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Meaning in Life as A Mediator of Associations Between Self-Esteem and Psychological Adjustment Among Middle-Aged Women with Breast Cancer*

Orta Yaş Dönemindeki Meme Kanseri Kadın Bireylerde Benlik Saygısı ve Psikolojik Uyum Arasındaki İlişkiler: Hayatın Anlamının Aracı Rolü

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ABSTRACT

A growing body of research has clearly demonstrated that meaning in life plays an important role in psychological adjustment in the face of highly stressful life events, such as a cancer diagnosis. This study primarily aims to explore the predictors of meaning in life and the mediating role of the two dimensions of meaning in life (*presence of meaning, and search for meaning*) on the association between self-esteem and psychological adjustment among middle-aged women diagnosed with breast cancer. In the present study, *psychological well-being* and *psychological distress* have been used as indicators of psychological adjustment. The sample consisted of 125 women aged between 40 - 65 (M_{age} = 52.34, SD = 6.83). Participants completed a battery of self-report questionnaires including the Rosenberg Self-Esteem Scale, Psychological Well-Being Scale, Hospital Anxiety and Depression Scale, Meaning in Life Questionnaire, and Multidimensional Scale of Perceived Social Support. The findings revealed a negative significant relationship between the presence of meaning and the search for meaning. Multiple regression analyses revealed that perceived social support, age, perceived income level, and time since diagnosis positively predicted the *presence of meaning* and explained 30% of the total variance. On the other hand, perceived social support, age, and the time since diagnosis negatively predicted the *search for meaning* and explained 34% of the total variance. Moreover, the findings of mediation analysis showed that the *presence of meaning* in life partially mediates the association between self-esteem and psychological adjustment. In other words, although the predictors of the meaning in life are similar for both dimensions, it was shown that the mediating role of the presence of meaning was stronger than the search for meaning in the relationship between self-esteem and psychological adjustment. Hence, it can be concluded that high self-esteem contributes positively to psychological adjustment by increasing the presence of meaning in the life of middle-aged female cancer patients.

Keywords: Breast cancer, self-esteem, psychological well-being, psychological distress, meaning in life, middle adulthood

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ÖZ

Giderek artan sayıda araştırma, hayatın anlamının kanser teşhisi gibi oldukça stresli yaşam olayları karşısında psikolojik uyum üzerinde önemli bir rol oynadığını açıkça göstermektedir. Araştırmanın temel amacı meme kanseri tanısı almış orta yaş dönemindeki kadınlarda hayatın anlamını yordayan faktörleri ve benlik saygısı ile psikolojik uyum arasındaki ilişkide hayatın anlamının boyutlarının (*anlamın varlığı ve anlam arama*) aracı rolünü incelemektir. Bu araştırmada psikolojik uyumun göstergeleri olarak *psikolojik iyi oluş* ve *psikolojik sıkıntı* kullanılmıştır. Araştırmanın örneklemini yaşları 40 ile 65 arasında değişen ($Ort._{yaş}$ = 52.34, *SS* = 6.83) toplam 125 kadın oluşturmuştur. Katılımcılara Rosenberg Benlik Saygısı Ölçeği, Psikolojik İyi Oluş Ölçeği, Hastane Anksiyete ve Depresyon Ölçeği, Hayatın Anlamı Ölçeği ve Çok Boyutlu Algılanan Sosyal Destek Ölçeği'nden oluşan bir ölçek seti uygulanmıştır. Elde edilen bulgular, anlamın varlığı ile anlam arama arasında negatif yönde anlamlı bir ilişki ortaya koymuştur. Regresyon analizi sonuçları, sırasıyla algılanan sosyal destek, yaş, algılanan gelir düzeyi ve tanı süresinin anlamın varlığını pozitif yönde yordadığını ve toplam varyansın %30'unu açıkladığını ortaya koymuştur. Buna karşılık, anlam aramayı ise algılanan sosyal destek, yaş ve tanı süresi negatif yönde yordamakta ve toplam varyansın %34'ünü açıklamaktadır. Aracı rollere ilişkin analiz sonuçları ise benlik saygısı ile psikolojik uyum arasındaki ilişkide anlamın varlığının kısmi aracı role sahip olduğunu göstermiştir. Bir diğer ifade ile hayatın anlamının yordayıcıları her iki boyut için benzer olsa da, anlam aramaya göre anlamın varlığının aracı rolünün benlik saygısı ve psikolojik uyum arasındaki ilişkide daha güçlü olduğunu göstermiştir. Sonuç olarak, elde edilen bulgular çerçevesinde yüksek benlik saygısının orta yaş dönemindeki kadın kanser hastalarında anlamın varlığını artırarak psikolojik uyuma pozitif yönde katkı sağladığı söylenebilir.

