

RESEARCH ARTICLE

Parallel Mediation of FoMO and Loneliness in the Relationship Between Narcissism on Social Media and Mental Well-Being

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Abstract

The rapid growth of technology has significantly transformed how individuals present themselves and interact with others on social media. This rapid change calls for a reassessment of the links between individuals' psychological characteristics and mental health. One of the psychological characteristics increasingly examined in this context is narcissism, particularly in relation to social media use. To better understand the connection between narcissism on social media and mental well-being, this study examines how loneliness and FoMO (fear of missing out) play a mediating effect. A total of 356 participants—214 women and 142 men—participated in the study. Structural equation modeling (SEM) was used to test the hypothesized mediation model and examine both direct and indirect relationships among the study variables. The findings indicate that FoMO and loneliness act as parallel mediators in the pathways from narcissism on social media to mental well-being. Narcissism on social media is a positive predictor of loneliness and FoMO, but loneliness and FoMO are negative predictors of mental well-being. Therefore, individuals exhibiting narcissistic tendencies on social media experience loneliness and anxiety related to their constant engagement with these platforms, both of which adversely impact their mental well-being.

Keywords: Narcissism on social media, mental well-being, FoMO, loneliness

Öz

Teknolojinin hızla gelişmesi, bireylerin sosyal medyada başkalarıyla etkileşim kurma ve benlik sunum biçimlerini önemli ölçüde değiştirmiştir. Bu hızlı değişim, bireylerin psikolojik özellikleri ile ruh sağlığı arasındaki bağlantıların yeniden değerlendirilmesini gerektirmektedir. Bu bağlamda giderek daha fazla incelenen psikolojik özelliklerden biri, özellikle sosyal medya kullanımıyla ilişkili olarak, narsisizmdir. Sosyal medyadaki narsisizm ile mental iyi oluş arasındaki bağlantıyı daha iyi anlamak için bu çalışma, yalnızlık ve FoMO'nun (gelişmeleri kaçırma korkusu) nasıl bir aracılık etkisi oynadığını incelemektedir. Çalışmaya 214 kadın ve 142 erkek olmak üzere toplam 356 katılımcı katılmıştır. Yapısal eşitlik modellemesi (YEM), varsayılan aracılık modelini test etmek ve çalışma değişkenleri arasındaki hem doğrudan hem de dolaylı etkileri incelemek için kullanılmıştır. Bulgular, sosyal medyada narsisizm ile mental iyi oluş arasındaki ilişkide FoMO ve yalnızlığın paralel araçlar olarak hareket ettiğini göstermektedir. Sosyal medyada narsisizm yalnızlığın ve FoMO'nun pozitif bir yordayıcısıdır, ancak yalnızlık ve FoMO mental iyi oluşun negatif yordayıcılarıdır. Dolayısıyla, sosyal medyada narsistik eğilimler sergileyen bireyler, bu platformlarla sürekli etkileşim halinde olmalarına bağlı olarak yalnızlık ve kaygı yaşamakta ve her ikisi de ruhsal refahlarını olumsuz yönde etkilemektedir.

Anahtar Kelimeler: Sosyal medyada narsizm, mental iyi oluş, fomo, yalnızlık

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Introduction

Due to the rapid advancement of technology, individuals are increasingly living their lives on social networking sites. Individuals previously relied on in-person meetings to learn about others' lives and activities. However, because of social media's simplicity of use, it is now possible to quickly learn their activities through their profiles. Social media has enabled communication and engagement to transpire in an environment akin to the physical world (Vural & Bat, 2010). These advancements have resulted in real-world concepts like narcissism and fear manifesting in social networks. Narcissism on social media emerged with the shaping of narcissistic behaviors of individuals in social media, and FoMO emerged with the fear of being excluded from advancements in social networks. All these developments also impact the individual's mental health in the real world. The brain experiences a virtual phenomenon and interprets online interactions as real social relationships, resulting in feelings of alienation from reality and loneliness (Çam & İşbulan, 2012). This leads to the individual becoming reliant on others and suffering from diminished mental health.

