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RESEARCH ARTICLE

Psychometric Properties of the Three Dimensional Meaning in Life Scale (3DM) among Turkish-Speaking Adults

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ABSTRACT

Previous research supports the tripartite framework of meaning in life (MiL). The Three Dimensional Meaning in Life Scale (3DM) is a self-report measure drawing upon the tripartite framework, comprising of coherence, purpose, and significance. The primary goal of the present research is to evaluate the psychometric properties of the Turkish version of the 3DM, and to assess how 3DM and its subscales relate to mental health and psychopathology indicators in a Turkish-speaking adult sample. The study employs a sample of 702 participants of which 540 are female. The methods employed include confirmatory factor analysis, measurement invariance analyses, Pearson's correlation tests, reliability analyses, regression analyses, and independent samples t-tests. The 11-item, three-factor structure of the 3DM was verified to be replicated in the Turkish version by the first-order confirmatory factor analysis: [($\chi2 = 181$, df = 40, $p < .001$)], CFI = .98, TLI = .97, RMSEA = .071, 90%CI[.060, .081], SRMR = .03. Internal consistency coefficients of the subscales and the 3DM total demonstrated strong reliability with strong item-total correlations. The correlation coefficients of the 3DM supported concurrent and divergent validity. Additionally, the 3DM predicted well-being and psychopathology indicators. Measurement invariance analyses of the subscales revealed that coherence, purpose, and significance scales were consistent and equivalent across gender. According to the findings, the Turkish version of the 3DM is a valid and reliable scale when administered among adult Turkish-speaking individuals.

Meaning in life (MiL) can be defined as an amalgam of the presence of valued goals, the feeling of coherence both phenomenologically and socially, feeling personal significance, intrinsic involvement in activities, and the pursuit of excellence. It plays a crucial role in well-being (Ryff, 1989), personal growth, and mental health (King & Hicks, 2021), and is one of the most significant human motives (Heintzelman & King, 2014). Well-being can be divided into two types: hedonic well-being and eudaemonic well-being (Bulut & Subasi, 2020). Huta and Ryan (2010) point out that there is a consensus among researchers that MiL holds an immense significance in eudaemonic well-being.

MiL has previously been studies using both unidimensional and multidimensional approaches. Unidimensional approaches such as Purpose in Life Scale (Ryff, 1989) measured MiL as a single construct. Multidimensional

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approaches such as Three-Dimensional Meaning in Life (3DM) (Martela & Steger, 2023) and Multidimensional Existential Meaning Scale (MEMS) (George & Park, 2017), on the other hand, evaluated MiL as a multidimensional construct. Nonetheless, there is mounting evidence to suggest that the conclusions drawn from unidimensional models lack consistency (Davies et al., 2014) and specificity (George & Park, 2017). Steger, Oishi, and Kashdan (2009) also criticize MiL scales of being non-replicable and discriminatory. Despite these objections, researchers concur on the multidimensional structure of MiL, in spite of the fact that the MiL construct is challenging to be conceptualized for a variety of reasons (e.g., "methodological") (Leontiev, 2013).

The tripartite framework of MiL as a multidimensional approach has been gaining particular attention in recent times. In terms of this framework, two approaches have been proposed. George and Park (2016, 2017) suggested a tripartite view including comprehension, purpose, and mattering as the primary sources of MiL measured through the MEMS. Similarly, Martela and Steger (2016, 2023) developed a tripartite model encompassing coherence, purpose, and significance measured through the 3DM. The main point of distinction in these models appears to be between significance and mattering while other dimensions are somewhat equivalent. While the MEMS focuses on personal significance in the mattering dimension by the items evaluated based on the position of human beings in the universe and cosmic timescale, the 3DM highlights a personal judgment and sense of value towards one's life.

Based on previous studies, the 3DM conceptualizes MiL as consisting of coherence, purpose, and significance as its key dimensions. According to the 3DM model of MiL, coherence, purpose, and significance are distinguished but interconnected, flexibly facilitating researchers to utilize a better understanding of the concept (Martela & Steger, 2016). They represent affective, motivational, and cognitive components of MiL (Reker & Wong, 2012). Coherence, purpose, and significance are in order of cognitive, motivational, and affective elements of MiL (Martela & Steger, 2016).