Anahtar Kelimeler: Meme kanseri, benlik saygısı, psikolojik iyi oluş, psikolojik sıkıntı, hayatın anlamı, orta yetişkinlik dönemi

Despite advances in cancer care and treatment, the literature review suggests that cancer patients have higher levels of distress, including increased anxiety and depressive symptoms and reduced well-being than healthy individuals (Mitchell et al., 2013; Williams et al., 2016). Therefore, many researchers have emphasized the importance of evaluating how patients adjust to cancer and identifying the factors that may influence their well-being. Previous studies have shown that many sociodemographic and medical characteristics are related to cancer patients' psychological adjustment. For example, a review (Brandão et al., 2017) that includes longitudinal studies has indicated that breast cancer patients' psychological adjustment is significantly influenced by a wide range of factors, such as sociodemographic (e.g., income), disease-related (e.g., disease stage), and psychosocial (e.g., social support) factors. A growing body of research has also clearly demonstrated that meaning in life has a potential effect on cancer patients' psychological adjustment (Winger et al., 2016). However, when the relevant literature is examined, it is seen that the majority of these studies ignored the types of cancer and the developmental period of the individuals. Therefore, this study was conducted from a developmental perspective and solely focused on middle-aged women with breast cancer.

Although middle age is characterized by individual variations, like all life periods, many people in this age range experience chronic health problems, such as cancer or heart disease for the first time in their life (Dacey & Travers, 2002). Researchers have tried to identify protective factors that enable people to cope with stressful life events, and they tend to focus even more on the factors involved in a person's exploration of meaning in life and whether developing a sense of meaning in life is linked to positive developmental outcomes (Jim & Andersen, 2007; Scrignaro et al., 2015; Sherman et al., 2010). Thus, research in this domain has assumed a somehow more positive direction, as middle age is being increasingly associated with maturity, the strengthening of relationship dynamics, and a transition from searching for meaning in life to discovering it (Toothman & Barrett, 2011). In addition, mid-life is characterized by a restructuring of time and a reassessment of priorities in the life-span, and a serious accident, loss, or illness often triggers a new appreciation of life, and receiving a cancer diagnosis often prompts people to reevaluate the meaning of life (Aldwin & Levenson, 2001). In this respect, the findings of some earlier studies show that feelings of belonging or other positive social interactions (e.g., social support) predict reports of meaning in life above

other covariates such as positive affect and relatedness needs satisfaction (Hicks & King, 2009; Hicks et al., 2010). Similarly, Tomás-Sábado and colleagues (2015) reported that interpersonal relationships, at both a family and wider social level, are reported to be areas that give the greatest meaning in life to cancer patients. Taking these findings into consideration, it was firstly aimed to explore the sociodemographic (e.g., age, perceived income level), medical (e.g., time since diagnosis), and psychosocial (i.e., perceived social support) factors associated with the search for, and presence of meaning in life.

Wide and diverse research conducted among healthy people and cancer patients also provided evidence that self-esteem protects mental health and low self-esteem is a risk factor for higher depression and anxiety (e.g., Mann et al., 2004; Sowislo & Orth, 2013). However, there is still little known about the underlying mechanism of these links. Furthermore, there is an ongoing debate about whether the link between a search for meaning and psychological well-being and distress is similar across different life stages and for diverse specific samples (i.e., cancer patients) (Steger et al., 2006). Therefore, it was secondly aimed to investigate the mediator role of the presence of meaning and the search for meaning in the association between self-esteem and psychological adjustment in middle-aged women diagnosed with breast cancer. Well-being and distress were used as indicators of psychological adjustment. The premise regarding the mediational role of meaning in life is based on previous research. For instance, Steger and colleagues (2006) reported that participants with high self-esteem experienced more presence of meaning but less search for meaning.

