveness is positively correlated with high empathy and self-esteem (Alpay, 2009; Gündüz, 2014), emotional intelligence (Kaya & Peker, 2016), secure attachment (Yıldırım, 2009), self-sensitivity (Asıcı & Karaca, 2014) and life satisfaction (Küçüker, 2016; Yalçın & Malkoc, 2014; Satıcı, 2016) while negatively with perfectionism (Bugay, 2010; Kaya & Peker, 2016).

Another concept studied with forgiveness is rumination. Studies have shown that there is a negative correlation between forgiveness and rumination (Barber et al., 2005; Berry et al., 2005; McCollough et al., 2007). Rumination activates negative feelings and thoughts, which prevents forgiveness (Schweers, 2012). In this context, rumination, which has a negative effect on forgiveness, is the independent variable in the current study.

Rumination is defined as repetitive thinking about a negative emotion or event (Robinson & Alloy, 2003). Rumination is a thinking pattern marked by persistent and uncontrollable repetitive thoughts. Rumination is the constant thinking of the negative emotional state and the symptoms, possible causes and consequences of this emotional state, but not taking action to solve the problem (Nolen-Hoeksema, 2000). Generally, rumination is also recognized as a state linked to depressive mood. Individuals who tend to ruminate continuously focus on their emotional state and express dissatisfaction with it (Brinker and Dozois, 2009). Moreover, ruminative thoughts are recurrent reflections on the occurrence and significance of a past event (Lyubomirsky et al., 1999).

When the existing research is reviewed, it becomes evident that individuals who engage in rumination tend to exhibit higher levels of pessimism, anger, hopelessness and anxiety (Nolen-Hoeksema, 2000). In another study, Kırıl (2011) determined a moderately negative correlation between rumination and life satisfaction. At the same time, a positive correlation was observed between life satisfaction and forgiveness (Rey and Extremera, 2016). In this context, life satisfaction is a mediator variable in the current study.

Generally, life satisfaction is described as individuals' evaluation of their own life (Pavot and Diener, 2008). According to Vara (1999), life satisfaction refers to the state of intense positive emotions such as happiness and morale. Diener et al. (1985) define life satisfaction as a person's often positive perception of life within the framework of his/her own criteria. Moreover, life satisfaction refers not only to the progress individuals achieve in particular areas of their lives but also to their overall growth across all aspects of life. (Avşaroğlu et al., 2005; Özer & Özsoy-Karabulut, 2003).

In studies on life satisfaction, the relationships between life satisfaction and forgiveness (Allemand et al., 2012; Bugay & Demir, 2011; Datu, 2014), between life satisfaction and happiness (Demir & Murat, 2017; Peterson et al., 2005), between life satisfaction and loneliness (Tuzgöl-Dost, 2007). In addition, Karremans et al. (2003) found a strong correlation between forgiveness and self-esteem as well as between forgiveness and life satisfaction. In this context, self-esteem, which has a positive correlation with forgiveness and negative correlation with rumination, was considered as another mediator variable of the current study.

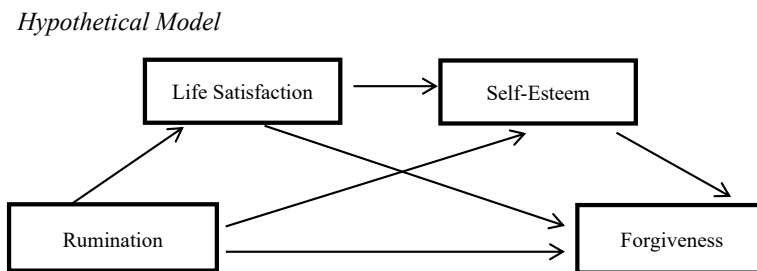
Rosenberg (1965) defines self-esteem as an individual's evaluation and perception of himself/herself. The concept of self-esteem refers to the positive emotional state that enables an individual to be content with himself/herself, to find himself/herself worthy of being loved and admired and to trust himself/herself without thinking that he/she is inferior or superior to what he/she really is (Yiğit, 2012). Studies have found that self-esteem and life satisfaction (Apaydın, 2020; Yıldırım, 2017) are positively correlated. Feeling unique,

demonstrating abilities, achieving success, gaining social acceptance, and embracing one's own physical traits are key factors in the development of self-esteem (Yörükoğlu, 2007).

Studies have found that self-esteem and problem-solving skills (Ünüvar, 2003), assertiveness (Dinçer & Öztunç, 2009) and life satisfaction (Apaydın, 2020; Dilmaç & Ekşi, 2008; Yıldırım, 2017) are positively correlated. A strong positive correlation between self-esteem and life satisfaction has been demonstrated by studies conducted in many cultures (Çivitci, 2007). In this context, given the observed positive correlation among the mediator variables in the study, it is hypothesized that life satisfaction might serve as a serial mediator in the connection between rumination and forgiveness through self-esteem. Hence, the objective of the study is to investigate if life satisfaction and self-esteem collectively serve as serial mediators in the relationship between rumination and forgiveness. With this study, it is thought that the effect of rumination, which is a serious obstacle to forgiveness, can be reduced through life satisfaction and self-esteem, and considering the effect of these mediator variables on each other, both variables together may have a stronger effect in series. In this context, it is crucial to clearly understand the role of life satisfaction and self-esteem in strengthening the forgiveness tendencies of university students who are obliged to live together with many people from different cultures. The results of this study can be an important source of reference, both to prevent rumination and to strengthen forgiveness.

In the literature, no study was found in which forgiveness, rumination, life satisfaction and self-esteem, which constitute the variables of the study, were examined together. However, some studies emphasized the relationship between these variables. In this context, examining these variables together is both unique in the field and important in terms of creating a comprehensive model about the forgiveness processes of university students who represent a large population in terms of their results.

Figure 1. Hypothetical model



H₁: There is a negative significant correlation between the ruminative thoughts and tendency to forgive of university students.

H₂: Life satisfaction plays a mediator role in the relationship between the ruminative thoughts and tendency to forgive of university students.

H₃: Self-esteem plays a mediator role in the relationship between the ruminative thoughts and tendency to forgive of university students.

H₄: Life satisfaction and self-esteem play a serial mediation role in the relationship between the ruminative thoughts and tendency to forgive of university students

Methodology

Research Model

Relational survey models are used to investigate whether there is a covariance between the variables or to

reveal the degree of this covariance as a result of examining more than one variable together (Karasar, 2003). Hayes (2018) model 6 was employed to calculate the mediation effect. In this model, the main aim to evaluate the indirect effect and come up with inferences (Gürbüz, 2020).

In cases where there is more than one mediating variable, multiple mediation analysis is performed. Multiple mediation analysis is divided into two as parallel multiple mediation and serial mediation model. In the parallel multiple mediation model, the causal relationship between the mediating variables is not considered, while in the serial mediation analysis, the relationship between the mediating variables is also considered (Koshksaray et al., 2015). Serial mediation refers to models that include at least three or more paths in series by creating a chain of mediating variables in the relationship between the independent variable and the dependent variable (Burt & Hampton, 2017; Chan et al., 2022). In this context, considering that life satisfaction, one of the mediating variables of the study, affects self-esteem, a serial mediation model was constructed in this study.

Study Group

The researchers chose to use a convenience sampling approach when selecting the study participants. In this method, a questionnaire can be applied to the participants reachable by the researcher (Balci, 2001). The study group is comprised of 313 university students attending different faculties and institutes at Burdur Mehmet Akif Ersoy University and 237(75.7%) of the students are females and 76(24.3%) are males. The average age of the participants is 22.34.

Data Collection Tools

Heartland forgiveness scale: The scale, originally created by Thompson et al. (2005). Later, Bugay and Demir (2010) adapted the scale into Turkish. This 7-point Likert type scale has 18 items and three sub-dimensions. The scale items consist of statements such as “Although I feel bad at first when I mess up, I can relieve myself over time”. The Cronbach α internal consistency coefficient is .64 for self-forgiveness, .79 for forgiveness of others, .76 for forgiving situation subscale and .81 for the whole scale. The fit indices from the Confirmatory Factor Analysis were deemed acceptable (GFI=.92, AGFI=.90, RMSEA=.06) by Bugay et al. (2012). The Cronbach alpha value calculated using the data of the current study was found to be .704 for the sub-dimension of forgiveness of self, .758 for the sub-dimension of forgiveness of others and .740 for the sub-dimension of forgiveness of situations and .834 for the whole scale.

Ruminative thought style scale: The scale was developed by Dozois (2009) and Karatepe (2010) adapted it to Turkish. The exploratory factor analysis performed on the uni-dimensional 20-item scale revealed that the scale explains 63.43% of the variance. Scale items consist of statements such as “I realize that my mind is constantly reviewing things over and over again.” The criterion reliability analysis revealed that the scale is valid. The reliability analysis revealed that internal consistency coefficient is .907. The reliability analysis run in the current study revealed that the Cronbach alpha value .is 943.

Rosenberg self-esteem scale: Developed by Rosenberg (1965), the scale consists of 63 items and 12 subscales. In Rosenberg's study on adolescents in the U.S.A., it consists of small subscales in order to evaluate self-esteem together with various other characteristics. The characteristics and evaluations measured by each subscale are different. Çuhadaroglu (1986) conducted a validity and reliability assessment of the scale originally developed by Rosenberg (1965) within the Turkish context. The Cronbach alpha value of the scale is 0.81. The scale has 12 sub-categories. In this study, the initial 10 items from the scale were utilized for assessing self-esteem. Scale items consist of statements such as “I find myself as valuable as other people”. Respondents can answer each item using a 4-point Likert-style scale. The reliability study revealed a Cronbach alpha value of .81. In this study, the Cronbach alpha value was found to be .889.

Life satisfaction scale: Köker (1991) conducted the initial adaptation study of the scale developed by Diener et al. (1985) into Turkish culture. There are five items in this 7-point Likert scale. Dağlı and Baysal (2016) conducted a subsequent adaptation of the scale into Turkish. The scale items consist of statements such as “If I were born again, I would change almost nothing in my life.” The Cronbach alpha value of the scale is 0.88.

The outcomes of the factor analysis demonstrated that, like the original scale, the Life Satisfaction Scale exhibited a unifactorial structure, comprising 5 items. The Cronbach alpha value was computed to be 0.873 in the current study.

Data Collection

At the stage of data collection, first, necessary permissions were obtained, Burdur Mehmet Akif Ersoy University Ethics Committee Approval (with the date of 07.12.2022 and number GO 2022/1017) was taken for the study. The study gathered data from university students during the 2022-2023 academic year, employing four distinct measurement instruments. The completion of the data collection tools took approximately 15 minutes. The data were collected face-to-face.

Data Analysis

In the univariate outlier analysis, the z-test was utilized, and given the participant count exceeded 100, the reference range for the z-score was established within the range of -4.00 to +4.00, and it was seen that there was no data remaining outside the range (Mertler & Vannatta, 2016). The Mahalanobis distance test was conducted to identify multivariate outliers, and the probability value (1 - ChiSquare) was calculated for each pattern based on the number of attributes. Büyüköztürk (2003) suggested considering a significance level of .01 or 0.001 if it is desired to be more conservative. The calculated probability values (1-ChiSquare) were analyzed according to the threshold value of .001 and those below .001 were considered to be outliers. According to the Mahalanobis distance coefficient, the responses of one participant were excluded from the data set (Tabachnick et al., 2007). To assess whether the dataset used in the research exhibited homogeneity in its distribution or not, the Kurtosis-skewness values were examined. Hair et al. (2009) stated that the normality threshold values should be (-+2.58) at the .01 significance level. The skewness values for each scale were found to range between -.348 and .237 and the Kurtosis values between -.366 and -.215 and thus the data set exhibited a normal distribution. Furthermore, correlation analysis revealed the absence of multicollinearity problem within the dataset. It can be confidently asserted that there was no multicollinearity problem as no correlations among variables reached or exceeded .90 (Cokluk et al., 2014). Mediation analysis was carried out with the Hayes process macro using the SPSS-22 package program on the data set consisting of the answers of 313 participants.

Results

Relationships between Forgiveness, Ruminative Thoughts, Life Satisfaction and Self-Esteem

Pearson correlation coefficient analysis was performed to investigate the correlations between forgiveness, ruminative thoughts, life satisfaction and self-esteem. Correlations are displayed in Table 1.

Table 1. Correlation Values between Forgiveness, Ruminative Thoughts, Life Satisfaction and Self-Esteem

Variables	n	Mean	Skewness	Kurtosis	1.	2.	3.	4.
1- Forgiveness	313	95.837	-.342	-.348	1			
2- Rumination	313	81.894	-.215	.237	-.483 ***	1		
3- Life Satisfaction	313	23.409	-.470	-.306	.275 ***	-.186 **	1	
4- Self-Esteem	313	31.204	-.366	-.318	.496 ***	-.424 ***	.377 ***	1

*p<.05, **p<.01, ***p<.001

Among university students, a significant negative correlation was found between their tendency to forgive and their ruminative thoughts ($r = -0.483$, $p < 0.001$). Moreover, there was a significant positive correlation between their tendency to forgive and both their life satisfaction ($r = 0.275$, $p < 0.001$) and self-esteem ($r = 0.496$, $p < 0.001$). Ruminative thoughts were discovered to exhibit a significant negative correlation with both

life satisfaction ($r = -.186, p < .01$) and self-esteem ($r = -.424, p < .001$). Furthermore, a significant positive correlation was identified between life satisfaction and self-esteem ($r = .377, p < .001$).

Findings Regarding the Serial Mediation Role of Life Satisfaction and Self-Esteem in the Relationship between Ruminative Thought and Forgiveness in University Students

Serial mediation analyses were conducted with the Process macro, Model 6 for SPSS version 3.4 (Hayes, 2018) to determine whether life satisfaction and self-esteem have a serial mediation role in the relationship between ruminative thought and forgiveness. In the analysis, 5000 resampling option was preferred with the bootstrap technique. The findings are displayed in Table2, Table3 and Figure2 below.

Table 2. Bootstrapping test regression analysis results

	M ₁ (Life Satisfaction)		M ₂ (Self-Esteem)		Y(Forgiveness)	
Predictor Variables	<i>b</i>	S.E.	<i>b</i>	S.E.	<i>b</i>	S.E.
Rumination (X)	-.0509**	.0153	-.0908***	.0122	-.2202***	.0340
M1			.2784***	.0445	.2270	.1210
M2					.8643***	.1455
Constant	28.2875	1.5097	33.3878	1.7295	70.7083	6.5741
	R=.0344		R=.2717		R=.3442	
	F(1; 311)=11.0948; p<.01		F(2; 310)=57.8156; p<.001		F(3; 309)=54.0538; p<.001	

*p<.05, **p<.01; ***p<.001, k=5000, S.E=Standard error, unstandardized beta coefficient (b) are reported

Rumination negatively and significantly predicts life satisfaction ($b = -.0509, SE = .0153, p < .01$) and self-esteem ($b = -.0908, SE = .0122, p < .01$). In addition, life satisfaction positively and significantly predicts self-esteem ($b = .2784, SE = .0445, p < .01$), but not forgiveness ($b = .2270, SE = .1210, p > .05$). Moreover, it was found that self-esteem positively and significantly predicted forgiveness ($b = .8643, SE = .1455, p < .001$).

As a result of the Bootstrapping analysis, the total and direct effects of rumination on forgiveness and its indirect effects on life satisfaction and self-esteem are given in Table 3 below.

Table 3. Indirect, direct, and total effect of rumination on forgiveness

Effect	Path	Bootstrapping		%95 CI	
		B	SE	LLCI	ULCI
Indirect Effects	R→LS→F (Indirect1)	-.0116	.0082	-.0303	.0015
	R→SE→F (Indirect2)	-.0785	.0169	-.1135	-.0478
Serial Indirect Effect	R→LS→SE→F (Indirect3)	-.0123	.0056	-.0253	-.0033
Total Indirect Effect	Indirect1+Indirect2+Indirect3	-.1023	.0202	-.1440	-.0651

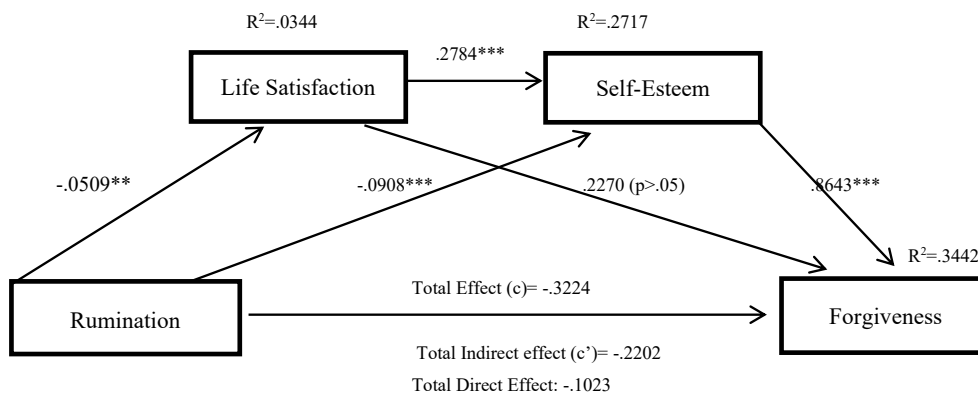
Table 3. (Continued)

Direct Effect	R→F	-.2202	.0340	-.2870	-.1533
Total Effect	Direct Effect+Total Indirect Effect	-.3224	.0331	-.3876	-.2573

n=313, k=5000

The total effect of rumination on forgiveness ($b = -.3224$, $SE = .0331$, 95% CI $[-.3876, -.2573]$) is negative and significant. The direct effect of rumination on forgiveness was found to be negative and significant ($b = -.2202$, $SE = .0340$, 95% CI $[-.2870, -.1533]$). Upon separate examination of the indirect effects of the mediator variables, it became evident that the indirect effect of self-esteem was statistically significant ($b = -.0785$, $SE = .0169$, 95% CI $[-.1135, -.0478]$), while the indirect effect of life satisfaction was not significant ($b = .0478$, $SE = .0082$, 95% CI $[-.0303, .0015]$). However, while the isolated indirect effect of life satisfaction was not significant, its serial indirect effect on self-esteem was determined to be statistically significant ($b = -.0123$, $SE = .0056$, 95% CI $[-.0253, -.0033]$). According to all these results, the overall indirect effect within the established model was identified as statistically significant ($b = -.1023$, $SE = .0202$, 95% CI $[-.1440, -.0651]$). Thus, life satisfaction and self-esteem had a serial mediation role in the reduction of the negative effects of rumination on forgiveness. The fully standardized effect size of the mediation effect is (CI $[-.2096, -.1019]$) $\beta = -.1533$) at the 95% confidence interval and this value is close to the medium mediation effect.

Figure 2. Illustrates the model concerning the serial mediation role of life satisfaction and self-esteem in the relationship between rumination and forgiveness



Discussion, Results and Suggestions

It was determined that rumination predicted forgiveness negatively and significantly. In addition, rumination predicted life satisfaction and self-esteem negatively and significantly. At the same time, it was determined that forgiveness had a positive and significant predictive relationship with self-esteem. However, it was determined that life satisfaction did not predict forgiveness at a statistically significant level. Furthermore, it was found that life satisfaction predicted self-esteem positively. Finally, it was established that self-esteem acted as a mediator in the connection between rumination and forgiveness, whereas life satisfaction did not play a mediating role. However, it was determined that while life satisfaction did not mediate by itself, it had a serial mediation role through self-esteem. The findings obtained from the study and the hypotheses of the study are discussed below.