Coherence, which is the first dimension, refers to the perceived feeling of coherence and of comprehension in one's life (Wong, 1998). According to George and Park (2016), greater levels of coherence enable people to regulate themselves and their lives harmoniously, feel that their life makes sense, and understand what goes on around them. However, lower levels of coherence, makes it difficult for people to direct themselves and makes them inclined to evaluate life experiences as fragmented and incoherent. Coherence depends on predictable stimuli and understandable patterns in one's life (Martela & Steger, 2016) and is closely associated with meaning-making processes (e.g., global meaning, situational meaning) and beliefs (Park, 2010, 2016). According to studies on meaning-making, it is positively associated with psychological growth (Graci & Fivush, 2017), lower levels of stress (Updegraff et al., 2008), and post-disaster stability in the lives of survivors (Subasi & Bulut, 2023). To summarize, people with coherence are able to make better sense of themselves, their lives, and the world around them.

The second dimension, purpose, relates to personal goals and values and whether or not people regulate themselves to achieve them (Emmons, 1986; McKnight & Kashdan, 2009). Greater levels of purpose drives people to committedly strive to attain their values and goals as they feel regulated and motivated. However, those with lower levels of purpose may not regulate themselves towards personal goals and values, and may not have a sense of knowing "what to do?" (George & Park, 2016; Martela & Steger, 2016). Previous research has demonstrated that having a clear vision, a purpose, and pursuing personal valued goals lead to the fulfilment of basic psychological needs, further resulting in positive changes in subjective well-being (Sheldon & Elliot, 1999). Purpose is positively associated with well-being outcomes (Steger, 2012), reduced mortality risk (Cohen et al., 2016), and longevity (Hill & Turiano, 2014) while it negatively relates to hopelessness (Marco et al., 2020), depression, and anxiety (Boreham & Schutte, 2023).

The third dimension, significance, focuses on one's belief that their life is significant, valuable, and of importance. Significance refers to the subjective perception of the worth of one's own life. It is the experience of a life worth living from a subjective point of view (Martela & Steger, 2016). While previous research looked at relevant constructs, more current studies have started to examine the role of significance in MiL. Significance has been found to be positively related to the presence of meaning, life satisfaction, positive

affect, self-esteem, basic psychological needs, authenticity, calling, and vitality while being negatively associated with negative affect, depression, stress, and self-alienation (Martela & Steger, 2023).

The tripartite model of MiL provides a new theory-driven model that is supported by several studies. It suggests a novel approach, meeting the need for a multidimensional measure of MiL by resolving conceptual ambiguities. This model primarily relates to eudaemonic well-being and positive psychology research. Several studies have examined the tripartite model of MiL. George and Park (2017) developed the MEMS (15 items; each of subscales includes 5 items), and confirmed its three-factor structure (comprehension, purpose, and mattering). Valdivia and Li (2022) provided further support for the MEMS through an item-response theory approach. Gerymski and Krok (2020) eliminated two items from each subscale in Polish, in order to corroborate the original three-factor structure of MEMS. Marco et al. (2022) completely replicated the MEMS subscales in a non-clinical Spanish-speaking sample. Subasi et al. (2024a), and Subasi et al. (2024b) also validated the MEMS in a non-Western context by replicating its three-factor model in Turkish adults and Turkish undergraduate and postgraduate students with no exclusions.

Martela and Steger (2023) developed the 3DM (11 items; coherence, 4 items; purpose, 4 items; significance, 3 items) and confirmed its three-factor structure. They found that the 3DM subscales had significant positive associations with the presence of meaning, the subscales of the MEMS, purpose in life, life satisfaction, positive affect, self-esteem, authenticity, autonomy, competence, relatedness, beneficence, sacrifice, vitality, calling, behavioral activation, valued life, greater good, belonging, belief in afterlife, and reasons to live. They also demonstrated that the 3DM subscales had significant negative associations with depression, stress, negative affect, self-alienation, and self-clarity. In the first non-English adaptation study, Beyer (2023) replicated the original three-factor model of the 3DM in German. Similarly, to evaluate the psychometric properties of the 3DM, Subasi et al. (2024c) conducted the first study in a non-Western cultural context with Turkish university students, and replicated the original three-factor model of the 3DM.

While prior research has uncovered the reliability and validity of the 3DM in English, German, and Turkish, ongoing studies provide strong evidence for its tripartite view. However, developmental stages, such as early adulthood, middle adulthood, and late adulthood highlight the pressing need to understand MiL especially among Turkish people. This is because our current perspective, which is based on the tripartite view of the 3DM is lacking, especially when considering the potential contributory outcomes of the 3DM in positive psychology, well-being, and mental health research. This study aims to attain two goals: (1) to evaluate the psychometric properties of the 3DM with regard to Turkish adults, and (2) to explore how the 3DM dimensions are associated with well-being and psychopathology indicators.