Self-esteem

Self-esteem refers to the cognitive and affective assessment of one's perceived worth (Hepper, 2016). Self-esteem has often been cited in the literature as a positive indicator of psychological well-being (Rosenberg, 1965) and it also declines with age (Robins et al., 2002), and shows fluctuations that are meaningfully connected to age-related life experiences and contexts (Robins & Trzesniewski, 2005). These changes illustrate the role of the self as an organizing psychological construct that influences how individuals orient their behavior to meet new and challenging demands within their environment. In this respect, researchers have suggested that self-esteem is an important personal resource for cancer patients' quality of life and adjustment to disease-related problems (Schroevers et al., 2003). However, previous studies have examined self-esteem as a

predictor, and studies conducted with both cancer patients and healthy people revealed that higher self-esteem is related to lower levels of depressive symptoms and higher levels of well-being (e.g., Dirksen, 2000; Schroevers et al., 2003). In accordance with these findings, recent studies with cancer samples have revealed that low self-esteem was associated with high anxiety (Yektatalab & Ghanbari, 2020) and self-esteem directly predicted mental adjustment as well (Tsai et al., 2021). So, there is considerable evidence that self-esteem is a consistent and strong predictor of a person's success and well-being in important life domains such as relationships, work, and physical and mental health. However, there is still a dearth of knowledge about the process linking self-esteem and cancer patients' well-being outcomes. Therefore, it was proposed that meaning in life is one of the potential variables which can play a mediational role between the self-esteem and psychological adjustment of cancer patients.

Meaning in Life

The construct of meaning in life has received considerable attention and is generally defined as an individual's ability to understand life such as the surrounding world and oneself (Steger et al., 2006). Steger and colleagues (2006) proposed a two-dimensional model of meaning in life: the *presence of meaning* and the *search for meaning*. The presence of meaning is defined as the degree of devotion toward one's goals, desires, or missions in life whereas the search for meaning refers to the process by which individuals actively identify meaning and targets in life. It has also been proposed that the search for meaning is not equivalent to the absence of meaning, and the search for meaning and the presence of meaning represent independent dimensions (Steger et al., 2009).

The findings of some earlier cross-sectional studies have also revealed that the strength and direction of the relationship between these two dimensions and outcome variables are influenced by culture and sample characteristics. For instance, contrary to Japan it has been found that the search for meaning was negatively correlated to well-being and the presence of meaning in the United States (Steger et al., 2008b). Similarly, Boyraz and colleagues (2013) found that the presence of meaning was negatively related to the search for meaning in a Turkish sample. On the other hand, the search for meaning was both positively (Lai et al., 2016) and negatively (Liu et al., 2012) related to depressive symptoms in the Chinese population. A previous finding also revealed that the presence of meaning has similar relations to well-being at different developmental periods, whereas the search for meaning is more strongly associated with diminished

well-being and greater distress in later life stages (Steger et al., 2009). It has also been proposed that a preserved or restored sense of meaning is considered to be an important resource in confronting and adjusting to highly stressful life experiences (Sherman & Simonton, 2012). Moreover, the findings of a meta-analysis indicated that meaning in life is moderately and negatively related to distress in cancer patients (Winger et al., 2016). Furthermore, some researchers report that individuals who find more meaning in their lives and who have high self-esteem have better psychological adjustment (Dezutter et al., 2015; Joshanloo & Daemi, 2015), and they stated that the meaning of life becomes more important, especially when faced with a stressful life event (Park, 2010).

Although previous research has indicated that meaning in life plays a central role as a protective factor against higher distress and lower well-being (Jim & Andersen, 2007; Park, 2010; Winger et al., 2016), little is known about what critical factors contribute to these two dimensions of meaning in life among patients with a life-threatening illness. Therefore, it was aimed to extend the literature by examining how meaning in life relates to a broad range of sociodemographic, medical, and psychosocial factors. Regarding the first aim of the present study (i.e., to explore the sociodemographic, medical, and psychosocial factors associated with the search for, and presence of meaning in life), no specific hypotheses related to the two dimensions of meaning in life were able to be developed due to limited and inconclusive findings in the literature. Therefore, descriptive and regression analyses were carried out in line with the first aim of the current study.