According to Twenge and Campbell (2010), narcissism is an inflated self-perception that exceeds reality. In other words, the individual perceives himself inaccurately, believing himself to be superior to his actual state. Narcissistic individuals prioritize themselves and take advantage of others to further their own goals (Emmons, 1987). Exaggerating oneself on social media differs from exaggerating oneself in real life. In real life, individuals are directly observed by others; however, on social media, people can express themselves without mutual acquaintance or direct engagement. Social media facilitates the creation of idealized virtual personas, allowing individuals to project identities that differ from their true selves, potentially intensifying narcissism. (Cezik & Alanka, 2016). Social media provides a chance for spectacle that might nurture users' narcissistic tendencies. (Frederick & Zhang, 2019). In other words, social media's capacity for individuals to construct their desired identities activates their narcissistic tendencies and enables the formulation of an inflated self-image. According to Twenge et al. (2014), narcissistic users

can fulfill their need to be liked through social media. Individuals exhibiting grandiose narcissism frequently overshare and subsequently delete their posts when they do not receive sufficient likes to fulfill their desire for approval (Duggan & Smith, 2013). A study indicates that those exhibiting narcissistic personality traits tend to post more selfies on Instagram. (Biolcati & Passini, 2018). In addition, narcissistic individuals may tend to spend increased time on social media to satisfy their needs for admiration, approval, and grandiosity. Research shows that as individuals' narcissism levels increase, their desire to use social media (Balci & Saritaş, 2019) and the duration of their use (Balci & Saritaş, 2019; Balci & Gargalık, 2020) increase.

Mental well-being is characterized by self-acceptance, positive social interactions, alignment with one's life purpose, and the attainment of happiness through self-actualization processes (Keyes vd., 2002). Tekkurşun Demir et al. (2018) also state that mental well-being can be described as an individual's spiritual health. Based on the definitions, mental well-being can be regarded as a condition that enhances an individual's quality of life. Mental health is affected by numerous factors. High mental well-being has been linked with enhanced physical and psychological health, along with an increased quality of life. (Keyes, 2002; Keyes et al., 2010). Mental well-being enhances individuals' quality of life and increases their psychological resilience. However, if the level of well-being is diminished, individuals may experience numerous adverse impacts. Indeed, it has been found that there is a negative correlation between mental well-being and burnout (Aslan et al., 2021; Korkmaz & Kiremitçi Caniöz, 2025). Accordingly, it can be said that mental well-being serves as a protective factor against adverse events, including burnout.

As previously stated, technological advancements have facilitated communication and social engagement through social media. There are some benefits and drawbacks to this circumstance. FoMO, or the fear of missing out on advances, is one of these drawbacks. Fear of losing out on social media's agenda and developments is known as FoMO (Tanhan et al., 2022). According to Riordan et al. (2021), FoMO is an unhealthy form of social

media use. The individual perpetually engaged with their phone and computer is one who apprehensively dread missing important events and immediate developments. A possible reason for maintaining awareness of ongoing developments related to FoMO is to gain acceptability and approval (Tanhan et al., 2022). According to Cohen (2013), the fear of missing something arises from the worry that others are experiencing more fulfilling lives. Concerns with others' activities, current trends, and the necessity to remain informed might lead individuals to stay perpetually engaged with screens. The causes of FoMO are numerous. According to Berker (2016), unhappiness is one of them. The individual experiences an incessant urge to scrutinize social media due to dissatisfaction with their own life, perceiving that others possess much superior conditions and lifestyles. Researchers have also linked certain disorders to FoMO. Depression and inappropriate smartphone use have both been linked to FoMO (Yuan et al., 2020). FoMO and perceived support have a negative correlation as well (Dou et al., 2021).