Method

Participants

Participants consisted of a total of 702 Turkish-speaking adults with ages ranging between 18 and 61 (*M* = 23,61; *SD* = 6.75). 76.9% of participants were women.[1]

Measures

Sociodemographic Questionnaire. The sociodemographic questionnaire included informed consent, nationality, age, and gender.

The Three-Dimensional Meaning in Life Scale (3DM). The Three-Dimensional Meaning in Life Scale (3DM) was developed by Martela and Steger (2023). The Turkish version of the 3DM was formulated by Subasi et al. (2024c). The 3DM measures meaning in life based on coherence (e.g., "Most things happening in my life make sense"), purpose (e.g., "I pursue one or more big purposes in my life"), and significance (e.g., "My personal existence is significant") subscales. Coherence and purpose have four items while significance has three items rated on a 7-point Likert scale ranging from "1 = Not at all true" to "7 = Very true". In this study, the subscales displayed good reliability: Coherence (α = .88); Purpose (α = .88); Significance (α = .89).

The Meaning in Life Questionnaire (MLQ). The Meaning in Life Questionnaire (MLQ) was developed by Steger et al. (2006). The Turkish version of the MLQ was adapted by Akın and Taş (2015). The MLQ measures

[1] This study employed the data that was previously collected in another scale study on the multidimensional existential meaning scale by Subasi et al. (2024b). That study does not include the 3DM analyses and hypotheses.

MiL and includes two subscales with regard to Presence of Meaning (PM) and Search for Meaning. Each subscale has five items (e.g. "I understand my life's meaning" or "I am seeking a purpose or mission for my life") rated on a 7-point Likert scale ranging from "1 = Absolutely untrue" to "7 = Absolutely true". This study only measured the PM subscale that revealed adequate internal consistency (α = .87).

The Satisfaction with Life Scale (SWLS). The Satisfaction with Life Scale (SWLS) was developed by Diener et al. (1985), the Turkish version of which was implemented by Köker (1991). The SWLS measures life satisfaction through one factor and includes five 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 displayed adequate internal consistency (α = .87).

The Scale of Positive and Negative Experience (SPANE). The Scale of Positive and Negative Experience (SPANE) was developed by Diener et al. (2009) and its Turkish version was adapted by Telef (2015). The SPANE assesses negative affect and positive affect of the past month using a total of twelve items rated on a 5-point Likert scale ranging from "1 = Very rarely or never" to "5 = Very often or always". It has two subscales: Positive Experience (SPANE-P) and Negative Experience (SPANE-N). In this study, the subscales indicated adequate internal consistency: SPANE-P (α = .78); SPANE-N (α = .89).

The Mental Health Continuum-Short Form (MHC-SF). The Mental Health Continuum-Short Form (MHC-SF) was developed by Keyes et al. (2008). The Turkish version of the MHC-SF was adapted by Demirci and Akın (2015). It measures well-being using a total of fourteen 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 (α = .92); EWB (α = .87); SOWB (α = .86); PWB (α = .84).

The Balanced Measure of Psychological Needs Scale (BMPNS). The Balanced Measure of Psychological Needs Scale (BMPNS) was developed by Sheldon and Hilpert (2012) and its Turkish version was adapted by Kardas and Yalcin (2018). The BMPNS evaluates satisfaction and frustration with regard to basic psychological needs (autonomy, competence, and relatedness) using eighteen items. Three subscales measure need satisfactions (e.g., "My choices expressed my ''true self.'') while the other three subscales evaluate need frustrations (e.g., "I had a lot of pressures I could do without") rated on a 7-point Likert scale ranging from "1 = Strongly disagree" to "7 = Strongly agree". In this study, need satisfaction subscales were measured, and they had adequate internal consistency scores: Autonomy (AU) (α = .74); Competence (CO) (α = .84); Relatedness (RE) (α = .82).

The Depression Anxiety Stress Scale-21 (DASS-21). The Depression Anxiety Stress Scale-21 (DASS-21) was developed by Lovibond and Lovibond (1995). The Turkish version of the scale was adapted by Yildirim et al. (2018). The DASS-21 measures the depression, anxiety, and stress levels in individuals using a total of twenty one 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 correspond to its higher levels. In this study, the subscales of the DASS-21 exhibited adequate internal consistency: Depression (α = .88); Anxiety (α = .85); Stress (α = .86).

Data Collection

The primary criterion to participate in this cross-sectional study was being over 18 years of age. Using a convenience sample, the current study gathered data online through a Google Forms link during the first semester of the 2023-2024 academic year in Türkiye. Informed consent was obtained from 702 people who voluntarily participated in the study.