Studies have shown that low self-esteem was associated with high anxiety (Yektatalab & Ghanbari, 2020), depressive symptoms (Schroevers et al., 2003), and maladaptive mental adjustment (Tsai et al., 2021). On the other hand, previous findings also revealed that meaning in life is negatively related to psychological distress in cancer patients (Winger et al., 2016), and a preserved sense of meaning is considered to be an important resource in confronting and adjusting to highly stressful life experiences such as receiving a cancer diagnosis and being treated for cancer (Sherman & Simonton, 2012). However, to the best of our knowledge, there is no study that has explored the mediator role of meaning in life on the associations between self-esteem and psychological adjustment. Filling this gap in the knowledge, as a second aim, the mediator role of meaning in life (i.e., the search for, and presence of meaning in life) on the associations between self-esteem and psychological adjustment among middle-aged women with breast cancer were examined.

As for the second aim of the study, the hypotheses are as follows:

H1. Self-esteem will have a positive indirect effect on psychological well-being via the mediating role of (*a*) the presence of meaning in life and (*b*) the search for meaning in life.

H2. Self-esteem will have a negative indirect effect on psychological distress via the mediating role of (*a*) the presence of meaning in life and (*b*) the search for meaning in life.

Method

Participants

The participants were recruited from the medical oncology outpatient service in a major university hospital in Ankara, Turkey. The inclusion criteria were as follows: 1) women diagnosed with breast cancer (not considered terminally ill), 2) between 40 and 65 years of age, and 3) graduated from at least middle school. Patients who were unable to complete any of the questionnaires because of their poor physical condition, or were unable to give informed consent were excluded.

A total of 163 oncology outpatients who met the eligibility criteria were approached between November 2015 and February 2016, and 137 (84.05%) of them volunteered to participate in this study. After providing informed consent, six patients rejected or failed to complete the questionnaire; it was understood that four of these patients, and two patients' data were considered outliers. Finally, 125 participants were included in all analyses and their detailed demographic characteristics and medical information are provided in Table 1.

Table 1
Sample Characteristics

Sociodemographic factors	*N*	(%)	Medical factors	*N*	(%)
			Time since diagnosis		
Marital status			0 ≤ 1 year	35	(28)
Married	102	(81.6)	1 year ≤ 3 years	32	(25.6)
Single*	23	(18.4)	3 years ≤ 5 years	29	(23.2)
Number of children			5 years or more	29	(23.2)
None	13	(10.4)	Current treatment		
One	25	(20)	Chemotherapy	16	(12.8)
Two	62	(49.6)	Hormonal therapy	82	(65.6)
Three or more	25	(20)	No treatment***	27	(21.6)
Level of education			Type of surgery		
Middle school	29	(23.2)	Mastectomy	76	(60.8)
High school	34	(27.2)	Breast conserving surgery	46	(36.8)
College or above	62	(49.6)	Neoadjuvant	3	(2.4)
Living place			Histological grade		
Metropolis	81	(64.8)	Grade I	13	(10.4)
City	30	(24)	Grade II	53	(42.4)
Other**	14	(11.2)	Grade III	44	(35.2)
Employment status			Grade IV	5	(4)
Employed	36	(28.8)	Unknown	10	(8)
Unemployed	50	(40)	Comorbidity****		
Retired	39	(31.2)	Yes	54	(43.2)
Menopause			No	71	(56.8)
Pre	68	(54.4)	Recurrence		
Peri or Post	57	(45.6)	Yes	12	(9.6)
Body mass index (kg/m^2)			No	113	(90.4)
≤ 24.9	51	(40.8)	Psychological/psychiatric treatment		
25 to 29.9	39	(31.2)	Yes	33	(26.4)
≥30	35	(28)	No	92	(73.6)
	5.79	(1.40)			

Note. *Divorced, separated, widower, never married, ** County, abroad, move to metropole because of the disease, ***Patients who completed their treatment. **** Hypertension, diabetes, multinodular goiter.