Rumination was also found to predict forgiveness negatively and significantly. In the literature, there are studies showing that rumination is negatively correlated with both forgiveness of self (Graham et al., 2017; Onal & Yalçın, 2017) and forgiveness of others (McCullough et al., 2007; Özgür & Eldeleklioğlu, 2017; Wu et al., 2019). Rumination negatively affects the forgiveness process by causing compelling emotions such as anger, guilt and shame towards the individual's past mistakes to become chronic (McCullough et al., 1997). McCullough et al. (2007) emphasized that the increase in the level of rumination causes an increase in the desire to escape from the offender and to take revenge. Individuals who extend forgiveness to those who

commit errors tend to experience fewer mental health issues, including reduced levels of rumination, obsessive-compulsive disorder, generalized anxiety disorder, depression, and anger, compared to those who do not forgive as readily (Hanna, 2012). Therefore, it can be said that rumination negatively affects the forgiveness process by increasing thoughts such as rethinking the event, anger and taking revenge.

Rumination negatively predicted life satisfaction. In the existing research, a negative correlation is stated to exist between rumination and life satisfaction (Ysseldyk et al., 2007). Rumination with negative content leads to unhappy mood, while rumination with positive content leads to positive mood (Karatepe, 2010). On the other hand, rumination reduces the desire to engage in pleasurable activities and the sense of control over one's life, causes distorted interpretation of life events and pessimism towards the future (Lyubomirsky & Nolen-Hoeksema, 1993). Therefore, it can be said that the life satisfaction of the individual repetitive thoughts decreases.

As another predictor variable, life satisfaction was not found to predict forgiveness at a statistically significant level. There are also some studies reporting a positive correlation between life satisfaction and forgiveness (Altan & Çivitci, 2017; Ayten & Ferhan, 2016; Lawler-Row & Piferi, 2006; Thompson et al., 2005). As a result of violations in interpersonal relationships, individuals may avoid or seek revenge. Generally, the tendency to take revenge is predominant (Newberg et al., 2000; Snyder & Lopez, 2002). People have developed various potential solutions to the corrosive effects of interpersonal violations (Fry & Björkqvist, 1997). One of these is forgiveness. In this context, the individual who encounters violation may choose to forgive, take revenge or avoid. Considering the potential of the wide social networks of the university students who constitute the sample group of the study, they can also achieve life satisfaction by taking revenge or avoiding and developing different relationships. Therefore, it can be said that increased life satisfaction is not directly related to forgiveness tendencies.

Additionally, it was found that rumination negatively predicted self-esteem. Kalfa (2019) also reported a negative correlation between rumination and self-esteem. Focusing on the self-triggers rumination by perceiving the difference between the individual's positive and negative perceptions, evaluations and targeted self-perception (Yağmur, 2018). The deepening of the individual's thoughts about the self is associated with rumination and negatively affects psychological health (Ciesla & Roberts, 2002). In this context, it can be said that the increase in rumination in the individual causes the deepening of his/her feelings and thoughts about himself/herself, thus weakening his/her self-perception.

Additionally, self-esteem was identified as another predictor variable that positively predicts forgiveness. This finding concurs with the findings of some studies in the literature (Coates, 1996; Maltby et al., 2001; Woodyatt & Wenzel, 2013; Yıldırım-Kurtuluş et al., 2022). Self-esteem is defined as the recognition and acceptance of one's own positive traits and strengths (Pope & McHale, 1988). Rosenak and Harnden (1992) pointed out that if self-esteem is increased, the tendency of these individuals to forgive also increases. In this context, it can be said that individuals with high self-esteem are more inclined to forgive when they establish healthier relationships and are constructive. Therefore, university students with high self-esteem may be more forgiving.

Another discovery from the study revealed that life satisfaction did not act as a mediator in the relationship between rumination and forgiveness. While there is no direct result similar to this finding in the literature, some studies have found that irrational beliefs reduce life satisfaction (Çivitçi, 2009; Çivitçi & Tobaşoğlu, 2015). Bugay and Demir (2011) stated that forgiveness is a positive change process that occurs in an individual's emotions, thoughts and behaviors. In this context, it is seen that rumination decreases life satisfaction but has no direct relationship with forgiveness.

Therefore, it can be said that the increase in life satisfaction is not only dependent on forgiveness, but when we take into account the present circumstances of the university students who make up the study group, factors like success, social support, professional growth, and self-actualization may also influence life satisfaction. Therefore, given that life satisfaction is not a strong enough variable to predict forgiveness in the current model, it may not play a mediator role in the relationship between rumination and forgiveness.

Another notable finding from the study was the identification of self-esteem as a mediator in the relationship between rumination and forgiveness. Yörükoğlu (2007) stated that those with high self-esteem are more positive towards themselves and others, do not shy away from competition, have a sense of meaning in their lives and struggle against difficulties. Excessive stimulation of emotions such as anger, anxiety and sadness towards the perceived violation of the individual is perceived as a threat to the self-esteem of individuals (McCullough et al., 2001). Furthermore, for the offended individual, forgiveness has the role of preventing the harm that the perceived violation causes to his/her self-esteem (North, 1998). Therefore, considering that rumination poses a threat to an individual's self-esteem and that self-esteem promotes forgiveness, it can be concluded that self-esteem plays a mitigating role in reducing the negative impact of rumination on forgiveness.

While life satisfaction did not mediate on its own, it had a serial mediation role through self-esteem. When the predictors were considered one by one, it was determined that rumination predicted life satisfaction negatively, life satisfaction predicted self-esteem positively and self-esteem predicted forgiveness positively. Bugay and Demir (2012) found that forgiveness is negatively correlated with rumination and positively correlated with life satisfaction. Kirişoğlu (2016) discovered a positive relationship between life satisfaction and self-esteem. Therefore, it can be said that self-esteem mediated the negative effect of rumination on forgiveness and this role was serially increased through self-esteem strengthened by life satisfaction.

Limitations and Future Directions

The present study has certain limitations, such as the omission of independent variables such as family background, economic status, gender, age, class level, and similar factors concerning the participants. The following recommendations can be made to researchers and practitioners.

- Preventative interventions aimed at addressing rumination in university students can incorporate the concepts of life satisfaction, self-esteem, and forgiveness.
- Again, life satisfaction and self-esteem can be taken as reference in studies for strengthening forgiveness.
- Various organizations can be organized by the university administration to increase the life satisfaction of university students.
- The results obtained in the present study can be verified through the implementation of new research on diverse sample populations, including middle school students, high school students, and so on.
- The conclusions drawn from the current study can be subject to re-evaluation through the utilization of alternative research methodologies, such as experimental designs.
- Longitudinal studies on forgiveness, rumination, life satisfaction and self-esteem are recommended.

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Data Availability: Supplemental data for this article is available on request.

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RESEARCH ARTICLE

Hedonic vs. Eudaimonic Ways of Living on the Path to Well-Being and Psychological Distress: Turkish Validation of HEMA-R

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ABSTRACT

The Hedonic and Eudaimonic Motives for Activities-Revised (HEMA-R) measures eudaimonic, hedonic, hedonic pleasure, and hedonic comfort motivations. We tested the psychometric properties of the HEMA-R among Turkish-speaking university students ($N = 255$) and adults ($N = 460$). Confirmatory factor analyses among university students demonstrated both two-factor and three-factor solutions of the HEMA-R, while confirmatory factor analyses among adults identified a three-factor solution. Internal consistencies of the HEMA-R were largely good. In both samples, eudaimonic motivation always had at least slightly more positive associations with well-being indicators compared to hedonic motivation, hedonic pleasure motivation, and hedonic comfort motivation, while having negative weak relationships in half of the analyses with ill-being indicators. Hedonic motivation mostly had weak positive associations with the majority of well-being outcomes, while having weak positive associations with several indices of ill-being. Hedonic pleasure motivation had weak positive associations with the majority of well-being indicators, and hedonic comfort motivation did not have any association with some of the well-being indicators. They predominantly had no associations with ill-being indicators. Eudaimonic and hedonic indicators of motivation both related to need satisfaction and meaning in life indicators. Implications are discussed for future research.

There has been a long-term debate about well-being among philosophers, psychologists, social scientists, and researchers. They have particularly discussed how to conceptualize well-being and how it can be pursued. A large body of studies have predominantly focused on hedonic and eudaimonic perspectives to well-being. The hedonic perspective considers well-being the result of enjoyment, and of physical and emotional pleasure pursuits, involving biological, emotional, and cognitive components (Huta & Waterman, 2014). This perspective suggests that people orient themselves towards having comfort, pleasure, and enjoyment. The hedonic perspective is often operationalized as Subjective Well-Being, including the presence of positive emotions, the absence or lack of negative emotions, and a global evaluation of life satisfaction (Diener et al., 1985, 2009). Conversely, the eudaimonic perspective maintains that well-being comes from developing strengths and personal qualities by pursuing valued goals. This perspective proposes that well-being can be

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achieved when people pursue their own values, develop personal strengths, and harness personal resources on the path to well-being and self-growth (Huta & Ryan, 2010). The eudaimonic perspective has often been operationalized as Psychological Well-Being. Psychological well-being in a broad sense includes personal growth, autonomy, positive relations with others, self-acceptance, purpose in life, and environmental mastery (Ryff & Keyes, 1995).

This focus on the distinction between hedonia and eudaimonia in well-being has shown that well-being conceptualizations are distinct but also correlated (Huta & Ryan, 2010). Nevertheless, the distinctiveness of well-being constructs based on hedonic and eudaimonic perspectives remains to be resolved. Theoretical confusions, operational ambiguities, philosophical perspectives, and empirical findings have prompted researchers to develop integrative approaches to well-being. Huta and Waterman (2014) maintained that concerns regarding the distinction between hedonic and eudaimonic approaches to well-being emerged from different conceptualizations, analysis categories, and measurement levels. To support this position, Huta (2022) demonstrated that hedonia and eudaimonia were distinct when operationalized as trait-level orientations/motives, state-level orientations/motives, trait-level behaviors, and state-level experiences; in addition, Huta (2024) has shown that they are distinct when operationalized as trait-level functioning. Huta and Waterman (2014) suggested that well-being concepts can be classified in the following definition categories: orientations/motives, behaviors, experiences, and functioning. Orientations include individual reasons, goals, motives, priorities, or values. For example, one can seek pleasure or look for self-growth. Behaviors refer to activities and actions including thoughts. For example, one can eat a tasty dish or help a person in need. Experiences encompass feelings, emotions, and affective-cognitive appraisals. For example, one can feel relaxed or inspired. Functioning involves trait-level abilities, achievements, habits, and strengths. For example, one can be good at spontaneity or self-regulation.

Huta (2015, 2016) argues that all four definition categories are important for understanding eudaimonia and hedonia, but considers orientations to be the primary definition category. She sees orientations and behaviors as better descriptions of personality/character because they are chosen ways of living, while experiences and functioning often are outcomes of ways of living, and are less under direct control. In this context, orientations/motives are distinct from well-being experiences and functioning. Furthermore, when contrasting orientations and behaviors, she notes that two people can do the same behavior for very different reasons, and that the reasons/orientations more closely characterize a person.

Well-Being Motives

As a measure of well-being motives, the HEMA-R measures hedonic and eudaimonic motivation (Huta & Ryan, 2010). Hedonic motivation is defined as pursuing what subjectively is pleasant, and consists of the pursuit of two main components: pleasure and comfort. Hedonic pleasure motivation includes pursuing pleasant emotions and sensations, and emotional satisfaction. Hedonic comfort motivation comprises pursuing relaxation, the absence of pain, and ease. Eudaimonic motivation is described as striving for what matters and is meaningful, and consists of the pursuit of four main components as summarized by Huta and Waterman (2014) and elaborated by Huta (2016): authenticity, meaning, excellence, and growth. Eudaimonic motivation refers to striving to: know one's true self and values, be autonomous, and pursue value-congruent goals; be committed to what matters, and understand and contribute to the surrounding world; be dedicated to high standards in one's ethics, behavior, and performance; and seek knowledge, develop personal qualities, and pursue self-actualization. As they are distinct evaluations of what is "good," eudaimonic motivation and hedonic motivation can be in conflict with each other while they can also be present at the same time (Huta, 2015, 2016).

Previous factor-analytic research on the HEMA(-R) has shown that the English version often has a two-factor solution (eudaimonic motivation, hedonic motivation) but sometimes has a three-factor solution (eudaimonic motivation, hedonic pleasure motivation, hedonic comfort motivation) (e.g., Anić, 2014; Asano et al., 2020, 2021; Braaten et al., 2019; Bujacz et al., 2014; Gentzler et al., 2021; Huta, 2015; Huta & Ryan, 2010; LeFebvre & Huta, 2021; Li et al., 2021). Translations into other languages have shown two-factor and/or three-factor

solutions in Chinese (Li et al., 2021) and English (Huta & Ryan, 2010; Huta, 2016) versions. To illustrate, a two-factor solution of the HEMA(-R) was confirmed in Croatian (Anić, 2014) and in Greek (Koumantarou Malisiova et al., 2021), while a three-factor solution of the HEMA-R was obtained in Italian (Giuntoli et al., 2021), Persian (Behzadnia & Ryan, 2018), Polish (Bujacz et al., 2014), and Japanese (Asano et al., 2014; Asano et al., 2021). The Chinese version of the HEMA-R revealed that the HEMA-R could form both two- and three-factor solutions (Li et al., 2021). These studies have additionally investigated the links of motives with distinct outcomes.

Prior research has examined the links of eudaimonic motivation and hedonic motivation with measures of well-being and ill-being. The measures of well-being used in these studies were often the Satisfaction with Life Scale (SWLS) (Diener et al., 1985), the Scale of Positive and Negative Experience (SPANE) (Diener et al., 2009), the Meaning in Life Questionnaire (Steger et al., 2006), the Psychological Well-Being Scale (PWB) (Ryff & Keyes, 1995), the Balanced Measure of Psychological Needs Scale (BMPN) (Sheldon & Hilpert, 2012), and the Flourishing Scale (Diener et al., 2009). The measures of ill-being employed in these studies often were the negative experience subscale of the SPANE (Diener et al., 2009) and Depression Anxiety Stress Scale-21 (DASS-21) (Lovibond & Lovibond, 1995).

When studying well-being, researchers have often found that eudaimonic motivation had stronger positive relationships to indicators of well-being compared to hedonic motivation, hedonic pleasure motivation, and hedonic comfort motivation (e.g., Asano et al., 2014, 2021; Braaten et al., 2019; Chen & Zeng, 2021; Chen & Zheng, 2023a; Gentzler et al., 2021; Giuntoli et al., 2021; Huta & Ryan, 2010; Koumantarou Malisiova et al., 2020; Kryza-Lacombe et al., 2019; Li et al., 2021; Lin & Chan, 2020; Zeng & Chen, 2020). Hedonic motivation sometimes had weak associations with life satisfaction, positive affect, and meaning (Asano et al., 2014; Braaten et al., 2019; Koumantarou Malisiova et al., 2020; Zeng & Chen, 2020) or no relationships with some of them (Chen & Zeng, 2021; Lin & Chan, 2020). Hedonic pleasure motivation had weak or moderate positive associations with life satisfaction, positive affect, and psychological well-being. Hedonic comfort motivation had no relationship to positive affect and flourishing (e.g., Asano et al., 2014; Braaten et al., 2019; Chen & Zeng, 2023; Giuntoli et al., 2021).

When examining ill-being, researchers have often found that eudaimonic motivation was more negatively associated with ill-being indicators compared to hedonic motivation (Chen & Zheng, 2023a; Huta & Ryan, 2010; Koumantarou Malisiova et al., 2021; Kryza-Lacombe et al., 2019). Hedonic motivation did not have any relationship to negative affect (Braaten et al., 2019; Chen & Zeng, 2021; Lin & Chan, 2020) or had a positive association with negative affect (Zeng & Chen, 2020) and with autonomy and competence frustration (Lin & Chan, 2020). Hedonic pleasure motivation had weak or moderate associations with depression, anxiety, and stress (Braaten et al., 2019; Giuntoli et al., 2021), whereas some research demonstrated no association with negative affect (Asano et al., 2021; Chen & Zeng, 2023a). Hedonic comfort motivation mainly had no association with ill-being indicators (e.g., Asano et al., 2021; Braaten et al., 2019; Giuntoli et al., 2021).

Despite some inconsistencies among previous studies, it can be suggested that the majority of research indicated that eudaimonic motivation had stronger positive relationships with the above well-being indicators, and relatively stronger negative relationships with the ill-being indicators. Hedonic motivation and hedonic pleasure motivation appeared to positively correlate with the majority of well-being indicators and negatively with some of the ill-being indicators. Hedonic comfort motivation seemed to not be related to the ill-being indicators while it sometimes had weak positive associations with well-being indicators.

The present research adopts the distinction between well-being motives and outcomes as suggested by Huta and Waterman (2014), and aims to investigate psychometric properties of HEMA-R orientations/motives in Turkish. In addition, the present research attempts to explore the associations between well-being motives, well-being outcomes, and ill-being indicators.

The Present Research

The present research recruited two samples among Turkish-speaking adults and university students to evaluate the psychometric properties of the HEMA-R scale. Study 1 focused on university students and included

measures of hedonic and eudaimonic motivation, basic psychological need satisfaction and frustration, positive affect, negative affect, and life satisfaction. Study 2 focused on adults of all ages and included the measures of hedonic and eudaimonic motivation, life satisfaction, basic psychological need satisfaction and frustration, coherence, purpose, and significance as indicators of eudaimonic well-being outcomes, and depression, anxiety, and stress as indicators of ill-being.

Study 1

Methodology

Participants

Study 1 recruited a total of 255 Turkish university students (58 males, 197 females). The mean age of male participants was 22.59 years ($SD = 4.40$, $range = 18 - 48$). The mean age of female participants was 22.55 years ($SD = 5.22$, $range = 18 - 52$). The age mean of the sample was 22.56 ($SD = 5.04$, $range = 18 - 52$). There were 45 participants who reported having low socioeconomic status (SESS), 204 reported having middle SESS, and 6 reported high SESS. All participants granted informed consent prior to participating in the research.

Measures

Demographics. The demographics form collected information about informed consent, gender, age, and subjective economic status.

Hedonic and Eudaimonic Motives for Activities-Revised Scale (HEMA-R): Huta and Ryan (2010) developed the HEMA and it was revised by Huta (2016) through the addition of one eudaimonic item and one hedonic comfort item. Bozdemir (2023) provided the Turkish translation of the HEEMA (Hedonic, Eudaimonic, and Extrinsic Motives for Activities) using rigorous back-translation methodology, which includes the items of the HEMA-R (as well as a subscale assessing extrinsic motivation, which is not studied here). A written permission was granted to this study to investigate the psychometric properties of the HEMA-R using the translated items by Bozdemir (2023). Both the originator of the scale and Bozdemir (2023) approved the permission. The HEMA-R measures hedonic (pleasure and comfort) motivation and eudaimonic motivation rated on a seven-point Likert scale from 1 (not at all) to 7 (very much). Hedonic motivation can be measured as a single scale through 5 items (e.g., “Seeking enjoyment?” “Seeking relaxation?”) or be divided into two subscales, both of which are measured through 3 items: hedonic pleasure motivation and hedonic comfort motivation. An additional item, “Seeking to have things comfortable?,” is employed to measure hedonic comfort motivation. Eudaimonic motivation is measured through 5 items (e.g., “Seeking to develop a skill, learn, or gain insight into something?”). The HEMA-R can be adapted for trait, state, and situational purposes. In the present research, the instructions to the HEMA-R targeted the trait level, and the wording was “To what degree do you typically approach your activities with each of the following intentions, whether or not you actually achieve your aim?” Reliability scores of the HEMA-R are provided in the results section.