Data Analysis

Analyses in the current study was performed utilizing Jamovi 2.3.21 and JASP 0.18.1.0. All raw data was evaluated for missing values, outliers, and normality assumptions. There was no missing data. Kline (2015)

maintains that a sample size greater than 200 participants is large for most models. The sample size of this study (702 cases) was large enough to conduct further analyses. The 3DM items were normally distributed considering skewness and kurtosis values as ranging between -1.5 and 1.5 (Tabachnick et al., 2013).

Descriptive statistics, skewness, kurtosis, and reliability of all scales (Cronbach alpha), as well as the descriptive statistics of the 3DM items along with item-rest correlations and an exploratory factor analysis of the 3DM were analyzed. Subsequently, a Confirmatory Factor Analysis (CFA) was performed to assess the structural validity of the 3DM. The 3DM items assumed multivariate normality and maximum likelihood was used as the estimator. As Kline (2015) suggested, the present study included several fit indices: 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) (Byrne, 1994; Fabrigar et al., 1999). Additionally, the concurrent validity of the subscales of the 3DM by correlations with PM, SWLS, SPANE-P, MHC-SF, EWB, SOWB, PWB, AU, CO, RE, and the divergent validity of the subscales by correlations with Depression, Anxiety, Stress, and SPANE-N were analyzed in this study.

Descriptive statistics, Pearson's correlation tests, and reliability analyses were performed using Jamovi 2.3.21. The confirmatory factor analysis, and configural, metric, scalar, and strict invariance analyses were carried out through JASP 0.18.1.0. using the Lavaan mimic package.

Results

Table 1 and Table 2 demonstrate the statistics for the scales in this study including means, standard deviations (SD), skewness, kurtosis as well as the Cronbach alpha and item-rest correlations.

Table 1. Descriptive Statistics of the Scales

	Coherence	Purpose	Significance	PM	SPANE-P	SPANE-N	SWLS
M	20.03	20.91	16.32	25.88	21.63	16.38	21.71
SD	4.75	4.78	4.29	6.50	4.22	4.13	6.15
S	-0.34	-0.59	-0.89	-0.60	-0.39	0.25	-0.27
K	-0.09	0.09	0.16	-0.06	0.05	-0.16	-0.32
α	.88	.88	.89	.87	.78	.89	.87

Note. *N*: 702. *S*: Skewness; *K*: Kurtosis; PM: Presence of Meaning; SPANE-P: Positive Affect; SPANE-N: Negative Affect; SWLS: Life Satisfaction. Skewness Standard Error was 0.09. Kurtosis Standard Error was 0.18. Cronbach's alpha was used.

Table 1 demonstrates that coherence, purpose, significance, presence of meaning, positive affect, negative affect, and life satisfaction were normally distributed and showed good reliability.

Table 2. Descriptive Statistics of the Scales

	MHC-SF	EWB	SOWB	PWB	AU	CO	RE	DE	AN	ST
M	57.11	12.97	17.87	26.27	11.44	11.31	13.05	7.82	6.65	9.03
SD	12.57	2.96	5.84	5.63	2.35	2.30	2.10	5.20	5.01	5.09
S	-0.33	-0.62	-0.06	-0.52	-0.55	-0.29	-1.30	0.57	0.70	0.23
K	-0.09	0.30	-0.64	0.09	0.30	-0.11	2.14	-0.45	-0.25	-0.72
α	.92	.87	.86	.84	.74	.84	.82	.88	.86	.86

Note. *N*: 702. *S*: Skewness; *K*: Kurtosis; MHC-SF: Mental Health Continuum-Short Form; EWB: Emotional Well-Being; SOWB: Social Well-Being; PWB: Psychological Well-Being; AU: Autonomy; CO: Competence; RE: Relatedness; DE: Depression; AN: Anxiety; ST: Stress. Skewness Standard Error was 0.09. Kurtosis Standard Error was 0.18. Cronbach's alpha was used.

Table 2 demonstrated that mental health continuum, emotional well-being, social well-being, psychological well-being, autonomy, competence, relatedness, depression, anxiety, and stress were normally distributed and displayed good reliability.