A power analysis was conducted using G*Power 3.1 (Faul et al., 2007) for sample size estimation. With a significance criterion of $\alpha = 0.05$, a medium effect size = 0.15, and power = 0.80, the minimum sample size needed with this effect size is 86. Thus, the obtained sample size of $N = 125$ is more than adequate for the purposes of this study.

Measures

Meaning in Life Questionnaire

This is a 10-item scale and consists of two subscales (Steger et al. 2006). The *Presence* subscale assesses the extent to which people perceive their lives as meaningful.

The *Search* subscale assesses the extent to which people are actively seeking meaning or purpose in their lives. Responses are given on a 7-point Likert scale ranging from 1 = '*Absolutely Untrue*' to 7 = '*Absolutely True*' and higher scores indicate a higher presence of, and the search for, meaning in life. The questionnaire was adapted into Turkish by Yarar (2015), who reported internal consistency of .90 for the presence of meaning and .91 for the search for meaning. The internal consistency in the present study was .76 for the presence of meaning, and .83 for the search for meaning.

Rosenberg Self-Esteem Scale

This scale is a 10-item instrument that assesses global self-esteem (Rosenberg, 1965). Each item is rated on a 4-point Likert scale ranging from 1 = '*Strongly Disagree'* to 4 = '*Strongly Agree'* and higher scores represent higher levels of self-esteem. The scale was adapted to Turkish culture by Cuhadaroglu (1986) and tested psychometrically. The correlation between the scale and psychiatric interview results was found to be .71, and the test–retest reliability was .75. In the current sample, the internal consistency was .82.

Psychological Well-Being Scale

This scale was developed by Ryff (1989) and includes 84 items representing six different dimensions (self-acceptance, positive relations, environmental mastery, purpose in life, personal growth, and autonomy). It was shortened by Ryff and Keyes (1995) and consists of three items per subscale with a total of 18 items and the composite well-being score is computed by summing these items. Responses are given on a 5-point Likert scale ranging from 1 = '*Completely Disagree*' to 5 = '*Completely Agree*' with higher scores indicating higher psychological well-being. The 18-item short version was adapted to Turkish culture by Imamoglu (2004), and the internal consistency of the total scale was found to be .79. In the present study, this short version was used, and its internal consistency was .88.

Hospital Anxiety and Depression Scale

This was originally developed by Zigmond and Snaith (1983) to assess the psychological states of physically ill patients, and it is a widely-used instrument in non-psychiatric patient populations. The scale consists of 14 items and responses are given on a 4-point Likert scale ranging from 0 = '*Not at All*' to 3 = '*Very Often*'. The Turkish adaptation of the scale was conducted by Aydemir and colleagues (1997) with the internal

consistency being .85 for anxiety and .78 for depression. Norton and colleagues (2013) recommended this scale as a measure of general distress, due to the presence of a strong general factor. So, it was used a total score derived by summing these two subscale items, with higher scores indicating higher psychological distress, and the internal consistency for the total score was .88.

Multidimensional Scale of Perceived Social Support

This scale was developed to assess perceived social support from three sources: family, friends, and a significant other (Zimet et al., 1998). Each subscale consists of four items and responses are given on a 7-point Likert scale ranging from 1 = '*Strongly Disagree*' to 7 = '*Strongly Agree*'. A higher score indicates a greater level of perceived social support. The original Cronbach's alpha value for the family subscale was .87. The scale was adapted to Turkish culture by Eker and colleagues (2001) and the internal consistency for the family dimension was reported as .85. It's internal consistency was .87 in the present study.

Perceived Income Level

Perceived income level was assessed with a 10-point Likert scale ranging from 1 (very low) to 10 (very high).

Procedure

A cross-sectional design was applied to the present study. Oncology outpatients were recruited consecutively from the Cancer Institute of Hacettepe University, one of the largest tertiary university hospitals for patients with cancer in Turkey. Ethical permission for this study was obtained from the ethical committee of Hacettepe University (approval number = GO 15/562 - 09). The oncologist identified ambulatory patients who met the eligibility criteria during their routine follow-up appointments and briefly explained the purpose of the study. Then, a research assistant (first author of the present article) with two years of experience in an oncology setting, provided more detailed information about the study and a battery of self-report questionnaires were filled out by participants who had signed informed consent. Medical information was obtained from medical records by the research assistant and participants reported their sociodemographic characteristics during the interviews.