Peplau and Perlman (1982) define loneliness as the profound emptiness experienced by an individual due to insufficient social connections. Individuals may experience discomfort because of loneliness (Geçtan, 1989). Furthermore, loneliness can lead to a multitude of problems for an individual. A study by Richard et al. (2017) indicates that those experiencing loneliness are at a heightened risk for chronic diseases. Meltzer et al. (2013) also found that social anxiety and depression are associated with loneliness. A study involving middle school students revealed a negative association between loneliness and happiness, alongside a positive relationship between internet addiction and loneliness (Karataş, 2025). Other studies also indicated a positive correlation between internet addiction and loneliness (Erol & Çırak, 2019). Research indicates that individuals who engage with social media more regularly experience heightened feelings of loneliness. As individuals immerse themselves in the virtual world, detach from social relationships, and construct an artificial environment, they may experience feelings of loneliness.

Accordingly, understanding the effect of narcissism on individuals' mental well-being in social media is important in terms of determining the mediating variables that play a role in this process. FoMO and loneliness, particularly within the context of social media, are among the main psychological factors that shape this relationship. In this study, the mediating roles of FoMO and loneliness in the relationship between narcissism on social media and mental well-being were examined, and it was also investigated whether these two variables show parallel mediation effects on the relationship in question.

The following are the study's hypotheses:

H1. FoMO mediates the relationship between narcissism on social media and mental well-being.

H2. Loneliness mediates the relationship between narcissism on social media and mental well-being.

H3. FoMO and loneliness serve as parallel mediators in the relationship between narcissism on social media and mental well-being.

Method

Participants

After obtaining ethical approval from the Ethics Committee of Zonguldak Bülent Ecevit University (Approval No: 571043/138), an online survey form using Google Forms was created. The study employed a convenience sampling method, which was deemed appropriate due to the exploratory nature of the research and accessibility constraints during the data collection period. The survey was disseminated via social media platforms such as WhatsApp, etc., targeting volunteer participants who met the inclusion criteria.

A total of 356 individuals participated in the study, comprising 214 women (60.1%) and 142 men (39.9%). Participants who consented to the terms of volunteering and completed the informed consent form filled out the questionnaire. The average age was 25.23 years ($SD = 8.444$). Among the participants, 198 (55.6%) held a high school diploma, and the majority ($n=292$, 82%) characterized their economic status as middle class.

Measures

Narcissism on Social Media Scale: Akdeniz et al. developed the scale in 2022. It was designed to assess individuals' levels of narcissism on social media. There are two dimensions and sixteen items on the scale. Narcissistic competitiveness and narcissistic admiration are the sub-dimensions. The scale uses a 5-point Likert scale. The option "Not at all appropriate" corresponds to 1 point, and the option "Fully appropriate" corresponds to 5 points. The lowest achievable score on the scale is 16, while the highest is 80. An elevation in the participant's score on the scale signifies an increase in social media narcissism. The Cronbach's alpha for the narcissistic admiration sub-dimension is .78, for the narcissistic competition sub-dimension is .76, and the overall Cronbach's alpha for the scale is .83.

Warwick-Edinburgh Mental Well-Being Short Form: The Tennant et al. (2007) scale was translated into Turkish by Demirtaş and Baytemir (2019). The scale comprises seven components. Participants were requested to contemplate the preceding two weeks to address the inquiries. The scale was a 5-point Likert scale. 1 stands for never, 2 for seldom, 3 for occasionally, 4 for frequently, and 5 for always. The scale has a minimum possible score of 7 and a maximum possible value of 35. A high degree of well-being is indicated by a high score on the scale. The Cronbach alpha coefficient of the scale was found to be .84 and .86 in the two studies conducted, respectively.

FoMO (Fear of Missing Out Scale): Przybylski et al. (2013) created the FoMO scale, which was subsequently translated into Turkish by Can and Satıcı (2019). 10 items comprise the scale (e.g. I worry when I find out that my friends are having fun without my knowledge.) The scale is unidimensional. A 5-point Likert scale was used. The option "Does not reflect me at all" corresponds to 1 point and the option "Completely reflects me" corresponds to 5 points. The possible scores vary between 10 and 50. High scores indicate that the individual's fear of missing something is also high. Cronbach alpha coefficient of the scale is .79.