Table 3. Descriptive Statistics of the 3DM Items

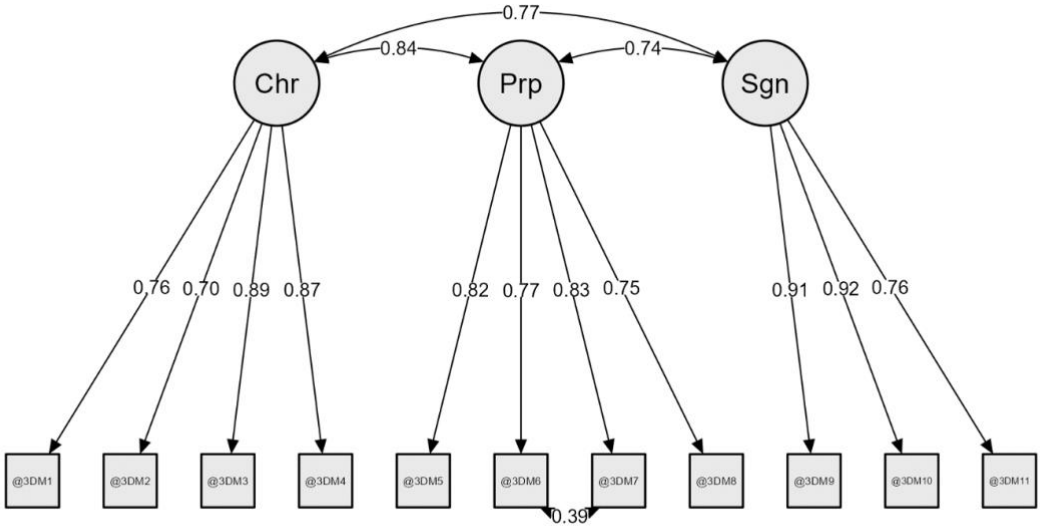
3DM Subscale	Item No	Item	*M*	*SD*	*S*	*K*	*Corrected r item-rest*
Coherence	1	Most things happening in my life do make sense / Hayatımda meydana gelen çoğu şey anlamlıdır	5.02	1.44	-0.43	-0.24	.69
	2	By and large, I am able to understand the world around me / Genellikle çevremde olanları anlayabiliyorum	5.18	1.29	-0.55	0.03	.66
	3	I can comprehend what my life is all about / Hayatımın neyle ilgili olduğunu anlayabiliyorum	5.04	1.38	-0.51	-0.09	.83
	4	I can easily make sense of my life / Hayatıma kolayca anlam verebiliyorum	4.79	1.43	-0.32	-0.33	.78
Purpose	5	I pursue one or more big purposes in my life / Hayatımda bir veya birden çok büyük amacı gerçekleştirmeye çalışırım	5.23	1.43	-0.62	-0.14	.74
	6	I am highly committed to certain core goals in my life / Hayatımdaki belli başlı temel amaçlara büyük ölçüde bağlıyımdır	5.32	1.37	-0.80	0.45	.77
	7	I have a set of core goals that give my life a sense of direction / Hayatıma yön veren bazı temel amaçlarım vardır	5.51	1.33	-0.87	0.45	.80
	8	My daily activities are consistent with a broader life purpose / Günlük aktivitelerim genel yaşam amacımla uyumludur	4.85	1.44	-0.45	-0.18	.66
Significance	9	My life is full of value / Hayatım değerlidir	5.70	1.51	-1.09	0.48	.82
	10	My personal existence is significant / Kişisel varoluşum önemlidir	5.64	1.51	-1.05	0.47	.84
	11	Every day I experience the sense that life is worth living / Her gün hayatın yaşamaya değer olduğu duygusunu hissederim	4.98	1.70	-0.55	-0.56	.71

Note. *N* = 702. *M*: Mean; *SD*: Standard Deviation; *S*: Skewness; *K*: Kurtosis. Skewness Standard Error was 0.09. Kurtosis Standard Error was 0.18.

Table 3 demonstrates that all items of the 3DM were normally distributed and assumed multivariate normality. All items of the 3DM subscales ranged from 0.66 to 0.84 and showed that item-rest correlations were higher than .30. This indicates that all item-rest correlations were within an acceptable range and contribute to the overall measurement of the subscales. In addition, an exploratory factor analysis of the 3DM with maximum likelihood extraction and oblimin rotation was conducted. The explained variance value of the coherence subscale was 26.11%. The explained variance value of the purpose subscale was 21.11%. The explained variance value of the significance subscale was 22.14%. The cumulative variance was 69.36%.