Data Analyses

Prior to the data analyses, all variables were screened and checked for data-entry errors, missing data, and potential outliers (Tabachnick & Fidell, 2013). All data were

analyzed using SPSS 23.0 and p values < 0.05 were considered statistically significant. The Kolmogorov-Smirnov test was conducted along with the examination of skewness and kurtosis values and histograms to test normality assumptions. Using criterion z-scores (i.e., ±3.29) and graphical methods (i.e., boxplot), two unique cases were deemed to be univariate outliers on one or more variables and therefore removed.

First, means and standard deviations were computed and associations among study variables were examined using Pearson's correlation coefficients. For the independent samples *t*-test and one-way ANOVAs, the dimensions of meaning in life (i.e., presence of meaning and search for meaning in life) were treated as dependent variables, whereas all sociodemographic and medical variables (e.g., marital and employment status, time since diagnosis) were treated as independent variables. For regression analyses, age, social support, perceived income level, and time since diagnosis were treated as independent variables, whereas the presence of meaning and search for meaning in life were treated as dependent variables. Independent samples *t*-tests and one-way ANOVAs were used to determine the group differences in terms of the sociodemographic and medical characteristics of participants. Bonferroni correction was conducted to reduce Type I errors. In the second step, two separate multiple linear regression analyses with enter method were conducted to examine the predictors of the two dimensions of meaning in life. Next, to determine the mediational role of meaning in life on the association between self-esteem and psychological adjustment, the bootstrapping technique (5,000 bootstrap samples) and macro PROCESS v.4 (Model 4) for SPSS (Hayes, 2022; Preacher & Hayes, 2008) were used. The assumptions of statistical tests and analyses were met.

Results

Descriptive Analyses

Age, perceived social support from family, perceived income level, self-esteem, and psychological well-being were significantly and positively associated with the presence of meaning. In contrast, age, psychological well-being, self-esteem, and perceived social support from family were significantly and negatively associated with the search for meaning (See Table 2). The presence of meaning (M = 22.39, SD = 5.91) and search for meaning (M = 22.06, SD = 7.00) scores were inversely correlated (r = -.54, p < .001). In terms of perceived income level, it seems that the women came from mainly middle-income families (M = 5.79, SD = 1.40). Self-esteem and psychological well-being were positively associated with perceived income level.

Table 2

Descriptive Statistics and Correlations between Study Variables

Variables	*Mean*	*SD*	*Min*	*Max.*	Skewness	Kurtosis	1	2	3	4	5	6	7	8
1. Presence of meaning	22.39	5.91	8	32	-.299	-1.008	(.76)	-.54***	.51***	.37***	.60***	-.49***	.25**	.21*
2. Search for meaning	22.06	7.00	5	35	-.288	-.967		(.83)	-.31**	-.39***	-.37***	.28**	-.31***	-.10
3. Self-esteem	27.06	6.68	10	38	-.483	-1.012			(.82)	.41***	.66***	-.60***	-.21*	.31***
4. Perceived social support	19.24	5.62	7	28	-.420	-.564	.			(.87)	.51***	-.32***	-.16	.09
5. Psychological well-being	55.52	13.96	21	84	-.093	-.986					(.88)	-.59***	-.03	.23**
6. Psychological distress	15.56	8.89	2	34	.477	-.860						(.88)	.11	-.17
7. Age	52.34	6.83	40	65	.134	-.985							-	-.06
8. Perceived income level	5.79	1.40	2	9	-.016	-.234								-

Note. *$p < .05$, **$p < .01$, ***$p < .001$. Values in brackets are Cronbach Alpha coefficients.

One-way ANOVA conducted to assess meaning in life in terms of the sociodemographic and medical characteristics of participants revealed that the presence of meaning $F(3,121) = 4.47$, $p < .01$, $\eta 2 = .10$, and search for meaning $F(3,121) = 5.62$, $p < .01$, $\eta 2 = .12$ significantly differed only as a function of time since diagnosis.