Balanced Measure of Psychological Needs (BMPN) Scale: Sheldon and Hilpert (2012) developed the BMPN. Kardaş and Yalcin (2018) translated the BMPN into Turkish. With a total of eighteen items, the BMPN assesses need satisfaction and need frustration of basic psychological needs. Need satisfaction and need frustration scores are scored using three items in each subscale for autonomy, competence, and relatedness such as “I felt a sense of contact with people who care for me, and whom I care for” or “I struggled doing something I should be good at.” It is also possible to have general need satisfaction scores by calculating total scores for autonomy, competence, and relatedness by deducting dissatisfaction scores from satisfaction scores. A seven-point Likert scale, ranging from “1 = Strongly disagree” to “7 = Strongly agree”, is utilized to rate the BMPN items. The wording was “Please typically answer the following questions considering the scale below.” The original version of the BMPN and its Turkish version respectively had the following reliability: Autonomy Satisfaction (AUS) ($\alpha = .69$; $\alpha = .65$); Autonomy Frustration (AUF) ($\alpha = .72$; $\alpha = .72$); Competence Satisfaction (COS) ($\alpha = .71$; $\alpha = .70$); Competence Frustration (COF) ($\alpha = .70$; $\alpha = .63$); Relatedness Satisfaction (RES) (α

= .73; α = .79); Relatedness Frustration (REF) (α = .85; α = .68). The BMPN demonstrated the following reliability scores in Study 1: Autonomy Satisfaction (AUS) (α = .79); Autonomy Frustration (AUF) (α = .83); Competence Satisfaction (COS) (α = .86); Competence Frustration (COF) (α = .83); Relatedness Satisfaction (RES) (α = .80); Relatedness Frustration (REF) (α = .71).

Scale of Positive and Negative Experience (SPANE): Diener et al. (2009) developed the SPANE, translated by Telef (2015) into Turkish. The SPANE measures negative and positive affect through 12 items, having two subscales (positive affect; SPANE-P; e.g., “pleasant”; negative affect; SPANE-N; e.g., “sad”). It employs a five-point Likert scale, ranging from “1 = Very rarely or never” to “5 = Very often or always”, to rate emotion frequency regarding the past month. Participants were asked to respond to the items considering “Please think about what you have been doing and experiencing during the past four weeks. Then report how much you experienced each of the following feelings, using the scale below.” The original version of the SPANE and its Turkish version respectively had the following reliability scores: SPANE-P: α = .87; α = .88; SPANE-N: α = .81; α = .83. The SPANE demonstrated the following reliability scores in Study 1: SPANE-P (α = .88); SPANE-N (α = .80).

Satisfaction with Life Scale (SWLS): Diener et al. (1985) developed the SWLS, adapted into Turkish by Köker (1991). The SWLS includes 5 items to assess a global judgment of life satisfaction on a single factor with items such as “If I could live my life over, I would change almost nothing.” A seven-point Likert scale, ranging from “1 = Strongly disagree” to “7 = Strongly agree”, is used to rate the SWLS items. Participants were asked to respond to the items considering “Please answer the following questions that you may agree or disagree with in general using the scale below.” The original version of the SWLS and its Turkish version respectively had the following reliability: α = .87; α = .76. The SWLS showed the following reliability score in Study 1: SWLS (α = .86).

Data Analysis

The analyses for Study 1 were carried out using R language. Raw data was evaluated and no outliers were detected. Additionally, there were no missing values. Multivariate normality was predominantly assumed following the suggestion of -1.5 and 1.5 regarding skewness and kurtosis values (Tabachnick & Fidell, 2013). Descriptive statistics and corrected item-rest correlations of the HEMA-R among Turkish university students were analyzed. Single-factor, two-factor, and three-factor versions of the HEMA-R were tested through confirmatory factor analyses (CFAs). The single-factor model included eleven items as in the newest version of the HEMA-R. The two-factor model included ten items as hedonic motivation and eudaimonic motivation with five items were tested. The three-factor model included eleven items as three-item hedonic pleasure motivation, three-item hedonic comfort motivation, and five-item eudaimonic motivation were tested. The two-factor model with five hedonia items and the two-factor model with six items were additionally analyzed as we nested the models to evaluate whether the inclusion of the item “Seeking to have things comfortable?” significantly improves the model fit indices. The internal consistency scores of the two-factor and three-factor versions of the HEMA-R were calculated. The associations among well-being motives, well-being outcomes, and ill-being indicators were tested using Pearson correlations.

The actual sample size for CFAs of the HEMA-R was adequate as Kline (2015) suggested that at least 200 participants should be recruited for CFAs. Several fit indices were included in this study. The present research included chi-square, the Comparative Fit Index (CFI), the Tucker-Lewis index (TLI), the (Standardized) Root Mean Square Residual (SRMR), and the Root Mean Square Error of Approximation (RMSEA). The chi-squared/df should be less than or equal to 10 to indicate marginal fit, 5 to show acceptable fit and 3 to demonstrate good fit. The CFI value should be at least .85 to indicate marginal fit, .90 to show acceptable fit and .95 to demonstrate good fit. The TLI value should be at least .85 to show marginal fit, .90 to indicate acceptable fit, and .95 to demonstrate good fit. The SRMR should be less than or equal to .12 to demonstrate marginal fit, .10 to indicate acceptable fit, and .08 to show good fit. The RMSEA should be less than or equal to .12 to show marginal fit, .10 to indicate acceptable fit and .08 to demonstrate good fit (Hu & Bentler 1999; West et al., 2012). In addition to CFAs, this study calculated reliability of the HEMA-R and its associations with well-being and ill-being indicators.

Results

As shown in Table 1, descriptive statistics demonstrated that the HEMA-R items mainly fell within acceptable boundaries of normality except for eighth and sixteenth items. The skewness scores of the items were between -1.61 and -0.50. The kurtosis scores of the items were between -0.60 and 2.79. The mean scores of the items ranged between 4.97 and 6.00. The standard deviation scores of the items ranged from 1.13 to 1.72. All the corrected item-rest correlations were higher than .30, showing an acceptable level of similarity.

Table 1. Descriptive statistics of the HEMA-R items among turkish university students and adults

HEMA-R Subscale		Study 1					Study 2				
		<i>M</i>	<i>SD</i>	<i>S</i>	<i>K</i>	<i>Item-total r</i>	<i>M</i>	<i>SD</i>	<i>S</i>	<i>K</i>	<i>Item-total r</i>
Eudaimonic motivation	Seeking to develop a skill, learn, or gain insight into something?	5.67	1.26	-1.08	1.46	0.54	5.67	1.47	-1.07	0.46	0.69
	Seeking to do what you believe in?	6	1.13	-1.23	1.32	0.44	5.79	1.41	-1.11	0.46	0.68
	Seeking to pursue excellence or a personal ideal?	5.51	1.38	-0.93	0.75	0.45	5.45	1.51	-0.87	0.12	0.61
	Seeking to use the best in yourself?	5.68	1.37	-1.24	1.64	0.56	5.68	1.42	-1.09	0.62	0.65
	Seeking to contribute to others or the surrounding world?	5.36	1.48	-0.9	0.46	0.42	5.38	1.58	-0.87	0.1	0.6
	Total	5.64	0.91	-0.89	1.3	-	5.59	1.15	-0.85	0.04	-
Hedonic pleasure motivation	Seeking pleasure?	5.3	1.4	-0.94	0.56	0.65	5.14	1.69	-0.7	-0.41	0.75
	Seeking enjoyment?	5.3	1.35	-0.8	0.45	0.68	5.16	1.62	-0.72	-0.27	0.78
	Seeking fun?	5.39	1.49	-1.12	1.26	0.49	5.07	1.63	-0.55	-0.57	0.59
	Total	5.33	1.17	-0.88	0.87	-	5.12	1.43	-0.57	-0.32	-
Hedonic comfort motivation	Seeking relaxation?	5.57	1.39	-1.13	1.39	0.46	5.41	1.67	-1.02	0.18	0.44
	Seeking to take it easy?	4.97	1.72	-0.5	-0.6	0.34	4.88	1.69	-0.46	-0.62	0.43
	Seeking to have things comfortable?	5.87	1.39	-1.61	2.79	0.5	5.47	1.61	-0.93	0.03	0.49
	Total	5.47	1.13	-0.93	1.39	-	5.25	1.26	-0.59	-0.22	-
Hedonic motivation	Seeking relaxation?	5.57	1.39	-1.13	1.39	0.41	5.41	1.67	-1.02	0.18	0.52
	Seeking pleasure?	5.3	1.4	-0.94	0.56	0.57	5.14	1.69	-0.7	-0.41	0.72
	Seeking enjoyment?	5.3	1.35	-0.8	0.45	0.64	5.16	1.62	-0.72	-0.27	0.71
	Seeking to take it easy?	4.97	1.72	-0.5	-0.6	0.41	4.88	1.69	-0.46	-0.62	0.46
	Seeking fun?	5.39	1.49	-1.12	1.26	0.56	5.07	1.63	-0.55	-0.57	0.63
	Total	5.31	1.04	-0.67	0.33	-	5.13	1.26	-0.49	-0.34	-

Note. Undergraduates *Ns1* = 255; Adults *Ns2* = 460; *M* = Mean; *SD* = Standard Deviation; *S* = Skewness; *K* = Kurtosis.

Scale Reliability

Cronbach's alpha and Omega coefficients were calculated to test the reliability of the HEMA-R factors. The internal consistency coefficients of the HEMA-R demonstrated acceptable levels of reliability: Eudaimonic motivation ($\alpha = .72$; $\omega = .73$); Hedonic pleasure motivation ($\alpha = .77$; $\omega = .78$); Hedonic comfort motivation ($\alpha = .62$; $\omega = .63$); Hedonic motivation ($\alpha = .75$; $\omega = .74$). Eudaimonic motivation and hedonic motivation had a moderate correlation, which was a bit higher than the correlation of around .30 found in English-speaking samples (Huta 2022); the remaining correlations are provided for reference purposes. In addition, hedonic motivation, hedonic pleasure motivation, and hedonic comfort motivation had moderate associations with eudaimonic motivation. Hedonic motivation had large associations with hedonic pleasure and hedonic comfort motivation. Hedonic pleasure motivation had a moderate association with hedonic comfort motivation. Correlations ranged from .38 to .91.

Confirmatory Factor Analysis

To assess the factor structure of the HEMA-R, the present research performed CFAs for single-factor, two-factor, and three factor versions of the HEMA-R. CFAs were conducted through the R Mplus mimic package using the DWLS estimator and robust standard errors with listwise deletion. No item was removed and no modifications were made. As shown in Table 2, the single-factor structure of the HEMA-R had fit indices which were not in the adequate or even marginal range. The two-factor structure of the HEMA-R mostly demonstrated good fit to the data, though the RMSEA was in the marginal range. The three-factor structure of the HEMA-R showed a good fit to the data. Furthermore, we tested the HEMA-R as the two-factor structure of with five hedonia items and the two-factor structure with six hedonia items since the HEMA including only

hedonic motivation was revised as the HEMA-R with the item “Seeking to have things comfortable?,” allowing it to be evaluated as hedonic pleasure motivation and hedonic comfort motivation. As a result, the models were nested to be compared, and the two-factor model with five hedonia items and the two-factor model with six hedonia items were analyzed. The two-factor model with five hedonia items demonstrated the following fit indices: $\chi^2 = 102.45$, $df = 34$, $\chi^2/df = 3.01$, $CFI = .98$, $TLI = .97$, $SRMR = .07$, $RMSEA = .09$. The two-factor model with six hedonia items demonstrated the following fit indices $\chi^2 = 140.61$, $df = 43$, $\chi^2/df = 3.27$, $CFI = .97$, $TLI = .96$, $SRMR = .07$, $RMSEA = .10$. The difference between the CFI values of the models was equal to .01, and the chi-squared difference was significant ($\Delta\chi^2 = 38.16$, $df\ difference = 9$, $p < .05$) demonstrating that the model with six hedonia items significantly evidenced a better fit in comparison to the model with five hedonia items. Consequently, the three-factor solution indicated superior fit indices, while the two-factor model was viable. Factor loadings of the three-factor solution of the HEMA-R ranged between .48 and .90. Factor loadings of the two-factor solution of the HEMA-R ranged between .42 and .88. The correlations among the factors of the three-factor solution of the HEMA-R were .62 for the eudaimonic factor and the hedonic pleasure factor, .63 for the eudaimonic factor and the hedonic comfort factor, and .72 for the hedonic pleasure factor and the hedonic comfort factor. The correlation between eudaimonic and hedonic factors of the two-factor solution of the HEMA-R was .67. In sum, we found support for both a two-factor solution and a three-factor solution. Therefore, from this point onward, Study 1 results will be reported for eudaimonic motivation, hedonic motivation, hedonic pleasure motivation, and hedonic comfort motivation.

Table 2. Fit indices for confirmatory factor analysis of HEMA-R items in Study 1 and Study 2

Sample / Model	χ^2	df	χ^2/df	CFI	TLI	SRMR	RMSEA
Study 1							
One-factor	242.53	44	5.51	.84	.82	.16	.21
Two-factor	102.45	34	3.01	.98	.97	.07	.09
Three-factor	102.63	41	2.50	.98	.98	.07	.08
Study 2							
One-factor	517.29	44	11.76	.79	.74	.07	.15
Two-factor	230.48	34	6.78	.91	.87	.07	.11
Three-factor	206.31	41	5.03	.93	.90	.05	.09

Note. χ^2 = Chi-square; df = Degree of Freedom; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; $RMSEA$ = Root Mean Square Error of Approximation; $SRMR$ = Standardized Root Mean Square Residual.

The Associations Between Well-Being Motives and Well-Being Indicators

According to Table 3, eudaimonic motivation had either weak or moderate positive associations with life satisfaction, positive affect, autonomy satisfaction, competence satisfaction, and relatedness satisfaction. Hedonic pleasure motivation had weak positive associations with positive affect, autonomy satisfaction, competence satisfaction, and relatedness satisfaction. Hedonic comfort motivation had weak positive associations with autonomy satisfaction and relatedness satisfaction. Hedonic motivation had weak positive associations with autonomy satisfaction and relatedness satisfaction.

Table 3. The associations between well-being motives and well-being indicators

Study / Variable	Eudaimonic Motivation	Hedonic Pleasure Motivation	Hedonic Comfort Motivation	Hedonic Motivation	<i>M</i>	<i>SD</i>
Study 1						
Life satisfaction	.21 ***	.06	.03	.05	4.12	1.29
Positive affect	.22 ***	.15 *	.03	.11	3.63	0.77
Autonomy satisfaction	.36 ***	.26 ***	.21 ***	.27 ***	3.78	0.85
Competence satisfaction	.36 ***	.17 **	.07	.12	3.73	0.88

Table 3. (Continued)

Relatedness satisfaction	.31 ***	.25 ***	.28 ***	.30 ***	4.16	0.82
Study 2						
Life satisfaction	.20 ***	.18 ***	.03	.13 **	3.96	1.36
Coherence	.44 ***	.27 ***	.21 ***	.27 ***	4.89	1.36
Purpose	.51 ***	.28 ***	.22 ***	.28 ***	4.99	1.30
Significance	.42 ***	.34 ***	.28 ***	.34 ***	5.27	1.60
Autonomy satisfaction	.38 ***	.27 ***	.21 ***	.27 ***	3.66	0.87
Competence satisfaction	.48 ***	.28 ***	.26 ***	.29 ***	3.69	0.86
Relatedness satisfaction	.54 ***	.35 ***	.43 ***	.41 ***	4.11	0.85

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

The Associations Between Well-Being Motives and Ill-Being Indicators

As shown in Table 4, eudaimonic motivation had a weak negative association with competence frustration while it did not have any significant relationships with negative affect, autonomy frustration, and relatedness frustration. Hedonic pleasure motivation and hedonic comfort motivation did not have any significant associations with negative affect, autonomy frustration, competence frustration, and relatedness frustration. Hedonic motivation had weak positive associations with negative affect and autonomy frustration while it did not have significant associations with competence frustration and relatedness frustration.

Table 4. The associations between well-being motives and ill-being indicators

Study / Variable	Eudaimonic Motivation	Hedonic Pleasure Motivation	Hedonic Comfort Motivation	Hedonic Motivation	<i>M</i>	<i>SD</i>
Study 1						
Negative affect	-.02	.12	.11	.13 *	2.86	0.78
Autonomy frustration	.03	.11	.11	.14 *	3.04	1.10
Competence frustration	-.14 *	-.01	.08	.03	2.58	1.10
Relatedness frustration	-.05	.02	.00	.02	2.75	1.05
Study 2						
Depression	-.17 ***	-.08	.05	-.03	1.27	0.73
Anxiety	-.20 ***	-.07	-.01	-.05	1.07	0.72
Stress	-.05	.04	.16 ***	.10 *	1.39	0.70

Table 4. (Continued)

Autonomy frustration	.01	.04	.15 **	.08	3.10	1.02
Competence frustration	-.20 ***	-.10 *	-.02	-.08	2.59	0.98
Relatedness frustration	-.15 **	-.08	.01	-.07	2.75	0.96

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Study 2

Methodology

Participants

Study 2 recruited a total of 460 Turkish adults (125 males, 335 females). The mean age of male participants was 28.86 years ($SD = 10.36$, $range = 18 - 75$). The mean age of female participants was 28.14 years ($SD = 9.24$, $range = 18 - 89$). The age mean of the sample was 28.33 ($SD = 9.56$, $range = 18 - 89$). There were 76 participants who reported a low level of SESS, 347 reported a middle level, and 37 reported a high level. 120 participants were married and 340 participants were single. All participants granted informed consent prior to participating in the research.

Measurement

Demographics, the HEMA-R, the BMPN, and the SWLS data were collected through the same instruments as in Study 1. The original and Turkish versions' reliability scores of these scales were provided in Study 1. The BMPN demonstrated the following reliability scores in Study 2: Autonomy Satisfaction (AUS) ($\alpha = .73$); Autonomy Frustration (AUF) ($\alpha = .74$); Competence Satisfaction (COS) ($\alpha = .83$); Competence Frustration (COF) ($\alpha = .73$); Relatedness Satisfaction (RES) ($\alpha = .76$); Relatedness Frustration (REF) ($\alpha = .63$). The SWLS showed the following reliability score in Study 2: SWLS ($\alpha = .85$).

Depression Anxiety Stress Scale-21 (DASS-21): Lovibond and Lovibond (1995) developed the DASS-21 evaluating depression (e.g., "I found it difficult to work up the initiative to do things"), anxiety (e.g., "I felt I was close to panic"), and stress (e.g., "I found it hard to wind down") levels. It includes three subscales with a total of 21 items. The DASS-21 was translated by Yildirim et al. (2018) into Turkish. A four-point Likert scale, ranging from "0 = did not apply to me at all" to "3 = applied to me very much or most of the time", is used to rate the DASS-21 items. Participants were asked to respond to the items considering "Please read each statement below and choose the number from 0, 1, 2 or 3 that best fits you throughout the past week. There are no right or wrong answers to the questions." When the total scores are high in any subscale, this indicates a high level in that subscale. The original version of the DASS-21 and its Turkish version respectively had the following reliability: Depression ($\alpha = .90$; $\alpha = .89$); Anxiety ($\alpha = .82$; $\alpha = .87$); Stress ($\alpha = .90$; $\alpha = .90$). The subscales of the DASS-21 exhibited the following reliability scores in Study 2: Depression ($\alpha = .85$); Anxiety ($\alpha = .84$); Stress ($\alpha = .84$).