Structural Validity of the 3DM

Figure 1. Path Diagram for the CFA of the 3DM Subscales



The CFA of the 3DM subscales demonstrated a perfect fit (Figure 1): [(χ^2 = 181, df = 40, p = .00)], CFI = .98, TLI = .97, RMSEA = .07, 90%CI[.06, .08], SRMR = .03. The findings of the Kaiser-Meyer-Olkin (KMO) test ranged between .88 and .97. Bartlett's test of sphericity also revealed that the observed variables were not uncorrelated. These showed the applicability and suitability of the data for factor analysis All parameters were significant, p < .05. All standardized estimates were higher than .50. The model fit the 3DM data, as shown by the fit indices demonstrated. This supported a potential underlying representation of the latent constructs, and the data measured the targeted constructs.

Measurement Invariance Analyses of the 3DM Across Gender Groups

Measurement invariance analyses were conducted using the Lavaan mimic package through JASP. The fit indices are displayed in Table 4.

Table 4. Measurement Invariance Analyses of the 3DM Subscales Across Gender Groups

Invariance	χ^2	df	p	CFI	TLI	RMSEA	SRMR
Configural	242.94	77	< .001	0.97	0.96	0.08	0.03
Metric	255.24	85	< .001	0.97	0.96	0.08	0.04
Scalar	295.01	96	< .001	0.96	0.96	0.08	0.04
Strict	345.05	108	< .001	0.96	0.96	0.08	0.04

Configural Invariance. The configural invariance indices were: [(χ^2 = 242.94, df = 77, p < .001)], CFI = .97, TLI = .96, RMSEA = .08, SRMR = .03. The indices indicate that there were no significant differences in the factor structures based on gender. This shows that the same latent constructs were measured using the same observed variables for both females and males.

Metric Invariance. The metric invariance indices were: [(χ^2 = 255.24, df = 85, p < .001)], CFI = .97, TLI = .96, RMSEA = .08, SRMR = .04. The indices demonstrate that there were no significant differences in factor loadings based on gender. This shows that the strength of the relationships between latent variables and observed variables is equal for both genders.

Scalar Invariance. The scalar invariance indices were: [(χ^2 = 295.01, df = 96, p < .001)], CFI = .96, TLI = .96, RMSEA = .08, SRMR = .04. The indices show that both female and male groups had the same variables and

scale for the latent variables. This illustrates that both groups share the same equivalent metric and scale for the latent constructs.

Strict Invariance. The strict invariance indices were: [(χ^2 = 345.05, df =108, p < .001)], CFI = .96, TLI = .96, RMSEA = .08, SRMR = .04. The indices confirmed that the residual variances of the observed variables were equal between the female and male groups. This level of invariance ensured that not only factor loadings and intercepts but also residual variances were equivalent.

With regard to the measurement invariance analyses, the indices for each type of invariance showed that the 3DM subscales exhibited consistent measurement properties across gender groups. This provided support for the cross-group validity of the subscales.

Concurrent Validity

The 3DM subscales demonstrated significant moderate and large positive correlations with well-being indicators including PM, SWLS, SPANE-P, MHC-SF, EWB, SOWB, PWB, AU, CO, RE (see Table 5). The associations in Table 5 demonstrate the concurrent validity of the 3DM subscales.

Table 5. The Associations of the 3DM Subscales with Meaning in Life and Well-Being Indicators

	Coherence	Purpose	Significance
Presence of Meaning	0.74 ***	0.71 ***	0.73 ***
SPANE-P	0.56 ***	0.52 ***	0.59 ***
SWLS	0.57 ***	0.51 ***	0.54 ***
MHC-SF	0.69 ***	0.62 ***	0.71 ***
EWB	0.59 ***	0.54 ***	0.63 ***
SOWB	0.51 ***	0.42 ***	0.55 ***
PWB	0.69 ***	0.66 ***	0.69 ***
Autonomy	0.42 ***	0.39 ***	0.33 ***
Competence	0.39 ***	0.47 ***	0.32 ***
Relatedness	0.38 ***	0.39 ***	0.41 ***

Note. * p < .05, ** p < .01, *** p < .001. Pearson's r was used.

Divergent Validity

The 3DM subscales showed low and moderate significant negative correlations with Negative Affect, Depression, Anxiety, and Stress (see Table 6). The associations support the divergent validity of the 3DM subscales.

Table 6. The Associations of the 3DM Subscales with Negative Affect, Depression, Anxiety, and Stress

	Coherence	Purpose	Significance
SPANE-N	-0.40 ***	-0.35 ***	-0.41 ***
Depression	-0.51 ***	-0.45 ***	-0.54 ***
Anxiety	-0.33 ***	-0.28 ***	-0.31 ***
Stress	-0.35 ***	-0.28 ***	-0.36 ***

Note. * p < .05, ** p < .01, *** p < .001. Pearson's r was used.