UCLA Loneliness Scale: Sarıçam (2023) adapted the scale developed by Neto (2014) into Turkish. The scale consists of 6 items. The scale is unidimensional. A 4-point Likert type was used. It is scored as "(1) Not at All Appropriate, (2) Not Appropriate, (3) Appropriate, (4) Fully Appropriate." The scale has a minimal score of 6 and a maximum score of 24. The elevated score on the scale signifies the participant's strong feeling of loneliness. The Cronbach alpha coefficient of the scale is .77.

Data Analysis

The online data gathered for the study is to identify the connections between narcissism on social media, mental well-being, FoMO, and level of loneliness among individuals. Initially, the data was analyzed using descriptive statistics, normalcy distributions, reliability coefficients, and correlation analyses. Mediation tests and structural equation modeling were subsequently examined. As suggested by Kline (2011), a two-stage SEM method for structural equation modeling was used in this phase. The measurement model was employed in the initial step to see if the variables fit together. The second step was analyzing the mediation scenarios. Hu and Bentler (1999) and Tabachnick and Fidell (2001) specified that the model fit index criteria require the χ^2 to degrees of freedom ratio to be below 5, and GFI, IFI, CFI, and NFI values to exceed .90, and the SRMR and RMSEA value to be under .08. In addition, the chi-square difference test, the significance levels, as well as AIC and ECVI values were also considered to decide the most appropriate model (Browne and Cudeck 1993).

The parceling method was also employed since loneliness, mental well-being, and FoMO were all single variables in the structural model. Nasser-Abu Alhija and Wisenbaker (2006) asserted that this strategy decreases the number of observed variables, improves reliability, and facilitates the scales' representation of a normal distribution. Consequently, two parcels were created to address the concepts of loneliness, FoMO, and mental well-being.

As suggested by Preacher and Hayes (2008), the bootstrapping method was used to test the mediation effect. With this method, 10,000 replications were performed, and bootstrap confidence intervals were obtained at a 95% confidence level. The lack of zero in the confidence interval indicates that the mediation effect is statistically significant.

Results

The results of descriptive statistics and correlation analysis are presented initially. The results of the SEM's measurement and structural models are then presented. The results of the bootstrapping procedure are ultimately presented.

Table 1. Descriptive statistics and reliabilities for the study variables

Variable	1	2	3	4
1. Narcissism in Social Media	–			
2. Mental Well-being	-.21**	–		
3. FoMO	.50**	-.42**	–	
4. Loneliness	.25**	-.52**	.42**	–
Mean	43.20	24.22	25.88	11.32
SD	8.73	5.25	7.23	4.04
Skewness	-.108	-.442	.245	1.118
Kurtosis	.682	.616	.132	.848
McDonald ω	.764	.848	.763	.813
Cronbach α	.766	.844	.788	.797
Guttman λ_6	.808	.834	.817	.807

Table 1 shows that the skewness (between -.442 and 1.118) and kurtosis (between .132 and .848) values of the variables related to loneliness, mental well-being, narcissism on social media, and FoMO fall within the normalcy range of ± 2 for skewness and ± 7 for kurtosis (Finney & DiStefano, 2006). Significant negative associations between mental well-being and loneliness ($r = -.52$ $p < .001$), narcissism on social media ($r = -.21$ $p < .001$), and FoMO ($r = .42$ $p < .001$) were found in the correlations between variables. However, there was a substantial positive correlation between narcissism on social media and loneliness ($r = .25$ $p < .001$) and fear of missing out ($r = .50$ $p < .001$).

Following the correlation analysis, the measurement model was examined for SEM between the variables of loneliness, mental well-being, narcissism on social media, and FoMO. The measurement's fit values ($\chi^2/SD = 4.905$, $GFI = 0.948$, $CFI = 0.945$, $NFI = 0.934$, $IFI = 0.946$, $SRMR = 0.05$, $RMSEA = 0.07$) were considered satisfactory. The subsequent phase of structural equation modeling proceeded with the acknowledgment that the latent variables are represented by the observed values of the measurement model.