Three Dimensional Meaning in Life Scale (3DM): Martela and Steger (2023) developed the 3DM including coherence (e.g., "Most things happening in my life do make sense."), significance (e.g., "My personal existence is significant."), and purpose (e.g., "My daily activities are consistent with a broader life purpose.") subscales with a total of 11 items. Coherence and purpose encompass 4 items while significance involves 3 items. Subasi et al. (2024) adapted the 3DM into Turkish. A seven-point Likert scale, ranging from "1 = Not at all true" to "7 = Very true", is used to rate the 3DM items. Participants were asked to respond to the items considering "Please read each of the following items carefully, thinking about how it relates to your life, and then indicate how true it is for you. Use the scale below." The original version of the 3DM and its Turkish version respectively had the following reliability: Coherence ($\alpha = .90$; $\alpha = .76$); Purpose ($\alpha = .90$; $\alpha = .81$); Significance ($\alpha = .90$; $\alpha = .81$). The 3DM demonstrated the following reliability scores in Study 2: Coherence ($\alpha = .85$); Purpose ($\alpha = .85$); Significance ($\alpha = .87$).

Data Analysis

Study 2 analyses were performed through R language. Raw data was assessed and fourteen participants who reported that they were under eighteen were excluded from the data. Upon the removal of these cases, there were 460 participants who attended the study. No outliers and missing values were found in the data. Multivariate normality was assumed following the suggestion of -1.5 and 1.5 regarding skewness and kurtosis values (Tabachnick & Fidell, 2013). Descriptive statistics and corrected item-rest correlations of the HEMA-R among Turkish adults were analyzed. Single-factor, two-factor, and three-factor versions of the HEMA-R were tested through confirmatory factor analyses (CFAs). The single-factor model included eleven items as in the newest version of the HEMA-R. The two-factor model included ten items as hedonic motivation and eudaimonic motivation with five items were tested. The three-factor model included eleven items as three-item hedonic pleasure motivation, three-item hedonic comfort motivation, and five-item eudaimonic motivation were tested. We nested the model in Study 2 as described in Study 1. The internal consistency scores of the two-factor and three-factor versions of the HEMA-R were calculated. The fit indices were the same as in Study 1. Exploratory links with indices of well-being and ill-being were tested using Pearson correlations.

Results

Descriptive Statistics of the HEMA-R Among Turkish Adults

As shown in Table 1, descriptive statistics showed that the HEMA-R items were sufficiently normally distributed. The skewness scores of the items were between -1.11 and -0.46. The kurtosis scores of the items were between -0.62 and 0.62. The mean scores of the items ranged between 4.88 and 5.79. The standard deviation scores of the items ranged from 1.41 to 1.69. All the corrected item-rest correlations were greater than .30, demonstrating an acceptable level of discrimination.

Scale Reliability

Cronbach's alpha and Omega coefficients were calculated to test the reliability of the HEMA-R factors. The reliability coefficients of the HEMA-R predominantly showed good levels of reliability: Eudaimonic motivation ($\alpha = .84$; $\omega = .84$); Hedonic pleasure motivation ($\alpha = .84$; $\omega = .85$); Hedonic comfort motivation ($\alpha = .64$; $\omega = .64$); Hedonic motivation ($\alpha = .82$; $\omega = .82$). Hedonic motivation had a moderate correlation with eudaimonic motivation. Similar to Study 1, this was a bit higher than the correlation of around .30 observed in English-speaking samples (Huta 2022); the remaining correlations are provided for reference purposes. In addition, hedonic motivation, hedonic pleasure motivation, and hedonic comfort motivation had moderate associations with eudaimonic motivation. Hedonic motivation had large associations with hedonic pleasure and hedonic comfort motivation. Hedonic pleasure motivation had a moderate association with hedonic comfort motivation. Correlations ranged from .56 to .94.

Confirmatory Factor Analysis

Study 2 carried out CFAs for single-factor, two-factor, and three factor versions of the HEMA-R. CFAs were performed through the R lavaan package using the maximum likelihood estimator and standard error with full information maximum likelihood. No item was removed and no modifications were made. As shown in Table 2, the single-factor structure of the HEMA-R demonstrated poor fit. The two-factor structure of the HEMA-R partially demonstrated acceptable fit to the data. The three-factor structure of the HEMA-R showed acceptable fit to the data. The two-factor model with five hedonia items showed the following fit indices: $\chi^2 = 230.49$, $df = 34$, $\chi^2/df = 6.78$, CFI = .91, TLI = .87, SRMR = .07, RMSEA = .11. The two-factor model with six hedonia items indicated the following fit indices $\chi^2 = 274.74$, $df = 43$, $\chi^2/df = 6.39$, CFI = .90, TLI = .87, SRMR = .07, RMSEA = .11. The difference between the CFI values of the models was equal to .01, and the chi-squared difference was significant ($\Delta\chi^2 = 44.26$, $df\text{ difference} = 9$, $p < .05$), demonstrating that the model with six hedonia items significantly evidenced a better fit in comparison to the model with five hedonia items. Consequently, the three-factor solution demonstrate superior fit indices. Therefore, from this point onward, Study 2 results will be reported for eudaimonic motivation, hedonic pleasure motivation, and hedonic comfort

motivation; results will also be reported for hedonic motivation overall, for the sake of comparability with Study 1. The three-factor HEMA-R factor loadings were between .51 and .89. The correlations among the factors were .63 for the eudaimonic factor and the hedonic pleasure factor, for the eudaimonic factor and the hedonic comfort factor .81, and for the hedonic pleasure factor and the hedonic comfort factor .81. The two-factor HEMA-R factor loadings were between .47 and .87. The correlation among the eudaimonic and hedonic factors was .67.

The Associations Between Well-Being Motives and Well-Being Indicators

As shown in Table 3, eudaimonic motivation had weak positive associations with life satisfaction while it had moderate positive associations with coherence, purpose, significance, autonomy satisfaction, competence satisfaction, and relatedness satisfaction. Hedonic pleasure motivation had weak positive associations with life satisfaction, coherence, purpose, autonomy satisfaction, and competence satisfaction while it had moderate positive associations with significance and relatedness satisfaction. Hedonic comfort motivation had weak positive associations with coherence, purpose, significance, autonomy satisfaction, and competence satisfaction and had a moderate association with relatedness satisfaction. Hedonic motivation had weak positive associations with life satisfaction, coherence, purpose, autonomy satisfaction, and competence satisfaction, and had moderate positive associations with significance and relatedness satisfaction.

The Associations Between Well-Being Motives and Ill-Being Indicators

As shown in Table 4, eudaimonic motivation had weak negative associations with competence frustration, relatedness frustration, depression, and anxiety. Hedonic pleasure motivation had a weak negative association with competence frustration. Hedonic comfort motivation had weak positive associations with autonomy frustration and stress. Hedonic motivation had a weak positive association with stress.

Comparing the HEMA-R Between University Students and Adult Samples

In order to compare the differences of the HEMA-R subscales, we performed independent-samples t-tests. As Levene's tests were significant, Welch corrections were conducted. Welch's t-test for eudaimonic motivation demonstrated that there was no significant difference between students ($M = 5.64$, $SD = 0.91$) and adults ($M = 5.59$, $SD = 1.15$); $t(629.88) = -0.64$, $p = .521$, Cohen's $d = -0.05$. The effect size (Cohen's d) was very small. Welch's t-test for hedonic motivation indicated that there was a significant difference between students ($M = 5.31$, $SD = 1.04$) and adults ($M = 5.13$, $SD = 1.26$); $t(612.72) = -1.98$, $p = .048$, Cohen's $d = -0.15$. Cohen's d was near the lower limit of a small effect size. Welch's t-test for hedonic pleasure motivation showed that students ($M = 5.33$, $SD = 1.17$) scored significantly higher than adults ($M = 5.12$, $SD = 1.43$); $t(616.50) = -2.08$, $p = .038$, Cohen's $d = -0.16$. Cohen's d was very small. Welch's t-test for hedonic comfort motivation indicated that students ($M = 5.47$, $SD = 1.13$) scored significantly higher than adults ($M = 5.25$, $SD = 1.26$); $t(574.51) = -2.34$, $p = .020$, Cohen's $d = -0.18$. Cohen's d was near the lower limit of a small effect size.

Discussion

The present research examined the psychometric properties of the HEMA-R using two samples in Türkiye – students and adults. There was support for both two-factor and three-factor solutions in undergraduates, but only support for a three-factor solution in adults. This suggests that adults drew a greater distinction between comfort-seeking and pleasure-seeking than did undergraduates. Previously, research suggested that culture/language played a role in the number of factors obtained for the HEMA(-R), with two-factor solutions obtained in Croatian and Greek samples, three-factor solutions obtained in Italian, Persian, Polish, and Japanese samples, and both two-factor and three-factor solutions obtained in English and Chinese samples (see review in introduction). The present findings suggest that a person's age may also play a role as the age mean of the previous HEMA(-R) versions largely ranged from 18.6 to 24.25. In terms of the internal consistencies, the scales assessing eudaimonic motivation, hedonic motivation, and hedonic pleasure motivation were in the adequate range, exceeding .70. The internal consistency of the hedonic comfort scale only exceeded .60. Previous studies found that the latter scale had good internal consistency, often being in the .72 - .92 range (Asano et al., 2020, 2021; Behzadnia & Ryan, 2018; Braaten et al., 2019; Bujacz et al., 2014; LeFebvre & Huta, 2021).

Across Study 1 and Study 2, eudaimonic motivation always had at least slightly more positive associations with well-being indicators compared to hedonic motivation, hedonic pleasure motivation, and hedonic comfort motivation. It had positive weak or moderate associations with all well-being indicators. It had negative weak relationships in half of the analyses with ill-being indicators. These findings largely replicated previous findings, which similarly showed that eudaimonic motivation tends to be the well-being motivation most consistently and most strongly associated with positive outcomes and with low negative outcomes (e.g., Asano et al., 2014, 2021; Braaten et al., 2019; Chen & Zeng, 2021; Chen & Zeng, 2023a; Gentzler et al., 2021; Giuntoli et al., 2021; Koumantarou Malisiova et al., 2021; Kryza-Lacombe et al., 2019; Li et al., 2021; Lin & Chan, 2020; Zeng & Chen, 2020). This lends nice support to the convergent and discriminant validity of the Turkish translation of the HEMA-R.

The negative relationships between eudaimonic motivation and depression, anxiety, competence frustration, and relatedness frustration deserve a closer attention in particular. One explanation comes from self-determination theory (SDT) in this context (Ryan & Deci, 2017). SDT suggests that need satisfaction is essential to well-being, while need frustration has harmful negative effects on well-being. Individuals with greater eudaimonic motivation are more likely to more frequently experience feelings of accomplishment, fulfillment, and joy in meaningful goal pursuits, and engage in activities that can improve social connectedness, leading to emotional support and a sense of belonging. However, need frustration and lack of a sense of coherence, purpose or significance may make individuals more vulnerable to depressive symptoms, whereas the presence and pursuit of eudaimonic activities may buffer against feelings of hopelessness and despair, foster social belonging, facilitate resilience, and act as protective factors against depression. Furthermore, the results support previous research in the context of orientation priority and their effects on well-being as Chen and Zeng (2021) revealed that when people prioritize eudaimonia over hedonia they have greater levels of well-being compared to prioritizing hedonia over eudaimonia, leading to decreased effects of well-being motives.

Hedonic motivation had mostly weak positive associations with the majority of well-being outcomes. Interestingly, it also had weak positive associations with several indices of ill-being. This is consistent with previous findings, where hedonic motivation similarly related to positive outcomes the majority of the time (Braaten et al., 2019; Koumantarou Malisiova et al., 2020; Li et al., 2021; Lin & Chan, 2020; Zeng & Chen, 2020), but occasionally proved to be a “double-edged sword,” relating negatively to some positive outcomes or positively to some negative outcomes (Gentzler et al., 2021; Huta et al., 2012; Zeng & Chen, 2020). These results imply that individuals high in hedonic motivation may have more frequent positive experiences and less negative emotions, leading to have more meaning experiences, experiencing satisfying relationships, and feel one’s life matters although this may be momentary (Huta & Ryan, 2010). The positive association between hedonic motivation and stress suggests that there may be a bidirectional causal arrow from stress to hedonic behaviors. Although engagement in rewarding or pleasurable activities can lead to immediate gratification and offer momentary relief, indulging oneself in those activities may cause the neglect of one’s obligations or responsibilities and using maladaptive coping strategies, and result in less productivity, which can bring about greater levels of stress.

Hedonic pleasure motivation had weak positive associations with some of the well-being indicators in line with prior research, indicating that hedonic pleasure motivation had moderate positive associations with satisfaction with life and positive affect (Asano et al., 2021; Braaten et al., 2019; Giuntoli et al., 2021), weak and moderate negative associations with negative affect (Braaten et al., 2019; Giuntoli et al., 2021), and moderate negative associations with depression, anxiety, and stress (Giuntoli et al., 2021). In contrast, hedonic comfort motivation did not have any association with some of the well-being indicators as in the majority of previous research. Hedonic comfort motivation had weak positive associations with need satisfaction and meaning in life indicators, and weak positive associations with stress and autonomy frustration. These results were in line with previous research (e.g., Asano et al., 2014; Braaten et al., 2019; Giuntoli et al., 2021).

In terms of the comparison between students and adults, the results indicated that students scored significantly higher than adults on hedonic, hedonic pleasure and hedonic comfort motivations. These findings should be treated as tentative, given that effect sizes were in the very small range, and given that the mean ages of the two groups were not vastly different (Student $M = 22.56$, Adult $M = 28.33$). Nevertheless, the findings suggest that the pursuit of hedonism, pleasure and comfort may decrease with age. This is consistent with previous findings where hedonic motivation decreased from childhood to late adolescence (Gentzler et al., 2021). In contrast, LeFebvre and Huta (2021) found that hedonic pleasure motivation and hedonic comfort motivation were both stable among individuals whose ages ranged between 18 and 35 years. Further research is needed to shed light on the reasons for these differing findings, though some possibilities include cultural emphasis on hedonic pleasure and comfort motivation, identity formation during university years, transition to adult life and having more responsibilities, and micro or macro events such as pandemic, earthquake, and inflation as experienced in Türkiye.

As previously emphasized, prior studies already examined the links of eudaimonic motivation and hedonic motivation with the majority of well-being and ill-being variables studied here – life satisfaction, positive affect, need satisfaction, negative affect, need frustration, depression, anxiety, and stress. A novel contribution in the present research was examination of the three-dimensional model of meaning in life, which includes significance/value, purpose, and coherence/understanding. We found that all subscales of the HEMA-R related to all three meaning dimensions, though the links for eudaimonic motivation were in the moderate range, while the links for the hedonic subscales were mostly in the weak range. It would seem that both eudaimonic and hedonic pursuits relate to the different ways in which a person can conceptualize “a meaningful life.” Another novel contribution of the present research was the separation of hedonic pleasure motivation from hedonic comfort motivation when analyzing need satisfaction and need frustration. We found that both subscales related to autonomy satisfaction and relatedness satisfaction in both samples, showing relationships mostly in the weak range. Hedonic pleasure motivation related to competence satisfaction in both samples (to a weak degree), while hedonic comfort motivation only related to competence satisfaction in the adult sample (to a weak degree). This hints at the possibility that the comfort component of hedonic pursuits plays little or no role in building feelings of skill and self-efficacy, while hedonic pleasure motivation appears to be important and supportive in need-satisfying and meaning experiences.

Overall, the results provided support for using the HEMA-R in Türkiye in both undergraduates and adults, by confirming the factor structure, providing descriptive statistics, and demonstrating links with well-being and ill-being indicators. The present findings contribute to setting the groundwork for cross-cultural analysis of the ways in which people conceptualize and pursue “a good life.”

Limitations and Future Research

The cross-sectional nature of two studies in the present research is a limitation. The samples include Turkish-speaking university students and adults. This can affect the generalizability of the current findings to other populations. Another limitation is that the present research employs self-report measures. The current research does not measure the temporal stability of the HEMA-R with the same population, posing a limitation that should be addressed in further research. The present research adapts a trait version of the HEMA-R and does not assess state/situational orientations or experiences.

Further research should longitudinally examine the psychometric properties of the HEMA-R with various populations such as disadvantaged people, elderly, and children (e.g., Gentzler et al., 2021; LeFebvre & Huta, 2021). Novel dimensions of the HEMA-R such as otherism (Dong et al., 2023) can also be investigated and explored in different cultural contexts. Although the correlational associations between the HEMA-R and well-being are relatively established, the predictive roles of well-being motives on well-being outcomes deserve special attention in various contexts and populations.

In addition, what variables mediate and moderate the relationship between well-being motives and outcomes remains to be discovered. This could be explored in cultural, health, workplace, educational and technological contexts through orientation priority (Chen & Zeng, 2021), self-control (Zeng & Chen, 2020), academic behavioral engagement and procrastination (Chen & Zeng, 2022), and mastery behavior and smartphone

addiction (Chen & Zeng, 2024). Such research may provide a fruitful research avenue when studying how to put orientations/motives into action on the path to well-being. Future studies can shed light on the causal relationship between hedonic behavior, hedonic comfort-seeking, and stress. These studies can particularly address approach-avoidance motivation, emotion regulation, coping styles, adaptive and maladaptive self-regulation, self-control, and mindfulness. Further research can also seek to integrate well-being motives with other theoretical perspectives such as regulatory focus theory (Chen & Zeng, 2023a) and motivational conflict theory (Chen & Zeng, 2023b). Further studies will hopefully shed light on the antecedents, mediators, moderators, and outcomes of well-being motives in both Turkish and cross-cultural contexts. Understanding the underlying mechanisms of well-being motives and well-being outcomes appears to have theoretical and practical implications to live a richer and fuller life and promote well-being.

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RESEARCH ARTICLE

Psychological Well-Being and Emotion Regulation as Predictors of Doomscrolling

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ABSTRACT

The aim of this study is to examine the doomscrolling behaviours of individuals in terms of various variables. Data were collected from 348 individuals aged between 18-50 years. Doomscrolling Scale, Psychological Well-Being Scale and Emotion Regulation Scale were used as data collection tools. According to the information obtained from the research, it was determined that doomscrolling behaviour did not change according to gender and employment status. Doomscrolling behaviour varies according to age group, and this variability is in favour of the 18-30 age group. In addition, doomscrolling behaviour is negatively predicted by psychological well-being. Doomscrolling behaviour is positively predicted by suppression, a sub-dimension of emotion regulation, but not by reappraisal sub-dimension. All of these variables together explain 11% of the doomscrolling.

Humankind is a being that dislikes uncertainty and seeks answers to the unknown (Gülhan, 2015). In other words, individuals search for information to protect themselves or gain control in the face of unknowns (Gül, 2013). Today, with the development of technology, the easiest flow of information occurs through social media. Individuals also use social media in uncertain situations to obtain information, but since much of the information gathered is often inaccurate, it can negatively affect them. Despite this negative situation, individuals continue to seek information from social media. This behavior has given rise to the concept of "doomscrolling" (Merriam-Webster, 2020). In its most general definition, doomscrolling refers to individuals continuously scrolling through and following negative news on social media (Sharma, 2022).