The Role of the 3DM Subscales on Well-Being Indicators

The 3DM subscales considerably explained variances in meaning in life, life satisfaction, positive affect, mental health continuum, emotional well-being, social well-being, psychological well-being, autonomy, competence, and relatedness (see Table 7).

Table 7. The Predictive Role of the 3DM Subscales on Well-Being Indicators

Dependent variable	Predictor variable	B standardized	*SE*	*t*	R^2
PM	Coherence	1.01	0.03	29.02*	0.55
	Purpose	0.96	0.04	26.50*	0.50
	Significance	1.11	0.04	28.40*	0.54
SWLS	Coherence	0.73	0.04	18.13*	0.32
	Purpose	0.65	0.04	15.53*	0.26
	Significance	0.77	0.05	16.82*	0.29
SPANE-P	Coherence	0.50	0.03	17.81*	0.31
	Purpose	0.46	0.03	16.01*	0.27
	Significance	0.58	0.03	19.45*	0.35
MHC-SF	Coherence	1.81	0.07	24.92*	0.47
	Purpose	1.63	0.08	20.77*	0.38
	Significance	2.08	0.08	26.68*	0.50
EWB	Coherence	0.37	0.02	19.56*	0.35
	Purpose	0.34	0.02	17.05*	0.29
	Significance	0.43	0.02	21.27*	0.39
SOWB	Coherence	0.63	0.04	15.69*	0.26
	Purpose	0.51	0.04	12.22*	0.18
	Significance	0.74	0.04	17.21*	0.30
PWB	Coherence	0.82	0.03	25.28*	0.48
	Purpose	0.78	0.03	23.25*	0.44
	Significance	0.91	0.04	25.35*	0.48
Autonomy	Coherence	0.21	0.02	12.13*	0.17
	Purpose	0.19	0.02	11.23*	0.15
	Significance	0.18	0.02	9.40*	0.11
Competence	Coherence	0.19	0.02	11.09*	0.15
	Purpose	0.23	0.02	14.09*	0.22
	Significance	0.17	0.02	8.96*	0.10
Relatedness	Coherence	0.17	0.02	10.77*	0.14
	Purpose	0.17	0.02	11.08*	0.15
	Significance	0.20	0.02	12.05*	0.17

Note. * $p < .001$. *SE*: Standard Error; *t*: t-statistic; R^2: Coefficient of Determination

The Role of the 3DM Subscales on Psychopathology Indicators

The 3DM subscales notably explain variances in negative affect, depression, anxiety, and stress (see Table 8).

Table 8. The Predictive Role of the 3DM Subscales on Psychopathology Indicators

Dependent variable	Predictor variable	B standardized	*SE*	*t*	R^2
SPANE-N	Coherence	-0.35	0.03	-11.63*	0.16
	Purpose	-0.30	0.03	-9.85*	0.12
	Significance	-0.40	0.03	-11.91*	0.17
Depression	Coherence	-0.56	0.04	-15.59*	0.26
	Purpose	-0.49	0.04	-13.30*	0.20
	Significance	-0.65	0.04	-16.76*	0.29
Anxiety	Coherence	-0.34	0.04	-9.10*	0.11
	Purpose	-0.29	0.04	-7.71*	0.08
	Significance	-0.37	0.04	-8.75*	0.10
Stress	Coherence	-0.37	0.04	-9.83*	0.12
	Purpose	-0.30	0.04	-7.75*	0.08
	Significance	-0.43	0.04	-10.35*	0.13

Note. * $p < .001$. *SE*: Standard Error; *t*: t-statistic; R^2: Coefficient of Determination.

Comparing Gender and Age Groups in the 3DM Subscales

Table 9. The 3DM Subscales Across Gender Groups

3DM Subscale	Gender	N	M	SD	Tests	Statistic	p	Effect Size
Coherence	Female	540	20.12	4.56	Mann-Whitney U	42732.00	0.66	0.02
	Male	162	19.76	5.34				
Purpose	Female	540	20.96	4.63	Mann-Whitney U	43367.00	0.87	0.01
	Male	162	20.73	5.25				
Significance	Female	540	16.51	4.11	Mann-Whitney U	40385.00	0.14	0.08
	Male	162	15.71	4.79				

Note: $p < .05$.