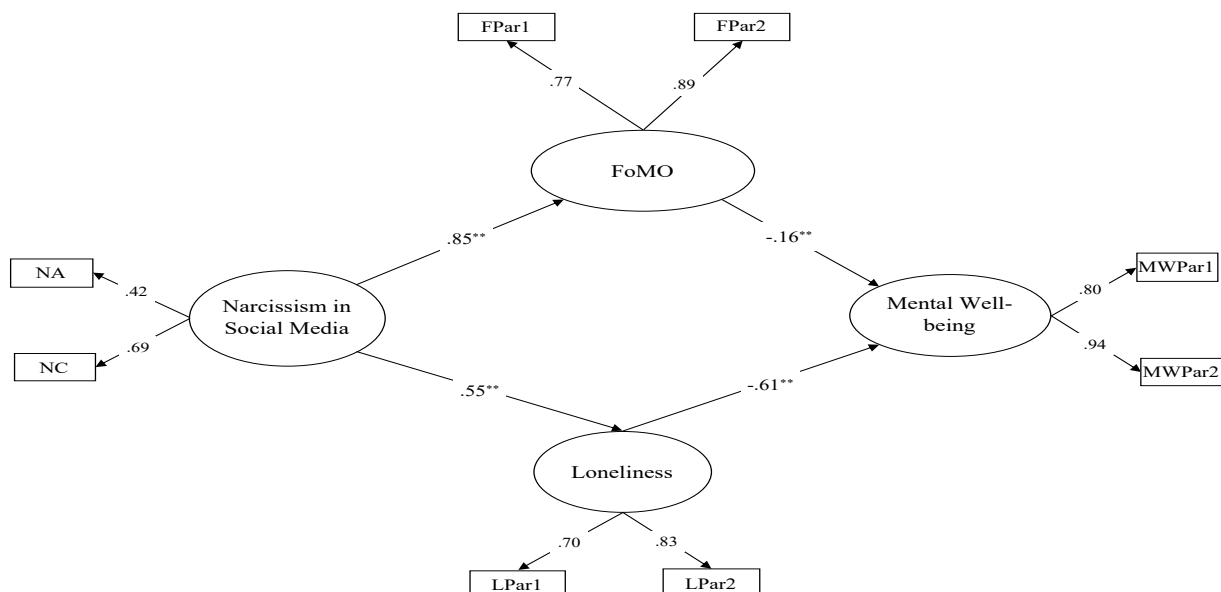


Figure 1. Standardised factor loadings for the fully mediated structural model. Note. $N = 356$; ** $p < .001$; *LPar* parcels of loneliness; *FoMO* fear of missing out; *FPar* parcels of fear of missing out; *MWPar* parcels of mental well being; *NA* narcissistic admiration; *NC* narcissistic competition

In the structural model, a model in which FoMO and loneliness partially mediated the relationship between narcissism on social media and mental well-being was tested. However, in this model, the direct path between narcissism on social media and mental well-being was not statistically significant. Subsequently, an alternative model in which FoMO and loneliness fully mediated this relationship was tested, and the model's fit values were determined to be satisfactory. ($\chi^2/SD = 4.848$, GFI = 0.948, CFI = 0.944, NFI = 0.931, IFI = 0.945, SRMR = 0.06, RMSEA = 0.08). Although both models were tested, the insignificance of the direct path in the partial mediation model led us to prefer the full mediation model. Therefore, the chi-square difference test is not considered necessary for assessing the AIC and ECVI values.

Among all the data, the model suggesting that loneliness and narcissism on social media are fully mediated by loneliness and fear of missing out was the most favored. Figure 1 illustrates the path coefficients for this model.

The research was strengthened and supported using bootstrapping. All direct path coefficients are found to be significant. Table 2 presents the findings.