Literature review shows that doomscrolling is a relatively new concept and gained more attention during the pandemic period (Curley, 2020). Coronavirus news, which affected the whole world, was followed by people through various technological devices. People touched the screen or scrolled to move on to the next news, obtaining different pieces of information. The word "scrolling" in the concept of doomscrolling refers to accessing similar information by scrolling the screen and engaging with what the algorithm presents (Anlı, 2023). The word "doom" refers to individuals constantly following negative news (Buchanan et al., 2021). According to research, individuals scroll through disaster news to fill information gaps and explain uncontrollable situations (Anand et al., 2021). According to a study conducted at the University of Miami Health System, doomscrolling is explained as individuals using technological tools to search for negative news

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and being unable to escape from this behavioral loop (Myers, 2020). According to Sharma et al. (2022), during negative situations such as disasters, epidemics, or violence, individuals search for negative news on social media and gradually become accustomed to it, which is referred to as doomscrolling. While this behavior originates from the motivation to seek information during a crisis, it eventually becomes automatic and unconscious. This inescapable cycle affects individuals in many areas, such as causing insomnia, loss of appetite, fear, and anxiety (Brooks et al., 2020).

Examining the factors that determine doomscrolling behavior, which negatively affects individuals, will make it more understandable in today's era. At this point, one of the variables that is thought to be subject to research is emotion regulation. Emotion regulation refers to noticing, understanding, accepting an emotion, and controlling the behaviors caused by the emotion (Gratz & Roemer, 2004). Emotion regulation involves processes such as controlling and analyzing one's emotions in accordance with environmental conditions and managing these emotions in order to achieve one's goals. The process that starts by evaluating the emotion ends with the regulation of the behaviour that is an emotional response (Gross, 1998).

The continuation of doomscrolling behavior increases individuals' feelings of anxiety and worry, causing them to experience difficulties in recognizing, making sense of, and regulating their emotions. This situation indicates that emotion regulation difficulties are being experienced. Emotion regulation is a concept related to the increase or decrease in the intensity of an emotion, how we experience that emotion, and how we maintain it (Leahy et al., 2011). There are limited studies on these two variables in both domestic and international literature. Öksüz et al. (2023) examined how doomscrolling behavior and emotion regulation skills affect individuals' psychological well-being after an earthquake. The results showed that doomscrolling and emotion regulation mediate mental adjustment and psychological well-being. Similarly, in their study, Flack, Burton, and Caudwell (2024) found that personal emotion regulation has an impact on doomscrolling behavior.

Psychological well-being, like emotion regulation, is also thought to explain doomscrolling behavior. Keyes, Shmotkin, and Ryff (2002) define psychological well-being as the individual's awareness of their own limitations and their ability to establish relationships with others by accepting these limitations, being autonomous, and using their capacity in the most efficient way. Huppert (2009) adds that psychological well-being involves the positive progression of individuals' lives, though this does not mean they will always experience positive emotions. Negative emotions will also be present, and the key is to manage them appropriately. Ryff (1989) conceptualizes psychological well-being in six dimensions: autonomy, environmental mastery, personal growth, self-acceptance, positive relations with others, and purpose in life. Autonomy refers to individuals doing what is best for themselves despite all the negative influences of the environment. Environmental mastery is the ability of individuals to freely create the environment that suits them best. Personal growth refers to the feeling of continuous growth and development. Self-acceptance involves individuals recognizing and accepting both their strengths and weaknesses, both positive and negative aspects. In the dimension of positive relations with others, it refers to individuals' capacity to love others. Finally, purpose in life represents individuals having a goal to achieve their aims (Ryff, 1989).

Individuals who are aware of themselves and their limitations, in other words, those with a high level of psychological well-being, will try to make sense of the uncertainty they are in and cope with it in the most suitable way for themselves (Ryff & Singer, 2006). Based on this information, it can be said that there is a close relationship between doomscrolling and psychological well-being. When empirical studies are examined, it has been found that there are limited studies investigating doomscrolling and psychological well-being together. In a study conducted during the pandemic, Saindon (2021) identified a negative relationship between individuals' psychological well-being and doomscrolling behavior. Similarly, in a study by Öksüz and others, it was found that the relationship between doomscrolling behavior and well-being is also negative.

Humankind experiences various crises such as wars, earthquakes, and pandemics. It is becoming increasingly important to raise individuals who can cope effectively with the uncertain conditions they find themselves in. It is believed that by reducing doomscrolling behavior, individuals will be able to fulfill their life roles more effectively. Additionally, it is inevitable that these individuals will both protect their own mental health and provide support to those around them. For this reason, it seems crucial to identify the factors that influence doomscrolling behavior. Therefore, this study aimed to investigate whether doomscrolling behavior is predicted by emotion regulation and psychological well-being.

Method

This section provides information about the research model, the research group, the measurement tools used, the data collection steps, and the analysis.

Research Model

This cross-sectional study based on a quantitative approach was designed in a relational predictive model. In this model, the relationships between two or more variables are investigated, and the strength of these relationships are evaluated (Creswell, 2014).

Research Group

Individuals over the age of 18 living in various provinces of Türkiye participated in the research. The easy/convenient sampling method was used to reach the participants. In this sampling method, easy to reach participants are identified and included in the study (Yağar & Dökme, 2018). Here is some introductory information about the individuals participating in the study.

Table 1. Descriptive Statistics Scores for Participants

		n	%	tp
Gender	Female	237	68,1	68,1
	Male	111	31,9	100
Age	18-30	287	82,5	82,5
	31-40	50	14,4	96,8
	41-50	11	3,2	100
Marital Status	Single	291	83,6	83,6
	Married	52	14,9	98,6
	Divorced	5	1,4	100
Employment Status	Not working	248	71,3	71,3
	Working	100	28,7	100
Parental Status	No children	308	88,5	88,5
	Has children	40	11,5	100

As seen in Table 1, 68.1% of the participants are female, 82.5% are between the ages of 18-30, 83.6% are single, 71.3% are unemployed and 88.5% are not parents.

Data Collection Tools

Researchers used four data collection tools in this study. The first is the Demographic Information Form, which was prepared to determine the characteristics of the participants, such as age, gender, place of residence, educational level, socioeconomic level, occupation, marital status, and parental status. The other tools are described below.

Doomscrolling Scale: The Doomscrolling Scale (2022) was developed by Sharma, Lee, and Johnson. The adaptation of the scale to Turkish (2022) was conducted by Satici, Gocet-Tekin, Deniz, and Satici. In the adaptation study, both the 15-item and 4-item forms of the scale were validated using confirmatory factor analysis with the participation of 378 individuals. Item response analyses showed that all items had strong discriminative power. Criterion validity studies were conducted with the second study group of 419 individuals. Doomscrolling was found to be significantly associated with, social media addiction, the Big Five personality traits, fear of missing out, and some characteristics of social media use. In the third group of studies, structural equation modeling was conducted on 460 individuals to examine the relationship between doomscrolling and indicators of life satisfaction and psychological well-being. The results showed that psychological distress played a mediating role in the relationship between doomscrolling and well-being indicators. This study found that the Cronbach alpha coefficient for the doomscrolling scale was .95, providing evidence of reliability.

Psychological Well-Being Scale: The psychological well-being scale was developed and used in the study conducted by Diener et al. (2010) and adapted to the Turkish culture by Telef (2013). The scores to be obtained

from this scale, which has a single-factor structure consisting of 8 items, range from 8 to 56. The items of the scale have factor loadings ranging from .54 to .76. The results obtained after the CFA analysis indicate the values of the goodness of fit index as RMSEA= 0.08, SRMR= 0.04, GFI= 0.96, NFI= 0.94, RFI= 0.92, CFI= 0.95 and IFI= 0.95. The criterion validity study used scores from the Psychological Well-Being Scale and the Needs Satisfaction Scale. The Psychological Well-Being Scale was found to be related to the sub-dimensions of the Psychological Well-Being Scale at levels ranging from .29 to .56. Similarly, the sub-dimensions of the Needs Satisfaction Scale were found to be related to each other at levels ranging from .30 to .73. While the internal consistency coefficient for reliability studies was calculated as .80, a strong positive correlation ($r=.86$, $p<.001$) was found between the first and second administrations of the scale according to the test-retest results. This study found that the Cronbach alpha coefficient for the psychological well-being scale was .89, providing evidence of reliability.

Emotion Regulation Scale: The scale was developed as a result of the study conducted by John and Gross (2003) and has a seven-point rating. It consists of two sub-dimensions, suppression and reappraisal, with a total of ten items. The scale was adapted to the Turkish culture with the study conducted by Eldeleklioğlu and Eroğlu (2015). The Cronbach alpha coefficient was calculated as .78 in one of the subdimensions (reappraisal) and .73 in the other (suppression). Similarly, the test-retest coefficients were calculated as .74 in one sub-dimension (reappraisal) and .72 in the other (suppression). It was determined that the Emotion Regulation Scale is an instrument that measures the emotion regulation variable, can be used in studies in this direction, and meets the criteria and criterion. This study found that the Cronbach alpha coefficient for the emotion regulation scale was .73, providing evidence of reliability.

Data Collection and Processing

In the study, the experts who developed the measurement tools were first contacted by e-mail and permission for use was obtained. An application was then made to the ethics committee at Muş Alparslan University Ethics Committee and the necessary approvals were obtained (10.07.2023-99013). Following the approval processes, the measurement tools to be used in the study were transferred to the online environment and made ready for research data collection. During the preparation of the online data collection form, information about the purpose of the study and voluntary participation in the study was provided on the first page, and in this way, consent was obtained from the participants. After all these preparations, the online data collection form was distributed to different groups and the research data was collected. Then, the obtained data were transferred to the statistical program and the preparations for the analysis process were completed.

Simple linear regression analysis was used to determine if psychological well-being and emotion regulation were significant predictors of doomscrolling. An independent samples t-test and a one-way analysis of variance were also used to identify group differences. Before starting the data analysis, the assumptions of univariate outliers, normality, linearity, homogeneity, and multicollinearity (Tabachnick & Fidel, 2013) were examined, respectively. The results achieved for univariate normality were converted to standard z-scores and examined to see if the scores were within the limits of ± 3.29 , and three observations found to be outside these limits were removed from the data. The Mahalanobis distance value was calculated for the multivariate normality criteria and no observations were found that did not meet the criteria. The calculated kurtosis and skewness values are shown in Table 2, after examination it was determined that these values were within the acceptable (± 1) range (Tabachnick & Fidell, 2013). Accordingly, the scores of 348 participants meet the assumptions of normality. The situation of multicollinearity was examined by calculating the Durbin-Watson value and this value was found to be 2.038. In addition, the condition index ($CI=6.347-13.95$), variance inflation factor ($VIF=1.229-1.040$) and tolerance values ($TOL=.96-.81$) were found to be within the acceptable ranges. The study also examined the relationships by using the Pearson product-moment correlation coefficient. Accordingly, the correlation values obtained and presented in Table 2 are expected to be no higher than .80 and the results obtained in this study indicate that there is no multicollinearity problem (Field, 2013). After obtaining the results indicating that all the assumptions and conditions regarding the regression analysis were met, the analyses were performed using the IBM SPSS Statistics 22.00 program.

Findings

This section explains the findings obtained from the analyses. Descriptive statistics and Pearson Product Moment Correlation Coefficient were calculated for the variables and are presented in Table 2.

Table 2. Relationships Between Doomscrolling, Psychological Well-Being, Emotion Regulation and Descriptive Statistics

		Correlation				Descriptive Statistics		
		1	2	3	4	Mean (SD)	Skewness	Kurtosis
1.	Doomscrolling	-				38.39(20.82)	.969	.184
2.	Psychological Well-Being	-.263	-			40.82(8.85)	-.867	.501
3.	Suppression	.207	-.030	-		16.09(5.80)	-.006	-.494
4.	Reappraisal	-.096	.392	.167	-	30.25(7.18)	-.466	-.155

Examining Table 2, we see that the normality assumption is met with respect to the skewness and kurtosis values associated with the variables. When the relationships between these variables are examined, it can be seen that doomscrolling is negatively and moderately related to psychological well-being ($r = -0.263$; $p < .005$). In addition, doomscrolling is positively and moderately related to the suppression sub-dimension of emotion regulation ($r = 0.207$; $p < .005$), while it is negatively and weakly related to the reappraisal dimension ($r = -0.096$; $p < .005$). In addition, psychological well-being was found to be negatively and weakly related to the suppression sub-dimension of emotion regulation ($r = -0.030$; $p < .005$) and positively and moderately related to the reappraisal sub-dimension ($r = 0.392$; $p < .005$) ($r = 0.627$; $p < .001$).

Table 3. T-Test Results According to Participants' Gender

	Gender	n	\bar{x}	SS	t	p
Doomscrolling	Female	237	38,05	20,584	-,443	,65
	Male	111	39,11	21,403		
Psychological Well-Being	Female	237	40,96	9,011	,431	,66
	Male	111	40,52	8,552		
Suppression	Female	237	15,61	6,070	-2,39	,017
	Male	111	17,10	5,063		
Reappraisal	Female	237	30,57	7,384	1,230	,21
	Male	111	29,56	6,704		

When examining Table 3, it was found that there was no significant difference between the genders on the doomscrolling, psychological well-being, and reappraisal sub-dimensions of emotion regulation ($p > .05$), while there was a significant difference in favor of males on the suppression sub-dimension of emotion regulation ($t = 2.39$, $p < .05$).

Table 4. T-Test Results According to Participants' Working Status

	Working Status	n	\bar{x}	SS	t	p
Doomscrolling	Yes	100	35,75	22,551	-1,502	,13
	No	248	39,45	20,036		
Psychological Well-Being	Yes	100	42,08	8,080	1,687	,09
	No	248	40,31	9,118		
Suppression	Yes	100	15,88	5,250	-,420	,67
	No	248	16,17	6,019		
Reappraisal	Yes	100	29,64	6,820	-1,006	,31
	No	248	30,50	7,319		

When Table 4 is examined, no significant difference was found between employees and non-employees in doomscrolling, psychological well-being, suppression and reappraisal sub-dimensions of emotion regulation ($p > .05$).

Table 5. T-Test Results According to Participants' Age Groups

	Age	n	\bar{x}	SS	t	p
Doomscrolling	18-30	287	39,71	20,983	2,778	,007
	31-50	61	32,13	19,000		
Psychological Well-Being	18-30	287	40,40	9,238	-2,440	,016
	31-50	61	42,82	6,479		
Suppression	18-30	287	16,40	5,821	2,230	,026
	31-50	61	14,59	5,518		
Reappraisal	18-30	287	30,52	7,316	1,500	,135
	31-50	61	29,00	6,411		

When Table 5 was examined, it was found that there were statistically significant differences between the age groups in doomscrolling, psychological well-being, and the suppression sub-dimension of emotion regulation ($p < .05$). Doomscrolling levels and suppression sub-dimension of emotion regulation levels were significantly higher in the 18-30 age group compared to the 31-50 age group ($t=2.778$, $p < .05$; $t=2.230$, $p < .05$). Psychological well-being scores were significantly higher in the 31-50 age group compared to the 18-30 age group ($t=-2.440$, $p < .05$). There was no significant difference between the age groups in the reappraisal sub-dimension of emotion regulation ($p > .05$). Since there were not enough observations in the 41-50 age group to make a statistical comparison during the analyses, the observations in this group were added to the 31-50 age group and the analyses were conducted.

Table 6. T-Test Results According to Participants' Marital Status

	Marital Status	n	\bar{x}	SS	t	p
Doomscrolling	Married	52	32,29	19,226	-2,303	,02
	Single	296	39,46	20,940		
Psychological Well-Being	Married	52	42,44	6,864	1,748	,08
	Single	296	40,54	9,142		
Suppression	Married	52	14,58	5,453	-2,043	,04
	Single	296	16,35	5,830		
Reappraisal	Married	52	28,46	6,766	-1,955	,04
	Single	296	30,56	7,216		

Examining Table 6, there is a significant difference in the doomscrolling and two sub-dimensions of emotion regulation according to marital status ($p < .05$). Doomscrolling and emotion regulation sub-dimension scores are significantly higher for single individuals than for married individuals ($t=-2.303$, $p < .05$; $t=-2.043$, $p < .05$; $t=-1.955$, $p < .05$). The psychological well-being of single and married individuals was not significantly different ($p > .05$). Since there were not enough observations in the divorced group to make a statistical comparison, the analyses were conducted by adding this group to the single group.

As there were not enough observations to make a statistical comparison between groups by parental status, no analysis was performed.

Table 7. Multiple Linear Regression Results for Psychological Well-Being and Emotion Regulation Predicting Doomscrolling

	β	Standard Error β	Standardization β	t	p	Correlation	Partial Correlation
Constant	52,866	6,274		8,427	,000		
Psychological Well-being	-,571	,131	-,243	-4,368	,000	-,263	-,229
Suppression	,739	,186	,206	3,966	,000	,207	,209
Reappraisal	-,101	,164	-,035	-,616	,539	-,096	-,033

When Table 7 is examined, it is seen that psychological well-being (Standardized β = -.243, $p<.05$) negatively predicts doomscrolling. The suppression sub-dimension of emotion regulation (Standardized β = .206, $p<.05$) positively predicts doomscrolling. However it was determined that the reappraisal sub-dimension of emotion regulation was not a significant predictor of doomscrolling (Standardized β = -.035, $p>.05$). Accordingly, while the suppression sub-dimension of emotional regulation positively affects doomscrolling, psychological well-being negatively affects doomscrolling. In addition, it was determined that these predictors together explained 11% of the variance in the dependent variable as a result of the analysis ($R^2 = .11$).

Discussion

In this study the relationship between doomscrolling behavior, psychological well-being and emotion regulation sub-dimensions was examined. According to the results obtained, doomscrolling does not vary according to gender in relation to the subdimension of psychological well-being and emotion regulation known as reappraisal. However, the subdimension of emotion regulation known as suppression yielded results in favor of men. There are various studies showing that women have higher levels of psychological well-being than men (Atalay & Özyürek, 2021; Kiye et al., 2024). The roles attributed to women and men are referred to as gender roles (Kağıtçıbaşı, 2000). In this study, the impact of these predominantly established roles in Turkish culture appears to have diminished. However, the subdimension of emotion regulation known as suppression is still evident in men. This indicates that men still face challenges in expressing their emotions (Lane et al., 1998). This may also be related to gender roles. Culturally, expressing emotions is often attributed to weakness for men (Kağıtçıbaşı, 2000).

It was examined whether the variables in the study showed a significant difference according to employment status. There was no significant difference between employees and non-employees in the doomscrolling, sub-dimensions of emotion regulation, suppression and reappraisal and psychological well-being. It is believed that individuals being busy with a job relaxes them, they do not think about some things or even do not have the opportunity to think (Akçay & Çoruk, 2012). However, like the finding obtained, there are emotions wherever there are people (Daş, 2017). Individuals who are in a negative situation or emotion will try to get rid of it.

It was determined that there was a significant difference between the age groups in doomscrolling, psychological well-being and suppression sub-dimension of emotion regulation. But there was no significant difference between the age groups in the reappraisal sub-dimension of emotion regulation. Doomscrolling levels and suppression sub-dimension of emotion regulation levels are higher in the 18-30 age group than in the 31-50 age group. Psychological well-being levels are higher in the 31-50 age group than in the 18-30 age group. During the Covid 19 pandemic period, the resilience of individuals decreased with age (Kartal and Biçer, 2020). The 18-30 age group includes adolescence and young adulthood (Steinberg, 2007). When we look at the characteristics of this developmental period, self-centredness is dominant and the world revolves around these individuals (Santrock, 2012). For this reason, they may have difficulty in recognising their emotions and expressing them correctly, so they will prefer to hide them more. In addition, this generation, born into technology, will benefit more from technology in the face of problems.