None of the 3DM subscales showed any significant differences when compared on the basis of the Mann Whitney U tests in coherence, purpose, and significance considering gender groups: Coherence: U = 42732.00, $p > .05$, Rank biserial correlation = .02 (small effect size); Purpose: U = 43367.00, $p > .05$, Rank biserial correlation = .01 (small effect size); Significance: U = 40385.00, $p > .05$, Rank biserial correlation = .08 (small effect size). These results demonstrate that the 3DM subscales did not differentiate in female and male groups. The effect sizes (rank biserial correlations) were ignorable.

Table 10. The 3DM Subscales Across Age Groups

3DM Subscale	Age Group	N	M	SD	Tests	Statistic	df	p	Effect Size
Coherence	≤ 24	554	19.75	4.68	Student's t	-3.12	700	0.002*	-0.29
	>24	148	21.11	4.88					
Purpose	≤ 24	554	20.66	4.80	Student's t	-2.72	700	0.007*	-0.25
	>24	148	21.85	4.60					
Significance	≤ 24	554	15.95	4.31	Mann-Whitney U	30165.00	-	< .001*	0.26
	>24	148	17.72	3.88					

Note: * $p < .05$

The student's t test for coherence demonstrated a significant difference between age groups (t = -3.12, df = 700, $p < .05$). The effect size (Cohen's d) was minute with a value of -0.29. The student's t test for purpose also indicated a significant difference between age groups (t = -2.72, df = 700, $p < .05$). The effect size (Cohen's d) was slight with a value of -0.25. The Mann-Whitney U Test for significance revealed a significant difference between age groups (U = 30165.00, $p < .05$, Rank biserial correlation = .26 (small effect size)). The results indicated that participants aged over 24 tended to have higher scores in coherence, purpose, and significance.

Discussion

The findings indicated that the three-factor model of the 3DM has been confirmed in a Turkish-speaking adult sample. The 3DM demonstrated good indices and suitable internal consistency in coherence, purpose, and significance. The measurement invariance analyses of the 3DM based on gender groups showed consistent measurement properties. The findings obtained provide support for the structural, concurrent, and divergent validity of the 3DM subscales. The CFA indices support the structural validity. The significant positive associations of the subscales with presence of meaning, life satisfaction, basic psychological needs' satisfaction, positive affect, mental health continuum, emotional well-being, social well-being, and psychological well-being provide strong evidence for the concurrent validity. The significant negative associations of the subscales with negative affect, depression, anxiety, and stress demonstrate the divergent validity.

The findings support the original three-factor structure of the 3DM, replicating previous findings and showing similarity with the MEMS as well as considerable distinctions. In English and German versions of the 3DM, the original model has been replicated (Beyer, 2023; Martela & Steger, 2023). In the Turkish version of the 3DM, which is the first study to fully replicate the 3DM among adults in a non-Western culture, among university students, the original factor has been confirmed (Subasi et al., 2024c). The present research confirmed the 3DM subscales with no exclusions as in previous research.

The 3DM subscales explained a considerable amount of variance in each of the well-being indicators including presence of meaning, life satisfaction, positive affect, mental health continuum, emotional well-being, social well-being, psychological well-being, autonomy, competence, and relatedness. The 3DM subscales also explained variances in negative affect, depression, anxiety, and stress. They did not differ across gender groups, however, participants aged over 24 were more likely to have higher scores in the subscales than participants aged 24 or less than 24.

As in any research, the current study is not devoid of limitations. Firstly, it is a cross-sectional correlational study, making causal explanations inapplicable. Secondly, the present study utilized a convenience sampling by gathering data online. This may lead to generalizing the current findings to all Turkish adults. Finally, the research did not assess the test-retest reliability of the 3DM. Further research can make use of prospective research designs considering developmental stages and particular populations regarding other MiL constructs. Additional studies can examine the predictive power of the 3DM subscales on well-being, psychopathology, and related constructs in addition to searching for differences among clinical and non-clinical populations as well as their sociodemographic characteristics. Additionally, future research can also investigate psychometric properties of the 3DM in various contexts and can compare the 3DM model with the MEMS model. MiL researchers can particularly focus on the differences of MiL subscales and their relationships in both clinical and healthy populations. Ultimately, research can contribute to positive psychological interventions and meaning-focused interventions by the 3DM.

Conclusion

In conclusion, the 3DM subscales in an adult Turkish-speaking population replicate the original model of the 3DM, displaying good reliability and validity. The 3DM subscales overlap well with the presence of meaning, and have moderate and high positive relationships with well-being constructs, and low and moderate negative relationships with the indicators of psychopathology. The 3DM subscales considerably explain variances in well-being and psychopathology indicators. The results demonstrate that the 3DM in Turkish adults strongly supports a tripartite understanding of MiL in Turkish culture.

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