Table 2. Standardized indirect effects and 95% confidence intervals.

Path	Coefficient	95% CI	
		LL	UL
Narcissism on Social Media → FoMO → Loneliness → Mental well-being	-.471	-.567	-.348

CI confidence interval, LL lower limit, UL upper limit

The findings indicate that loneliness and FoMO fully mediate the relationship between narcissism on social media and mental well-being. In other words, loneliness and FoMO act as parallel mediators between narcissism on social media and mental well-being. Therefore, through loneliness and FoMO, narcissism on social media indirectly predicts mental well-being.

Discussion

Individual and social transformations experienced with the development of technology have led to the diversification of the concepts addressed in the field of mental health. This conceptual diversity

has paved the way for new research in the literature. Research indicates a negative correlation between social media addiction and well-being, with social media addiction and loneliness accounting for 14.3% of well-being variance (Erdemir & Ayas, 2023). In addition to more general topics such as social media addiction, more specific concepts such as narcissism on social media and fear of missing out (FoMO) are also increasingly being included in research. In this study, narcissism and FoMO in social media are examined together with mental well-being and loneliness. To understand the effects of changing digital environments on individuals' mental health, it is important to examine such concepts.

Firstly, it was found that FoMO serves as a full mediator in the association between narcissism on social media and mental well-being. Accordingly, narcissism on social media indirectly predicts mental well-being through FoMO. The findings indicated a strong correlation between narcissism on social media and FoMO and a negative correlation between FoMO and mental well-being. There are also findings that there is a positive relationship between narcissism and hedonic and eudaimonic well-being (Aghababaei & Błachnio, 2015).

Similarly, in some studies, a positive relationship was found between narcissism and well-being, and it was determined that self-esteem served as a mediator in this relationship (Sedikides et al., 2004; Zuckerman & O'Loughlin, 2009). Self-esteem was also shown to mediate the positive correlation between narcissism and subjective well-being. (Giacomin & Jordan, 2016). All these findings show that individuals' perceiving themselves as better and superior than they are can contribute positively to their well-being levels.

As in this study, it is seen that FoMO also plays a mediating role in other studies. For example, Deniz (2021) found that the relationship between life satisfaction and social self-efficacy was mediated by FoMO. In the study conducted by Liao

(2024), it was also found that FoMO served as a mediator in the pathway from narcissism to social media addiction; similarly, a similar mediation effect was found in the relationship between psychopathy and social media addiction. Akat et al. (2022) also found that FoMO served as a mediator in the pathway from the Dark Triad to phubbing. Considering that the Dark Triad consists of Machiavellianism, psychopathy, and narcissism, it is possible to state that the results of this study are comparable to those of this study.

All these findings show that individuals with narcissistic traits intensely experience FoMO on social media. This link is quite strong because individuals with narcissistic tendencies want to satisfy their need to constantly show themselves and to be liked and appreciated through social media. Therefore, the possibility of missing something on social media causes intense fear in these individuals. With the increase in FoMO, individuals' mental well-being levels are negatively affected. This is because narcissistic individuals will not be able to show themselves sufficiently when they miss the present and will not be able to fulfill their grandiose side.

It was also found that loneliness served as a mediator in the pathway from narcissism on social media to mental well-being. According to the findings, as narcissism on social media increases, loneliness levels of individuals increase, and increased loneliness negatively affects mental well-being (Bruss et al., 2024; Mahajan, 2013). Considering the artificial and superficial nature of social media, this finding seems quite understandable. As the individual fulfills his/her need to be liked and approved through social media, he/she distances himself/herself from real-life social relationships; over time, he/she acquires a virtual place for himself/herself by being satisfied with the interactions he/she establishes on social media. This situation may turn into addiction after a while (Buffardi & Campbell, 2008; Mehdizadeh, 2010). Narcissistic tendencies in social media can make individuals feel good about themselves and reinforce the belief that they do not need the ties in real life. However, this detachment leads individuals to loneliness over time.