Doomscrolling behaviors and emotion regulation skills vary by marital status. The sub-dimension levels of emotion regulation and doomscrolling are significantly higher in singles than in married individuals. There was no significant difference between single and married individuals in psychological well-being levels. This finding provided statistically significant data. However, it is thought that the data is not significant at the real level. Because the number of married individuals is one sixth of the number of single individuals. Therefore, it was not included in the discussion.

One of the findings of the study is that psychological well-being predicts doomscrolling behaviour negatively at a significant level. Kiye, Doğan and Coşkun (2024) study on individuals who experienced the earthquake and the result of this study are in parallel. Individuals with a high level of psychological well-being can make the environment they are in the most suitable for themselves, can easily do what is appropriate for their potential in the face of adverse conditions, know their strengths and weaknesses, and can establish healthy relationships (Ryff, 1989). Doomscrolling behaviour, on the other hand, involves a cycle in which individuals continuously follow negative news on the screen in the face of uncertain situations (Curley, 2020). Considering this information, it can be said that the two concepts are related to each other in opposite directions. Similarly, previous studies have also shown a negative correlation between the two variables (Flack et al., 2024; Öksüz et al., 2023).

The sub-dimension of emotion regulation skills, reappraisal, does not significantly predict doomscrolling behaviour. When individuals review the negative situations they are in and regulate their emotions accordingly, they enter the cycle of following disaster news less (Oral, 2016). Regulating the current emotion, that is, reevaluating it, involves a kind of control and flexibility (2013). A controlled individual who can think flexibly will try to remove himself/herself from the negative situation. It is thought that these individuals will not put themselves into the cycle of doomscrolling scenarios.

The suppression sub-dimension of emotion regulation positively predicts doomscrolling. In other words, the higher the suppression level of individuals, the higher their doomscrolling behaviours. Suppression means preventing the emotional state of the individual instead of expressing it (Gross, 2001). Concealed emotions are not enough to relax the individual (Gross, 2002). The individual who cannot relax may find himself/herself in this cycle by watching or reading negative news (Sharma et al., 2022).

As a result, it was determined that doomscrolling behaviour did not vary according to gender and employment status, but it varied according to age group. In addition, doomscrolling behaviour was predicted negatively by psychological well-being and positively by suppression, which is a sub-dimension of emotion regulation. The limitations of the study should be taken into consideration when interpreting this information obtained. One of these limitations is that the data is based on self-report. The other is that the number of women is relatively higher than men and the age distribution is not homogenous. Despite the mentioned limitations, this study is considered to be important for determining the factors affecting the doomscrolling behaviour of adult individuals. Psychoeducation, seminars or individual interviews can be conducted to increase the psychological well-being levels of individuals. Similarly, studies such as recognising, noticing and expressing emotions can be carried out to reduce suppression emotions, which is a sub-dimension of emotion regulation.

In this context, it is thought that the information obtained will help the field practitioners. In addition, the doomscrolling is a fairly new concept. It is thought to contribute to the literature to understand this concept.

Considering the limitations of the current study, suggestions can be made to researchers. Since doomscrolling is a relatively new concept, its relationships with different psychological characteristics can be examined in order to understand its nature. These may include positive indicators, such as family life satisfaction, resilience or hope. At the same time, negative indicators, such as stress, anxiety, anger, can also be considered. A qualitative approach can be used to design studies that reach more detailed and in-depth information about doomscrolling. Additionally, longitudinal studies that include experimental processes can contribute more to the literature.

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RESEARCH ARTICLE

Suicide Probability in University Students: The Role of Parental Rejection-Acceptance, Emotional and Social Loneliness, Psychological Flexibility

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ABSTRACT

The present study aimed to examine the predictive role of demographic characteristics (gender, age, employment status, university type), socio-cultural factors (family structure), and psychological aspects (parental acceptance-rejection, emotional and social loneliness, and psychological flexibility) on suicide probability among university students. A total of 400 university students (222 female, 178 male) aged 18-29 participated in the research. A correlational research model was used. The data were obtained using by the Suicide Probability Scale (PSS), the Parental Rejection-Acceptance Scale (PRAS), the Psychological Resilience Scale (PRS), the Social and Emotional Loneliness Scale (SESL) and the Demographic Information Form (DIF). Hierarchical regression analysis was utilized to analyze the data. The results revealed that gender, maternal neglect, paternal warmth, paternal neglect, paternal rejection, value-driven behaviors, present awareness, defusion, and social loneliness predict the probability of suicide. Among these variables, value-driven behaviors emerged as the strongest predictor, emphasizing the significance of living in accordance with personal values in reducing the probability of suicide. These findings emphasize the importance of addressing both psychological and socio-cultural variables in suicide prevention strategies for university students. The results highlight the need for tailored interventions that foster social connections, enhance psychological resilience, and emphasize the protective role of paternal involvement.

Suicide is a deliberate act of ending one's life; however, it is shaped by the interplay of individual, societal, and cultural factors. Understanding this complex phenomenon is crucial for developing effective prevention strategies. Particularly during emerging adulthood, individuals face social, academic, and psychological pressures that can increase the likelihood of suicidal behaviors. In this context, university students represent a unique risk group due to the transitional nature of this period, identity formation processes, and challenges specific to this stage of life. Suicide is one of the leading causes of death among young people worldwide. In the context of Turkey, research on this subject remains limited, highlighting the need for further studies. Factors such as social loneliness and cognitive flexibility have not been adequately explored in relation to

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suicide risk. This research aims to address this gap, investigate the impact of these factors, and provide a foundation for developing preventive strategies.

Suicide

Suicide is regarded as a multifaceted phenomenon, shaped by the interplay of psychological, social, economic, and cultural influences. It was defined as a deliberate act of self-harm with clear evidence that the individual intended to die (Turecki & Brent, 2016; Turecki et al., 2019). As indicated in the Suicide Wordview Report in 2019 prepared by World Health Organization (WHO, 2021), the global lifetime prevalence of suicidal thoughts was 9.2%, with a rate of suicide attempts at 2.7%. Additionally, the same report indicated that completed suicide rates in Africa (12%), Europe (12.9%), and Southeast Asia (13.4%) are above the global average. The rate was higher among men, at 13.7 per 100,000, compared to 7.5 per 100,000 among women. In the same year, suicide emerged as the second leading cause of death among individuals aged 15-29 worldwide. These statistics highlight that suicide is a significant global issue, particularly for individuals within the 15-29 age group.

Suicide is the result of an intricate interplay between biological, genetic, psychological, social, environmental, and situational factors (Junior et al., 2020). It is regarded as a behavior that emerges from the interplay of various factors, including social and cultural characteristics, traumatic experiences, difficulties encountered in early childhood, psychiatric history, and genetic susceptibility (Large et al., 2021). This may be perceived as a solution by the individual, who frequently feels unable to cope with the demands of life (Arensman et al., 2020). As an act that results in the termination of a person's life, suicide can give rise to severe consequences, causing profound sadness and trauma to both the individual and those around them (Knipe et al., 2022).

The concept of 'suicide risk' is used to describe the possibility of an individual engaging in suicidal behaviour (Clarke, 2017). The probability of suicidal behavior is increased by the presence of suicidal thoughts or a history of previous suicide attempts (Large, 2018). A study examining the relationship between suicidal thoughts and suicidal behavior found that suicidal behavior showed a stronger association than suicidal thoughts alone, although the difference was not statistically significant. This finding, in contrast to previous studies, highlights the significant predictive power of suicidal thoughts in relation to suicide (Large et al., 2021).

Suicidal behavior typically progresses through several stages, beginning with suicidal ideation (SI), followed by suicide attempts, and ultimately culminating in completed suicide (Li et al., 2016). Prior research has demonstrated a robust correlation between suicide attempts and suicidal ideation (Musci et al., 2016). Suicidal ideation (SI) is defined as the intention to take one's own life and is a robust predictor of future suicidal behavior. The results of Nock et al.'s study (2013) showed that 33.4% of individuals exhibiting suicidal ideation go on to develop suicide plans, with 33.9% of those individuals ultimately attempting suicide. It is therefore imperative to identify individuals exhibiting suicidal ideation in order to prevent youth suicide. The identification of factors that predict suicidal thoughts in adolescents can facilitate the development of strategies for the prevention of further suicide attempts and the reduction of youth suicide rates.

The risk of suicide is subject to variation based on several factors, including geographical location, age, gender, economic status and marital status (WHO, 2021). The data from the Turkish Statistical Institute (TÜİK) revealed that in 2018, there were 304 suicides among individuals aged 15-19, 363 suicides among those aged 20-24, and 344 among those aged 25-29. In other words, the total number of suicides among individuals aged 19-29 in Turkey in 2018 was 872. These figures yielded that individual aged between 18 and 29 years old represent a significant risk group in terms of suicide. Also in a study by Eskin (2017) involving 3,031 young individuals, over one-third of the participants admitted to having contemplated suicide at least once in their lives, and 8.4 out of every 100 reported having attempted suicide at least once. The period of emerging adulthood was characterized by a tendency to explore a range of life domains, including relationships, career

development and worldviews (Arnett, 2000). During the university years, individuals encounter various challenges, including academic difficulties, examination stress, financial problems, difficulties in adapting to the university environment, issues in relationships, personal development, and psychological stress (Rickwood et al., 2005). In a study conducted by Benton et al. (2003), it was found that university students sought counselling primarily due to relationship issues, stress, anxiety, depression, eating disorders, and suicidal thoughts. A further study has indicated that university students are more likely than the general population to experience suicidal thoughts and behaviors, both over the course of their lifetime and in the past 12 months (Mortier et al., 2018). Considering this, it is crucial to investigate the risk and protective factors that may influence the suicide probability of university students, with a view to enhancing public mental health.

A study examining the relationship between suicide probability and gender revealed that the suicide rates among female university students are higher than those of male students (Wu et al., 2021). However, another study indicated that males are more likely to engage in serious and lethal suicide attempts than females (Freeman et al., 2017). Furthermore, the probability of suicide is influenced by an individual's employment status (Stack, 2021). In a study conducted by Faria et al. (2021), it was demonstrated that the probability of suicide is higher among university students who are unemployed. A comparative study of suicide probabilities in public and private universities in China revealed that students at 'high-level' institutions have a superior learning environment and greater access to resources and services that support their mental health (Wu et al., 2020). Moreover, Hussain and Shova (2023) conducted a systematic review examining the probability of suicide among university students attending public universities. The results indicated a higher probability of suicide among students enrolled in public institutions compared to their counterparts in other settings. Furthermore, the marital status of an individual's parents has been identified as a significant risk factor for suicide probability. A study conducted in Australia with individuals aged 14 to 17 revealed that youth living with a single parent exhibited a higher prevalence of suicidal thoughts (Zubrick et al., 2016). In addition, a study conducted on university students in Bulgaria revealed that students with divorced parents are more likely to experience psychological disorders (Christopoulos, 2018). A further factor that affects the probability of suicide is parental loss. It has been established that individuals who have lost a parent are more likely to experience mental health issues than those who have not (Marcussen et al., 2021). Furthermore, a study conducted in Iran with university students revealed that the presence of a deceased parent is a significant risk factor for suicidal ideation (Nakhostin-Ansari et al., 2022). Finally, the living arrangements of university students also have an impact on their probability of suicide. A study conducted in Korea revealed that individuals living alone exhibit less healthy behaviors. The same study demonstrated that less healthy individuals smoke more and sleep less, which affects their suicidal thoughts (Kim et al., 2020). Similarly, another study conducted with medical students indicated that students living alone have more suicidal thoughts (Torres et al., 2018).

Societies have different cultural structures. Culture in suicide to gain a deeper understanding of its contextual dynamics (Yakar et al., 2017). Turkish culture has a collectivist nature rather than individualistic which strong social ties, family relations and a sense of belonging to the community are prioritized (Göregenli, 1997). These cultural characteristics can have a dual influence on suicidal behavior. On the one hand, the presence of strong social ties and family support can act as a protective factor against suicide by fostering emotional resilience and providing individuals with a robust support network (Eskin, 2018). Secondly, societal, and familial expectations in collectivist cultures may increase the pressure to conform, potentially leading to psychological distress and, in some cases, suicidal ideation (Eskin, 2018).

Parental rejection-acceptance

In relation to the likelihood of suicide, socio-demographic factors can act as both protective and risk factors, while parental relationships, social and emotional relationships and personality traits are also considered protective and risk factors. Parental acceptance and rejection are among these factors. The relationship established with parents can act as a protective factor for the likelihood of suicide as well as a risk factor. Rohner (1975) developed the Parental Acceptance-Rejection Theory (PART) to identify the reasons and consequences of acceptance or rejection by parents and to predict and explain their relationship with children

(Rohner, 1986; Khaleque & Rohner, 2012; Rohner, 2005). According to PART, all individuals around the world have a need to receive positive responses and feel warmth from their parents or significant others. This universal need is independent of various factors such as gender, age, culture, race, and physical characteristics. In a study conducted with 394 university students in Turkey, it was concluded that there was a positive and significant relationship between the probability of suicide and parental rejection (Aslan and Batıgün, 2017). These studies, especially those conducted in Turkey, are very valuable because parental attitudes and behaviors are also basic socialization tools in the transmission of culture and values (Sümer et. al., 2010). For example, Kağıtçıbaşı (2007) argues that in Turkish culture and other similar collectivist cultures, parental discipline and warmth are perceived as complementary dimensions rather than as opposites. Similarly, while overprotective parenting is generally perceived negatively and has adverse effects on children in Western cultures, it is often viewed as positive protection in Turkey and therefore does not lead to negative outcomes for children (Sümer et. al., 2010). However, when this balance is disrupted—such as through excessive discipline without warmth or inconsistent parental behaviors—it can lead to feelings of inadequacy, isolation, and emotional distress in individuals (Barber et. al., 1994). In turn, these feelings may increase the risk of mental health challenges, including suicidal ideation, particularly in environments where seeking help is stigmatized or discouraged by cultural norms (Buri et. al, 1988). On the other hand, a study found that when perceived parental attitudes were supportive during adolescence, individuals were at lower risk for suicidal thoughts and behaviours (Diamond et al., 2022). In a study of high school students aged 13 to 20, students who experienced parental rejection were found to engage in self-harm behaviours (Cipriano et al., 2020). In addition, a study of adolescents found that individuals who experienced parental rejection had higher rates of mental health problems (Wu et al., 2020).

Social and emotional loneliness

Another factor influencing the likelihood of suicide among university students is social and emotional loneliness. Weiss (1973) proposed that there are two types of loneliness: social and emotional, resulting from various relationship problems. Emotional loneliness is defined as the absence of meaningful relationships in which a person has formed deep emotional attachments. Social loneliness, characterised by a lack of a social network, is associated with behavioural problems such as boredom, depression, aimlessness, meaninglessness, self-talk and alcoholism (Weiss, 1973). Studies of loneliness suggest that it has many negative consequences. A meta-analysis conducted by McClelland et al (2020) concluded that loneliness is a stronger predictor of suicidal behaviour than suicidal ideation. In addition, McClelland et al (2023) emphasised that social loneliness influences suicidal ideation in a study of participants aged 18-70. In addition, a study conducted among university students in Hungary found that students who experienced social loneliness were more likely to commit suicide (Chang et al., 2017). The same study identified family support as a factor that minimises social loneliness among university students. In a study on emotional loneliness, research involving 991 participants found that emotional loneliness is a risk factor that increases the likelihood of suicide across all age groups (Gomboc et al., 2022). Furthermore, a study by Siddique et al. (2019) found that women with higher levels of emotional loneliness were more likely to develop suicidal thoughts.

Psychological Flexibility

Psychological flexibility has been identified as a key protective factor in the likelihood of suicide, significantly contributing to an individual's psychological health and well-being (Kashdan & Rottenberg, 2010). Psychological flexibility is defined as the capacity to be wholly engaged in the present moment, as well as the ability to maintain or alter behaviors in accordance with personal beliefs (Hayes et al., 2006). Indeed, a study investigating the relationship between psychological flexibility and suicide risk found that individuals with high psychological flexibility serve as a protective factor against self-harming behaviors (Hyun, 2022). A study revealed that university students experiencing high levels of stress and exhibiting low psychological flexibility employed maladaptive coping strategies, which resulted in increased feelings of loneliness (Indra, 2022). In a further study examining the relationship between psychological flexibility and suicidal behavior among university students, those lacking psychological flexibility exhibited higher levels of suicidal thoughts.

Consequently, the research highlighted the potential efficacy of enhancing psychological flexibility among university students in reducing suicidal ideation (Krafft et al., 2019).

In conclusion, suicide represents a significant public health issue. In this context, this research examines the risk and protective factors associated with the probability of suicide among university students, a population undergoing significant changes and developments in their lives.

The present study

The objective of the present research was to examine the probability of suicide among university students, predicted by demographic characteristics (gender, age, employment status, university types), socio-cultural characteristics (family structure), as well as parental acceptance-rejection, emotional and social loneliness, and psychological flexibility. This study sought to answer the following questions: (1) To what extent do the demographic characteristics of university students (gender, age, employment status, university types) predict the probability of suicide? (2) To what extent do the socio-cultural characteristics of university students (family structure) predict the probability of suicide? (3) To what extent do parental acceptance-rejection, emotional and social loneliness, and psychological flexibility among university students predict the probability of suicide? Despite the existence of literature on the topic of suicide, the absence of research that examines all of the aforementioned variables collectively indicates that this project represents a significant contribution to the field, addressing a previously identified gap in knowledge. Furthermore, the project makes a significant contribution to the field by addressing loneliness through its social and emotional dimensions. The findings of the research serve as a valuable resource for mental health professionals engaged in the care of university students.

Method

Research Design

Correlational research design which is one of the quantitative research methods was used in the current study. The aim of the correlational research model is to ascertain whether the variables are subject to change in conjunction with one another and, if such a relationship exists, to determine the nature of that change (Karasar, 2005). This method was used to investigate the role of various factors, including demographic characteristics (gender, age, employment status, university types), socio-cultural characteristics (family structure), parental acceptance-rejection, emotional and social loneliness, and psychological flexibility on suicide. The dependent variable of the study was the probability of suicide, while the independent variables were identified as follows: demographic characteristics (gender, age, employment status, university types), socio-cultural characteristics (family structure), parental acceptance-rejection, social and emotional loneliness, and psychological flexibility.

Participants

The research population comprises university students aged 18-29, enrolled in a range of faculties at state and foundation universities in Istanbul. According to the Higher Education Information Management System (YBYS), 1,299,390 students are studying in Istanbul in the 2021-2022 academic year. To determine the sample size within the scope of the study, the studies of Yazıcıoğlu and Erdoğan (2004) regarding the universe size and sample amounts to reduce possible sampling errors was taken as basis. In this direction, for $\alpha = 0.05$, the ± 0.05 sampling error in Yazıcıoğlu and Erdoğan's (2004) study was taken as basis. In this context, when 1,299,390 university students are taken as basis; the sample size was determined as 384. The study group comprises 400 university students (222 female, 178 male, $M_{\text{age}} = 22.86$ years, standard deviation $(SD)_{\text{age}} = 1.663$) who are currently enrolled at universities in Istanbul and have consented to participate in the research. A convenience sampling method was employed in the research, as this enables the sample to be accessed more readily and in a more practical manner due to limitations in financial, temporal, and human resources (Büyüköztürk et al., 2021). The socio-demographic characteristics of the participants are presented in Table 1.

Table 1. Demographic characteristics of the participants

Variables	Participants	<i>n</i>	%
Sex	Female	222	55.5
	Male	178	45.5
Employment Status	Yes	130	32.6
	No	270	67.3
University Types	Public	187	46.7
	Private	213	53.2
Parents' Marital Status	Married	204	73.4
	Divorced	91	26.5
Parents' Death Status	Both parents' death	91	22.8
	Both parents live	308	77.1
Living Arrangements	With parents	197	49.3
	With spouse	7	1.8
	With friend	22	5.5
	With relative	12	3.0
	Lonely	76	19.0
	In dorm	86	21.5

Instruments

Demographic Information Form This form, prepared by the researcher, contained 16 questions to assess gender, age, type of university attended, employment status, marital status of parents, whether parents were alive and where they lived.

Suicide Probability Scale (SPC): The SPC, developed by Cull and Gill (1990), consists of 36 items and is used to identify adolescents and adults at risk of suicide. It is a four-point Likert scale with options: 'Never or rarely - 1', 'Sometimes - 2', 'Often - 3' and 'Most of the time or always - 4'. It has four subscales: Hopelessness, Suicidal ideation, Negative self-evaluation and Hostility. The adaptation for clinical samples was carried out by Atlı and Eskin (2007; 2009). The adaptation revealed that the internal consistency coefficient of the total score was 0.89, while the internal consistency coefficients of the subdimensions ranged from 0.70 to 0.89. The reliability of the scale was tested using the split-half method, resulting in a reliability coefficient of 0.81 for the first half and 0.85 for the second half. In this study, the Cronbach alpha internal consistency coefficient for the suicide ideation subscale was found to be 0.953. The Hopelessness subscale, which was developed based on the relationship between feelings of hopelessness and suicidal behaviour, consists of 12 items with a score range from 12 to 48. In this study, the Cronbach alpha internal consistency coefficient for the Hopelessness subscale was found to be 0.816. The Hostility subscale contains a total of 7 items with a score range of 7 to 28. In this study, the Cronbach alpha internal consistency coefficient for the Hostility subscale was found to be 0.859. The Negative Self-Esteem subscale consists of a total of 9 items measuring a person's negative thoughts about themselves, with a score range of 9 to 36. In this study, the Cronbach alpha internal consistency coefficient for the Negative Self-Esteem subscale was found to be 0.890. Overall, the Cronbach alpha internal consistency coefficient of the scale was found to be 0.95.

The Parental Rejection-Acceptance Scale (PRAS): Developed by Rohner et al. (1978), is a tool designed to assess an individual's perception of parental acceptance or rejection. The items in the PRAS are rated on a four-point Likert scale, with the following definitions: 'Almost Always True' is rated 4, 'Sometimes True' is rated 3, 'Rarely True' is rated 2, and 'Never True' is rated 1. The 60-item PRAS is comprised of five subscales, namely the Warmth/Affection subscale (20 items), the Hostility/Aggression subscale (15 items), the Neglect/Indifference subscale (15 items), the Undifferentiated Rejection subscale (10 items), and the Control subscale (13 items). The total score of the scale provides an overall indication of the extent to which an individual perceives acceptance or rejection in their relationship with their mother or father. The PRAS is completed separately for each parent. The assessment of perceived acceptance and rejection in the relationship

with the father is referred to as the "PRAS." The evaluation of perceived acceptance-rejection in the relationship with the father is referred to as "PRAS: Father," while the evaluation for the relationship with the mother is referred to as "PRAS: Mother." The scale should be completed separately for each parent. In this case, the evaluation of perceived acceptance-rejection in the relationship with the mother is referred to as "PRAS: Mother." The adaptation of the short form of the PRAS to the target language was conducted by Dedeler et al. (2017). The internal consistency for the entire scale was reported to be .92 for the mother's form and .96 for the father's form. The test-retest reliability coefficients ranged from 0.40 to 0.83 for the mother's form and from 0.86 to 0.96 for the father's form. Split-half reliability coefficients were found to be .88 for the mother's form and .94 for the father's form. In the present study, the Cronbach alpha internal consistency coefficient for the PRAS Father was determined to be 0.968, and a similar value was also found for the PRAS Mother (0.968).

The Psychological Flexibility Scale (PFS): The PFS, developed by Francis, Dawson, and Golijani-Moghaddam (2016), comprises 28 items and five subscales: values-driven behavior, present awareness, acceptance, self-context, and defusion. Karakuş and Akbay (2020) undertook the Turkish adaptation of the scale. The lowest possible score that can be attained on the scale is 28, while the highest is 196. As the scores obtained from the items of the scale increase, so too does the psychological flexibility of the individuals in question. The Cronbach alpha internal consistency coefficients were found to be 0.84 for value-oriented behaviour, 0.60 for mindfulness, 0.72 for acceptance, 0.73 for contextual self, and 0.59 for differentiation. In the present study, the Cronbach's alpha coefficient for the values-driven behaviors .955, for present awareness .881, for acceptance .924, for self-context .905, for defusion .428 and for PFS was found to be .934.

The Emotional and Social Loneliness Scale (ESLS): The ESLS was developed by DiTommaso and Spinner (1997) based on a multidimensional theory that aligns with Weiss's (1973) differentiation between emotional isolation (emotional loneliness) and social isolation (social loneliness). The scale was adapted to Turkish culture by Akgül (2020). The ESLS comprises 15 items and three subscales. The experience of emotional loneliness is gauged through the subscales pertaining to feelings of loneliness within familial and romantic relationships, whereas the assessment of social loneliness is conducted through the subscale focused on feelings of loneliness within social relationships. The Cronbach alpha internal consistency coefficients for the scale and its subscales were found to be 0.85 for the romantic emotional subscale, 0.76 for the familial emotional subscale, 0.82 for the social loneliness subscale, and 0.83 for the total score. In the present study, the Cronbach alpha internal consistency coefficient for the social loneliness subscale was found to be 0.958. The items comprising the Emotional Loneliness Subscale are divided into two subscales. The Family Subscale comprises items 1, 4, 8, 11 and 12, while the Romantic Subscale includes items 3, 6, 10, 14 and 15. In this study, the Cronbach's alpha coefficient was calculated for the LS over 15 items, yielding a value of .925. For the social loneliness subdimension, this value was .958, for the emotional loneliness subdimension it was .893, for the family subdimension it was .953, and for the romantic subdimension it was .835.

Data Collection

Prior to the commencement of the data collection phase, the scales to be employed in the project were identified and the researchers responsible for the adaptation studies of the scales were contacted via email to request permission to proceed. Following the granting of permission by the researcher, an application for ethical approval was submitted to the Scientific Research and Ethics Committee of the university where the project was conducted. Once ethical approval had been granted, the survey link, comprising the scales and an informed consent form, was both uploaded to an online platform and printed in hard copy. A substantial proportion of the data (382 participants) was gathered through face-to-face interactions, while 18 individuals participated in the study via online platforms. The link to the research was initially disseminated by the researcher via their personal Instagram account and WhatsApp groups. The researcher requested assistance from social media followers to participate in the study and disseminate the link on their own social media accounts and WhatsApp groups. To collect data in person, the researcher visited the relevant universities, sometimes attending classes and sometimes reaching out to participants in social settings. Data were collected over a three-month period from 15 November 2023 to 15 February 2024. Responding to the research questions takes approximately 20 minutes.

Data Analysis

The study was designed in accordance with the project's aims and employed statistical analysis methods appropriate to the research questions. The data were analysed using SPSS (Statistical Package for Social Sciences) version 25.0. To ascertain the socio-demographic characteristics of the participants, frequency (n) and percentage (%) values were calculated. Descriptive analyses were conducted on the total scores and subscale scores of the measurement tools employed in the project. The mean (M), standard deviation (SD), minimum (Min), and maximum (Max) values were calculated. The reliability of the measurement tools with respect to the project data was evaluated using Cronbach's alpha. The Cronbach's alpha coefficient was employed as an indicator of internal consistency reliability. The reliability coefficients were classified as follows: A reliability coefficient of $0.00 \leq \alpha < 0.40$ is indicative of unreliable results, while a coefficient of $0.40 \leq \alpha < 0.60$ suggests low reliability, $0.60 \leq \alpha < 0.80$ indicates moderate reliability, and $0.80 \leq \alpha < 1.00$ denotes high reliability (Kalaycı, 2006). The aforementioned reliability results were presented in accordance with the criteria.

The study data were examined for normal distribution using skewness and kurtosis values. In accordance with the guidelines set forth by Tabachnick and Fidell (2013), skewness and kurtosis values falling between -1.50 and +1.50 are indicative of a normal distribution. The capacity of the independent variables to predict the dependent variable was evaluated through the implementation of a hierarchical regression analysis. One of the fundamental assumptions of regression analysis is the existence of a relationship between the dependent variable and the independent variables. Accordingly, the Pearson Product-Moment Correlation Coefficient (Cohen et al., 2003) was employed to demonstrate the strength and direction of the relationship between the variables. Pearson correlation coefficients are classified into three distinct categories: Correlations of 0.70–1.00 are classified as high, 0.30–0.70 as moderate, and 0.00–0.30 as low (Godfrey, 1980). The results were interpreted with a significance level of 0.05; $p < 0.05$ indicated a significant difference, while $p > 0.05$ indicated no significant difference.

Results

Descriptive analyses of the total scores and sub-dimensions of the measurement tools used to determine the dependent variable (suicide probability) and three independent variables (parental rejection-acceptance, social and emotional loneliness, and psychological flexibility) of this study are given in Table 2.

Table 2. Arithmetic Mean, Standard Deviation, Normality Values of Variables

Variables	\bar{X}	SS	Min.	Max.	Skewness	Kurtosis	Cronbach Alpha
SP_Sum	70.43	19.93	39	138	1.188	1.277	.953
PARQ_Mother_Sum	80.11	17.79	24	96	-1.331	1.336	.813
Maternal_Warmth	16.11	7.66	9	36	.950	-.086	.955
Maternal_Hostility	20.18	4.46	6	24	-1.364	1.346	.859
Maternal_Neglect	17.22	14.97	19	95	-1.604	1.678	.918
Maternal_Rejection	13.81	3.30	4	16	-1.659	1.824	.895
PARQ_Father_Sum	12.01	18.99	24	96	-1.299	-1.131	.821
Paternal_Warmth	18.56	8.20	9	36	.504	-.820	.958
Paternal_Hostility	19.93	4.99	6	24	-1.376	.982	.900
Paternal_Neglect	15.57	4.67	5	20	-.867	-.429	.899
Paternal_Rejection	13.72	3.48	4	16	-1.528	1.193	.917
SEL_Sum	46.83	24.20	15	105	.666	-.395	.925
Social_Lon.	14.34	9.93	5	35	.883	-.513	.953
Emotional_Lon.	32.49	16.45	10	70	.424	-.705	.893
PF_Sum	129.35	31.80	44	193	-.207	-.190	.934
VD_Behavior	51.29	13.97	10	70	-1.090	.733	.955
Present_Awareness	31.19	10.65	7	49	-.145	-.757	.881
Acceptance	22.05	9.67	5	35	-.062	-1.388	.924
Self_Context	13.14	5.15	3	21	-.315	-.986	.905
Defuison	11.66	3.80	3	21	-.432	-.463	.428

Note: SP: Suicide Probability, PARQ: Parental Acceptance Rejection, SEL: Social Emotional Loneliness, Social Lon = Social Loneliness, Emotional Lon = Emotional Loneliness, PF= Psychological Flexibility, VD: Behavior= Values Driven Behavior

The skewness, kurtosis, means, SDs and Cronbach's alpha among all the variables are presented in Table 2. The results of the Pearson correlation coefficient analysis, which was employed to investigate the relationship between the dependent variable, suicide probability; and the independent variables, namely gender, age, employment status, university type, parental marital status, parental death, living arrangements, parental acceptance-rejection, psychological flexibility, and social and emotional loneliness, was presented in Table 3.

Table 3. Intercorrelation between variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. SP	1																					
2. Gender	.111**	1																				
3. Age	-.089	-.023	1																			
4. WS	.009	-.0179**	-.236**	1																		
5. UT	-.086	-.012	-.014	.108*	1																	
6. PMS	.222**	.032	.130*	-.124*	-.053	1																
7. PDS	.219**	.162**	.129**	-.231**	-.128**	.080	1															
8. LA	.053	.026	-.092	-.067	-.155**	.020	.163**	1														
9. MA	-.493**	-.137**	.059	-.026	.030	-.293**	-.050	.012	1													
10. MH	.403**	.075	-.032	.042	.010	.273**	.073	.014	-.708**	1												
11. MN	.429**	.017	-.056	.094	.022	.259**	.034	.000	-.733*	.777*	1											
12. MR	.458**	.093	.060	-.003	.001	.340**	.078	.018	-.747**	.883**	.800	1										
13. PW	-.554**	-.138**	.090	.101*	.035	-.281**	.127*	.024	.380**	-.207**	-.237**	-.243**	1									
14. PH	.537**	.221**	-.123*	-.046	-.026	.159**	.120*	-.022	-.271**	.357**	.282**	.390**	-.627**	1								
15. PN	.524**	.096	-.083	-.085	-.053	.319**	.139**	.067	-.332**	.329**	.398**	.356**	-.771**	.653**	1							
16. PR	.608**	.174**	-.078	-.065	-.043	.217**	.124**	.001	.294**	.353**	.302**	.431**	-.679**	.889**	.735**	1						
17. VDB	-.771**	-.120*	.089	-.040	.094	-.205**	-.263**	-.068	.511**	-.398**	-.429**	-.453**	.415**	-.420**	-.430**	-.460**	1					
18. PA	-.602**	.060	.105*	-.062	-.021	-.165**	-.016	.056	.326**	-.338**	-.299**	-.323**	.324**	-.339**	-.365**	-.385**	.530**	1				
19. AC	-.204**	-.418**	.044	-.083	-.073	.016	.075	.056	-.021	-.043	-.038	-.007	.104*	-.103	-.146**	-.069	.062	.503**	1			
20. SC	-.518**	.256**	.071	-.088	.021	-.080	-.130**	.044	.161**	-.165**	-.158**	.146**	.306**	-.157**	.334**	.237**	.489**	.413**	.624**	1		
21. DE	-.454**	.186**	.026	-.102**	-.044	.025	-.044	-.031	.167**	-.146**	-.121**	-.149**	.185**	-.129**	-.210**	-.199**	.415**	.223**	.319**	.657**	1	
22. SL	.513**	.028	-.184**	.096	.097	.037	.083	.209	-.271**	.212**	.280**	.247**	-.262**	.300**	.250**	.328**	-.478**	-.312**	-.136**	-.351**	-.281	1
23. EL	.581**	.020	-.160**	.051	.004	.204**	.117**	-.007	-.433**	.335**	.359**	.367**	-.374**	.391**	.356**	.440**	-.558**	-.415**	-.149**	-.331**	-.258**	.662

Note: SP suicide probability, WS working status, UT university types, PMS parents' marital status, PDS parents' death status, LA living arrangements, MA maternal warmth, MH maternal hostility, MN maternal neglect, MR maternal rejection, PW paternal warmth, PH paternal hostility, PN paternal neglect, PR paternal rejection, VDB values-driven behaviors, PA present awareness, AC acceptance, SC self-context, DE defusion, SL social loneliness, EL emotional loneliness. Gender was dummy-coded where 1 = female and 2 = male. Marital status was dummy-coded where 1 = single and 2 = married. Parent's Alive/Dead Status was dummy-coded where 1 = parent's alive and 2 = parent's death. * $p < .05$ ** $p < .01$

As illustrated in Table 3, there was a positive correlation between suicide probability and gender ($r = .111$, $p < .01$), parents' marital status ($r = .222$, $p < .01$) and parents' alive or dead status ($r = .219$, $p < .01$). On the other hand, there was no significant correlation was observed between suicide probability and age ($r = -.089$, $p > .05$), working status ($r = .009$, $p > .05$), university types ($r = -.086$, $p > .05$), or living arrangements ($r = .053$, $p > .05$). With regard to maternal and paternal factors, a significant negative correlation was found between suicide probability and maternal warmth ($r = -.493$, $p < .01$). But, there was a significant positive correlations between suicide probability and maternal hostility ($r = .403$, $p < .01$), maternal neglect ($r = .429$, $p < .01$), and maternal rejection ($r = .458$, $p < .01$). Similarly, paternal warmth ($r = -.554$, $p < .01$) was found to have a significant negative correlation with suicide probability. In contrast, paternal hostility ($r = .537$, $p < .01$), paternal neglect ($r = .524$, $p < .01$), and paternal rejection ($r = .608$, $p < .01$) demonstrated significant positive moderate correlations. For psychological flexibility, there was a significant negative correlation between suicide probability and values-driven behaviour ($r = -.771$, $p < .01$), present awareness ($r = -.602$, $p < .01$), while acceptance, self-context, and defusion exhibited significant, negative correlations with suicide probability ($r = -.204$, $p < .01$; $r = -.518$, $p < .01$; $r = -.454$, $p < .01$, respectively). Furthermore, social loneliness ($r = .513$, $p < .01$) and emotional loneliness ($r = .581$, $p < .01$) demonstrated significant positive correlations with suicide probability.

The aim of the current study was to investigate whether the probability of suicide among university students predicted by demographic characteristics (gender, age, employment status, university types), socio-cultural characteristics (family structure), parental acceptance or rejection, emotional and social loneliness, and psychological flexibility. To address this question, a hierarchical regression analysis was utilized. The order

of variables in the hierarchical regression analysis was determined in accordance with the theoretical framework proposed by Ryan (2008).

In the first model, the socio-demographic characteristics of university student (gender, age, employment status, university types, and family structure) were entered as predictors. In the second model, maternal factors from the parental acceptance-rejection scale were added, including maternal rejection, maternal warmth, maternal neglect, and maternal hostility. Paternal factors from the parental acceptance-rejection scale, including paternal rejection, paternal warmth, paternal neglect, and paternal hostility were added in the third model. Psychological flexibility was added into the fourth model. Finally, in the fifth model, social and emotional loneliness were added. The results of the specified model were presented in Table 4.