The literature also indicates a significant correlation between social media addiction and loneliness. (Yukay Yüksel et al., 2020; Morsünbül, 2014; Kurt & Bayrakçı, 2021). In addition, there are studies that demonstrate a connection between narcissism and its negative effects on loneliness. A positive relationship was found between vulnerable narcissism and loneliness (Çağlayaner & Çoklar Okutkan, 2021). On the other hand, numerous studies have demonstrated a negative relationship between loneliness and mental well-being. Loneliness can negatively affect an individual's psychological well-being (Kayış & Akçaoğlu, 2022; Yılmaz, 2022; Yılmaz, 2023). These findings reveal that the level of well-being of the individual decreases with the increase in loneliness. Lonely individuals are deprived of resources that increase well-being, such as social support; lack of social support and the stress caused by loneliness can adversely impact psychological well-being.

It is also seen in the literature that loneliness takes place as a mediating variable in similar relationships. For example, loneliness serves as a mediator in the pathway from virtual exclusion to mental well-being (Yılmaz, 2022). Individuals who experience exclusion in social media feel more loneliness and are negatively affected by this situation. The findings of this study reveal a similar structure. It was concluded that individuals with high levels of narcissism on social media are deprived of real social ties and therefore experience loneliness; loneliness negatively affects their mental well-being.

Finally, in line with the final hypothesis, it was found that loneliness and FoMO served as parallel mediators in the pathway from narcissism on social media to mental well-being. However, there is no study in the literature in which loneliness and FoMO mediate together. Therefore, studies focusing on the concepts of loneliness and FoMO were analyzed. In the current study, no significant correlation was found between FoMO and loneliness. There are also studies in the literature that support this finding. For example, Tayiz (2018) and Oonagh et al. (2022) found no significant relationship between FoMO and loneliness. On the other hand, a study by Karakuyu (2019) including university students revealed a positive correlation between

FoMO, loneliness, and nomophobia, with FoMO and loneliness together predicting nomophobia by 41.3%. Similarly, Piko et al. (2025) found that loneliness, perfectionism, and social media addiction served as mediators in the pathway from social comparison to FoMO. These findings show that the relationship between FoMO and loneliness is not supported in some studies, whereas it may be indirectly related in some studies. In conclusion, it can be said that the relationship between FoMO and loneliness is supported by inconsistent findings. The limited number of studies in this field makes it difficult to understand this relationship more clearly and constitutes an important gap in terms of research.

Conclusion

This study concluded that FoMO and loneliness served as parallel mediators in the association between narcissism on social media and mental well-being. The findings show that FoMO fully mediates the relationship between narcissism on social media and mental well-being. As the level of narcissism on social media increases, the FoMO level of individuals also increases; this increase leads to a decrease in mental well-being. Another important finding is that loneliness also plays a full mediating role in the same relationship. As narcissism on social media increases, the level of loneliness felt by the individual also increases, which has a negative effect on mental well-being. As a result, reducing narcissism on social media, FoMO and loneliness levels of individuals can play a supportive role in their mental well-being. These findings provide an important basis for closer monitoring of psychological processes related to social media use and development of intervention programs.

Limitations and Future Research

This study has certain limitations. First, the reliance on self-report scales for data collection presents an important limitation. The use of different data collection methods, such as observation, in future research can increase the validity of the findings; in addition, mixed-method approaches supported by qualitative data collection techniques

can strengthen the depth and interpretability of the results obtained. Another limitation is related to the sample of the study. To increase the generalizability of the findings, it is recommended to collect data from different age groups and cultural contexts. One limitation of this study is the gender imbalance in the sample, which may influence the generalizability of the findings. Data obtained from large and diversified populations will contribute to a more inclusive interpretation of the results. In addition, the voluntary inclusion of participants may lead to the risk of social desirability bias. This is another factor that may limit the objectivity of the responses. It is recommended that these limitations should be taken into consideration in future studies and more comprehensive and controlled research designs should be created.

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