Table 4. Hierarchical multiple regression analysis results

Model	Predicting Variables	<i>B</i>	β	<i>t</i>	<i>p</i>	<i>R</i> ² _{adj}	ΔR^2	<i>R</i> ²	<i>F</i>	<i>p</i>
Model 1	Gender	3.176	.079	1.629	.104	.123	.123	.107	7.819	.000
	Age	-1.528	-	-	.011					
	Working tatus	3.246	.128	2.566	.133					
	University types	-2.249	-.056	-1.165	.245					
	Parents' marital status	10.162	.225	4.689	.000					
	Parents' death status	10.244	.216	4.305	.000					
	Living arrangements	-.053	-.003	-.067	.946					
Model 2	Gender	.979	.024	.588	.577	.320	.198	.301	28.131	.000
	Age	-1.343	-	-	.013					
	Working status	1.644	.039	.854	.394					
	University types	-2.105	-.053	-1.229	.220					
	Parents' marital status	2.184	.062	1.375	.170					
	Parents' death status	9.331	.197	4.421	.000					
	Living arrangements	.235	.015	.340	.734					
	Maternal warmth	-.775	-.298	-4.348	.000					
	Maternal hostility	-.645	-.145	-1.543	.124					
	Maternal neglect	.332	.069	.891	.374					
	Maternal rejection	1.663	.276	2.639	.009					
	Gender	-1.093	-.027	-.724	.470					
	Age	-.399	-.033	-.861	.390					
	Working Status	2.751	.065	1.686	.093					
Model 3	University types	-1.698	-.043	-1.174	.241	.522	.202	.504	40.449	.000
	Parents' marital status	-.020	.000	-.011	.991					
	Parents' death status	7.231	.152	4.041	.000					

Table 4. (Continued)

	Living arrangements	.425	.027	.724	.470						
	Maternal warmth	-.641	-	-	.000						
	Maternal hostility	-.283	.247	3.793	.430						
	Maternal neglect	.581	-.064	-.789	.085						
	Maternal rejection	.165	.121	1.727	.775						
	Paternal warmth	-.493	-.027	-.286	.002						
	Paternal hostility	-.200	.203	3.076	.534						
	Paternal neglect	-.310	-.050	-.622	.293						
	Paternal rejection	2.600	.073	1.053	.000						
			.453	4.950							
Model 4	Gender		2.470	.062	2.072	.039	.763	.240	.750	76.543	.000
	Age		-.007	-	-.020	.984					
				.001							
	Working status		.027		.023	.982					
				.001							
	University types		-	-	-1.603	.110					
			1.664	.042							
	Parents' marital status		.724	.016	.560	.576					
	Parents' death status		2.528	.053	1.8966	.059					
	Living arrangements		.389	.024	.928	.354					
	Maternal warmth		-.121	-	-.970	.333					
				.047							
	Maternal hostility		-.431	-	-1.657	.098					
				.097							
	Maternal neglect		.737	.153	3.051	.002					
	Maternal rejection		.083	.014	.201	.841					
	Paternal warmth		-.420	-	-3.667	.000					
				.173							
	Paternal hostility		-.001	.000	-.004	.997					
	Paternal neglect		-.692	-	-3.283	.001					
				.162							
	Paternal rejection		1.502	.262	3.977	.000					
	Values-driven behavior		-.452	-	-7.094	.000					
				.317							
	Present awareness		-.455	-	-6.228	.000					
				.243							
	Acceptance		.067	.033	.740	.460					
Self-context		-.422	-	-2.246	.025						
			.109								
Defusion		-.801	-	-4.342	.000						
			.153								
Model 5	Gender		2.496	.062	2.124	.034	.772	.009	.758	7.522	.001
	Age		.167	.014	.510	.610					
	Working status		-.041	-	-.036	.971					
				.001							
	University types		-	-	-2.134	.034					
			2.201	.055							
	Parents' marital status		.779	.017	.607	.544					
	Parents' death status		2.437	.051	1.857	.064					
	Living arrangements		.362	.023	.877	.381					
	Maternal warmth		-.096	-	-.767	.443					
				.037							
	Maternal hostility		-.360	-	-1.400	.162					
				.081							
	Maternal neglect		-.628	.130	2.623	.009					
	Maternal rejection		.098	.016	.242	.809					

Table 4. (Continued)

Paternal warmth	-.413	-	-3.661	.000
		.170		
Paternal hostility	-.016	-	-.072	.943
		.004		
Paternal neglect	-.602	-	-2.884	.004
		.141		
Paternal rejection	1.333	.233	3.548	.000
Values-driven behavior	-.397	-	-6.155	.000
		.278		
Present awareness	-.446	-	-6.210	.000
		.238		
Acceptance	.068	.033	.762	.447
Self-context	-.350	-	-1.880	.061
		.091		
Defusion	-.796	-	-4.388	.000
		.152		
Social Loneliness	.190	.095	2.701	.007
Emotional Loneliness	.043	.036	.945	.345

* $p < .05$

Discussion and Conclusion

The aim of the study was to examine the probability of suicide among university students was predicted by demographic characteristics (gender, age, employment status, university types), socio-cultural characteristics (family structure), as well as parental acceptance-rejection, emotional and social loneliness, and psychological flexibility. The findings indicated a statistically significant positive correlation between suicide probability and gender, with females exhibiting a higher risk of suicide. However, gender does not predict the probability of suicide among university students. In contrast with the findings of this study, research conducted by Zhai et al. (2015) demonstrated that suicide ideation scores were significantly higher among female university students. Similarly, Özel et al. (2015) found that the probability of suicide was higher among female university students. In a study involving 366 university students, Pereira and Cardoso (2015) also found that female university students exhibited higher suicide probability levels compared to male students. There may be several potential explanations for why female university students have significantly higher suicide probability scores compared to their male counterparts. Firstly, when we look at Turkish culture, in a study conducted by Deniz et al. (1995) in Batman province, it was found that women are more likely to commit suicide than men. This situation is common in Turkey because of the patriarchal system. In patriarchal societies, women are regarded as second-class citizens, often deprived of educational and economic opportunities (Deniz et al., 1995). Keeping girls away from education, early marriages without official registration, marriages between relatives, polygamy and traditions such as bride exchange increase the risk of women attempting suicide. (Deniz et al., 1995). Secondly, a study conducted by Karbeyaz et al. (2016) identified the imposition of family and societal pressures as a key factor influencing the suicide probability of female university students. Specifically, societal pressures, coupled with women's inability to work and their lower socio-economic status, serve to increase their suicide probability (Van Bergen et al., 2021). Furthermore, the literature identifies relationship stress among female university students as a risk factor for suicide probability (Seeman et al., 2017).

No significant correlation was identified between suicide probability and age in the current study. This finding aligns with the restricted age range of university students included in the sample, as well as the absence of an older comparison group, which limits the ability to explore age-related differences comprehensively. While previous studies, such as those by Özel et al. (2015), McKean et al. (2018), and Choi et al. (2017), have identified variations in suicide probability across broader age ranges, these findings cannot be directly compared with the present study due to its focus on university students within a narrower age bracket.

The probability of suicide was not found to be significantly associated with the employment status of university students. Furthermore, employment status does not predict the probability of suicide among university

students. In a longitudinal study conducted by Kposowa et al. (2019), a positive and statistically significant relationship was identified between unemployment and suicide. Moreover, in the study conducted by Ekici et al. (2001), 508 cases of suicide in Istanbul between 1996-1997 were examined and it was determined that the highest suicide rate was among the unemployed. In addition, Bayrak (2018) found a positive significant relationship between unemployment and suicide in his longitudinal study in Turkey. In his study, Korkmazer (2020) found that university students' anxiety regarding their career expectations, concerns about the future, and the associated worry about having or not having a job significantly impact their mental health. These findings can be explained by several factors. The situation highlighted in the study by Aytaç and Dursun (2009) also carries profound meaning in a cultural context. In collectivist cultures like Turkey, individuals' contributions to society and their employment status are seen as significant components of their identity (Dumludag et al., 2016). In this regard, unemployment can be considered not only an economic issue but also a factor that affects an individual's social dignity and self-worth. In countries with high unemployment rates, such as Turkey, the societal pressures placed on unemployed individuals can lead to chronic stress, hopelessness, and an increased vulnerability to mental health issues, including depression and suicidal ideation (Tunalı & Özkaya, 2016).

No significant correlation was identified between the probability of suicide and the type of university attended. Furthermore, the type of university does not appear to be a predictor of the probability of suicide. In a study conducted by Urme et al. (2022), it was concluded that suicide rates were higher among students attending public universities. The same study identified academic stress, lack of social support and financial crisis as factors affecting the probability of suicide among students. It is possible that university students at public institutions may have lower socio-economic levels in comparison to those at private institutions. Berkelmans et al. (2021) found that individuals with socio-economic disadvantages had a higher probability of suicide. In the study by Tektaş and Pala (2014), the hopelessness levels of students from state and private universities were examined, revealing that students at state universities had higher hopelessness scores. This finding is believed to stem from the lower income status of state university students compared to their peers at foundation universities, leading to heightened concerns about their future (Tektaş & Pala, 2014). Also, in a study conducted by Arıkan et al. (2020) with students from Dumlupınar University, it was found that male students exhibited more risky behaviors (such as smoking and drug use), while female students showed a higher likelihood of suicide. Further research is needed to fully understand the impact of university type on the probability of suicide among university students.

The findings indicated a statistically significant positive correlation between suicide probability and parents' marital status of university students, with parental divorce exhibiting a higher risk of suicide. However, parents' marital status does not predict the probability of suicide among university students. Contrary to the findings of this study, Bilsen (2018) found that negative family environments are associated with an increased probability of suicide among adolescents. For example, children of parents experiencing marital issues or divorce have been observed to exhibit elevated levels of suicidal risk compared to children of non-divorced parents (Chen et al., 2020). Furthermore, studies examining the factors associated with the probability of suicide among university students have identified that students with divorced parents are more likely to engage in suicidal behaviors (Zhai et al., 2015). From a cultural perspective, these findings can be further contextualized within societies where traditional family structures are highly valued, such as Turkey and many other collectivist cultures. In these settings, the family is often seen as a cornerstone of societal stability, and parental divorce may be perceived as a significant disruption to this norm (Chadda & Deb, 2013). The stigma surrounding divorce in such cultures may lead children of divorced parents to feel alienated, judged, or unsupported by their extended social networks (Yip et al., 2015). This lack of perceived social support can amplify feelings of loneliness and despair, contributing to an increased risk of suicide.

Additionally, societal attitudes toward divorce in Turkey can further exacerbate the psychological distress experienced by university students. Divorce is often stigmatized, and children of divorced parents may face judgment or pity from their communities (Wallerstein, 1991). A significant positive correlation exists between the probability of suicide and the status of parental survival among university students. The loss of a parent is

a significant risk factor for suicide. In a study conducted by Peng et al. (2022), it was found that individuals who experienced parental loss between the ages of 7 and 12 later exhibited symptoms of depression and developed suicidal thoughts. Furthermore, individuals who lost a parent at an early age demonstrated a reduction in interest in pursuing higher education or exhibited withdrawal behaviours from the university environment (Feigelman et al., 2017). Similarly, in a study by Karakar (2012), some participants aged 18 and older, who had experienced parental loss within the past 10 years and attended primary or secondary school in Northern Cyprus, exhibited lower academic performance, reduced grades, less participation in classes, and decreased interest in social activities. Additionally, another study observed that individuals who had lost a parent exhibited an increase in suicidal thoughts at the age of 19 (Asgari & Naghavi, 2020). Also, a study by Aktepe et al. (2006) concluded that adolescents who had experienced the loss of a parent were more likely to attempt suicide. The loss of parents has been observed to affect university students in a number of ways. It is noteworthy that a study by Elbel (2023) found that the loss of primary social support networks is associated with increased stress and anxiety levels. Individuals who have lost their parents frequently exhibit a deficiency in robust social support networks (Elbel, 2023). The disruption of family structure may result in the weakening of support systems, which can, in turn, lead to an increase in stress and anxiety levels among individuals. Moreover, another study revealed that university students who had lost a parent exhibited markedly lower levels of self-compassion compared to those with living parents (Çelik & Tanacioğlu, 2024). This finding indicates that the presence of at least one deceased parent among university students is significantly associated with an increased probability of suicidal behavior. The link between parental loss and suicide probability is an anticipated outcome in the existing literature.

No significant relationship was identified between the probability of suicide and the living arrangements of university students, nor was any impact on suicide risk observed. In a study conducted by Peltzer et al. (2017), it was found that among 4,675 university students in Asia, those who resided with their families were more likely to engage in suicidal behavior than those who lived separately. Furthermore, students who were not residing in dormitories reported a higher prevalence of suicidal thoughts than those who were (DiBello et al., 2019). This may be attributed to the restricted availability of alcohol and drugs in dormitories (DiBello et al., 2019) and the enhanced accessibility of mental health services for on-campus students (Chen et al., 2020). However, Lester (2014) observed that students residing on campus exhibited higher rates of depression and suicidal ideation compared to those living with parents or in off-campus accommodations. The conflicting results may be attributed to various factors, including low autonomy and negative coping strategies among students residing with their families during the pandemic (Hall & Zygmunt, 2021), as well as issues such as family conflicts or a lack of support (Peltzer et al., 2017). Loneliness and social isolation may also contribute to elevated depression and suicide risk among campus residents (Chen, 2022). Additionally, conflicts with roommates have been shown to negatively impact lifestyle and academic performance (Nourafkan et al., 2020).

A significant relationship was identified between suicide probability and parental acceptance-rejection subdimensions. A negative correlation was identified between suicide risk and maternal and paternal warmth, while a positive correlation was observed between suicide risk and maternal and paternal hostility, neglect, and rejection. In university students, paternal warmth was found to have a protective effect against suicide risk, whereas paternal and maternal neglect and paternal rejection were identified as risk factors. According to PRAT the need to feel warmth is universal across humanity, independent of culture, race, physical traits, social status, language, or geography (Rohner, 2005). One of the theory's key hypotheses is that parental behaviors leading to acceptance or rejection can vary culturally (Rohner, 2005). Comparative studies conducted in the United States and Turkey reveal that parental rejection is more prevalent in Turkey (Kavak, 2013). The socio-cultural systems model proposed by PARTheory explains that the behaviors of parents from different socio-cultural levels tend to focus on rejection (Rohner, 2005). This finding aligns with research in Turkey showing that mothers from lower socio-cultural backgrounds are more likely to display rejecting behaviors toward both their sons and daughters (Toran, 2005). Also the extant literature confirms that individuals facing parental rejection are at an elevated risk for suicide and mental health issues, whereas those who feel accepted exhibit

fewer suicidal thoughts (Cawley et al., 2019; Rashid et al., 2018). The father-child relationship is of particular importance, as children often model social and emotional behaviours on parents. Negative paternal attitudes have been linked to an elevated risk of mental health issues, with rejection identified as a factor associated with an increased probability of suicide (Masarik & Conger, 2017; Zheng et al., 2023). These findings support the protective role of parental affection against suicide risk among young adults.

Research findings indicated a negative correlation between suicide probability and psychological flexibility dimensions, including values-driven behavior, present-moment awareness, self-as-context, and defusion. These factors have been demonstrated to significantly reduce suicide probability, as evidenced by regression analyses. Among these, values-driven behavior stands out as the strongest predictor possibility of suicide. Swettenham and Whitehead (2022) found that individuals struggling with distressing thoughts and emotions related to self-injury were able to overcome these experiences more quickly through the psychological flexibility dimension of values-driven behavior. Also, the study conducted by Fonseca et al. (2020) concluded that engaging in values-based actions may shield individuals from the adverse effects of major life events, particularly in relation to depressive symptoms. Additionally, Collis and Winters (2018) emphasized the significance of the psychological flexibility dimension utilized in acceptance and commitment therapy, highlighting that values-driven behavior practices play a crucial role in reducing stress levels in individuals. Those with inflexible personalities are more susceptible to suicidal ideation because of their inability to effectively cope with stress and negative emotions (Krafft et al., 2019). Numerous studies have demonstrated a correlation between low psychological flexibility and an increased risk of self-harm, as well as a range of mental health issues, including depression, anxiety, and substance abuse (Chou et al., 2018; Levin et al., 2014). Psychological flexibility acts as a buffer, enhancing resilience against stress and depressive symptoms, thereby constituting a crucial protective factor (Doorley et al., 2020; Hirsch et al., 2019). The extant research confirms that a higher level of psychological flexibility is predictive of a lower incidence of suicidal thoughts and serves as a protective factor (McCracken et al., 2018; Guo et al., 2022; Türk et al., 2024).

A positive correlation exists between suicide probability and both social and emotional loneliness; however, only social loneliness significantly predicts suicide probability. According to Yaşar (2007), the experience of loneliness carries significantly different meanings across various regions. In Mediterranean cultures, where interpersonal distance is minimal and relationships are close, loneliness often implies being abandoned or isolated. In contrast, in Western societies, loneliness is associated with individualization and self-reliance. Social loneliness, as defined by Weiss (1974), refers to the lack or absence of social connections with others. Consequently, while social loneliness may not have negative implications in Western cultures, it can lead to adverse outcomes in Mediterranean and Eastern cultures (Ulutaş & Gökçen, 2019). Gomboc et al. (2022) identified that young adults (18-29 years old) exhibited the highest rates of suicidal thoughts, with emotional loneliness identified as a risk factor in this age group and social loneliness affecting older adults. In this study, social loneliness was identified as a significant factor influencing suicide probability among university students. This is likely due to the prevalence of superficial social media interactions, which may intensify feelings of isolation (Uyaroğlu et al., 2022). The formation of new social networks during university life can intensify social loneliness (Zahedi et al., 2022). Furthermore, those lacking meaning or purpose tend to experience social loneliness more deeply (Özdoğan, 2021). These findings are consistent with existing research, which highlights social loneliness as a predictor of suicide risk in university students.

Implications

In light of the findings of this research, it is crucial to recognize the complex nature of correlations among multitude of factors that contribute to the probability of suicide among university students. The findings underscore the pivotal influence of parental acceptance-rejection dynamics, emotional and social loneliness, and psychological flexibility on students' mental health outcomes. It is therefore incumbent upon educational institutions and mental health professionals to give priority to the development and implementation of targeted intervention program designed to address these specific factors.

It is recommended that educational programs place an emphasis on the enhancement of psychological

flexibility, as this has been identified as a key protective factor against suicidal thoughts and behaviors. The findings of this study highlight that values-driven behavior is the most significant predictor of suicide probability among university students. This underscores the importance of aligning one's actions with personal values as a protective mechanism against suicidal thoughts and behaviors. Future research should delve deeper into understanding how values-driven behavior operates across diverse populations and cultural contexts to mitigate suicide risk. Additionally, researchers should explore intervention designs that specifically target the enhancement of values-driven behavior, such as incorporating this dimension into therapeutic frameworks like Acceptance and Commitment Therapy (ACT). Longitudinal studies examining the long-term effects of fostering values-driven behavior on mental health outcomes could provide valuable insights. Training sessions that teach coping strategies, stress management, and emotional regulation can equip students with the tools to more effectively navigate the challenges of university life. Moreover, educational institutions should foster awareness of the detrimental effects of emotional and social loneliness, particularly in the context of social media interactions, which can exacerbate feelings of isolation. The implementation of peer support programmes may facilitate the fostering of meaningful connections and the reduction of feelings of loneliness amongst students.

Furthermore, the impact of parental relationships on students' mental health highlights the importance of implementing supportive family engagement strategies. It may be beneficial for universities to consider the establishment of workshops for parents, with the objective of educating them about the impact of their acceptance or rejection on their children's emotional well-being. Such initiatives have the potential to foster healthier family dynamics, which in turn could lead to improved mental health outcomes for students.

Limitations

It is important to consider the limitations of this research, which are inherent to the nature of the study. Firstly, it is important to consider the limitations of the sample. The research was conducted exclusively with university students aged between 18 and 29, enrolled at universities in Istanbul. This considerably restricts the applicability of the findings to individuals from disparate demographic groups or geographic regions. It is therefore recommended that the results of this study be compared with those of research conducted in different cities. Furthermore, one significant limitation is the absence of a clinical sample, which restricts the ability to generalize findings to individuals with clinically significant levels of distress or suicidal ideation. Additionally, the cross-sectional design precludes establishing strong causal inferences, highlighting the need for future research employing longitudinal or experimental designs to explore the directionality and causality of relationships.

Furthermore, extending the age range would facilitate an investigation of the suicide probability across diverse age groups. This would enhance comprehension of age-related alterations and discrepancies in suicide probability. However, it is noteworthy that the study was constrained by limited access to participants in the 18-19 age group, with the majority of the sample comprising individuals around 23 years old. This may impede an adequate representation of age-related experiences.

Additionally, the probability of suicide could be examined in the context of other influential variables, such as meaning or meaninglessness in life, positive or negative childhood experiences, and overall life satisfaction. Incorporating these variables into future studies could provide a more nuanced understanding of suicide risk factors.

Importantly, values-driven behavior was identified as the strongest predictor of suicide probability in this study. Future research could delve deeper into this variable by exploring its role across different cultural, socioeconomic, and clinical contexts. Experimental interventions, such as Acceptance and Commitment Therapy (ACT), targeting values-driven behavior could also be designed to evaluate its direct impact on suicide risk reduction. These steps would enhance the generalizability and practical applicability of the findings,

contributing to more effective prevention strategies.

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