Post hoc analyses indicated that the mean score of the presence of meaning for patients who were within 12 months of diagnosis ($M = 19.66$, $SD = 6.21$) was significantly lower than for the patients who had been diagnosed between 37 and 60 months earlier ($M = 23.62$, $SD = 5.09$) and patients who had been diagnosed 61 or more months earlier ($M = 24.48$, $SD = 4.90$). Furthermore, post hoc comparisons indicated that the mean score of the search for meaning for patients who had been diagnosed 61 or more months before ($M = 18.24$, $SD = 6.63$) was significantly lower than for patients who had been diagnosed within 12 months ($M = 24.89$, $SD = 6.32$) and patients who had been diagnosed between 13 and 36 months ($M = 23.00$, $SD = 6.77$).

Multiple Regression Models

The findings for the first model showed that social support, age, perceived income level, and time since diagnosis all significantly predicted the presence of meaning, $F(4,120) = 12.87$, $p < .001$, explaining in total 30% of the variance. The second model showed that social support, age, and time since diagnosis significantly predicted the search for meaning, $F(3,121) = 20.65$, $p < .001$, explaining in total 34% of the variance (See Table 3).

Table 3

Results of Multiple Linear Regression Analyses to Predict Dimensions of Meaning in Life

Presence of meaning				Search for meaning			
Variable	**B**	**(SE)**	*β*	**Variable**	**B**	**(SE)**	*β*
Social support	.38	.08	.36***	Social support	-.50	.10	-.41***
Age	.25	.07	.28***	Age	-.35	.08	-.34***
Perceived income level	.83	.32	.20*	Time since diagnosis	-1.29	.48	-.21**
Time since diagnosis	.98	.42	.19*				
$R^2 = .30$				$R^2 = .34$			

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

A Multiple Mediation Models

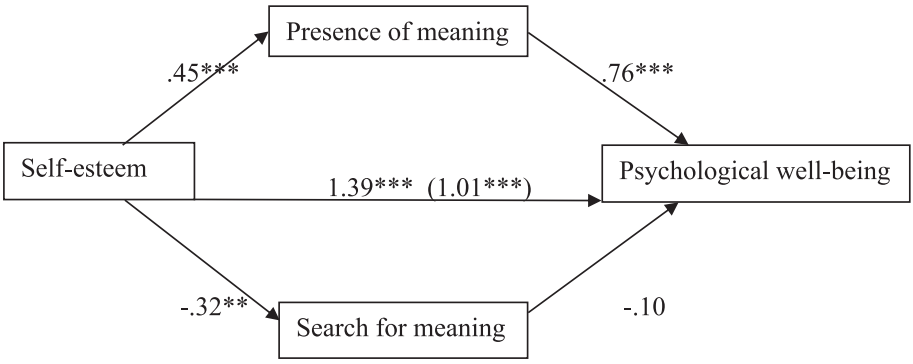
Psychological Well-being

As can be seen in Figure 1, the results indicated that self-esteem predicted the presence of meaning ($B = .45$, SE = .07, t = 6.53, $p < .001$, Lower Limit Confidence Inter-

val (LLCI) = .31, Upper Limit Confidence Interval (ULCI) = .59) and psychological well-being (B = 1.01, SE = .15, t = 6.71, p < .001, LLCI = .71, ULCI = 1.31). The presence of meaning predicted psychological well-being (B = .76, SE = .19, t = 3.96, p < .001, LLCI = .38, ULCI = 1.15). *H1a* was supported and the direct effect (c') of self-esteem on psychological well-being (B = 1.01, SE = .15, t = 6.71, p < .001, LLCI = .71, ULCI = 1.31) was lower than the total effect (c) of self-esteem on psychological well-being (B = 1.39, SE = .14, t = 9.84, p < .001, LLCI = 1.11, ULCI = 1.67), indicating that the presence of meaning partially mediated the relationship between self-esteem and psychological well-being. However, *H1b* was not investigated because the conditions of mediation were not met (the search for meaning does not significantly predict psychological well-being).

Figure 1

A Diagram of Model 1 Showing the Mediating Roles of the Presence of, and the Search for, Meaning in the Relationship between Self-esteem and Psychological Well-being



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

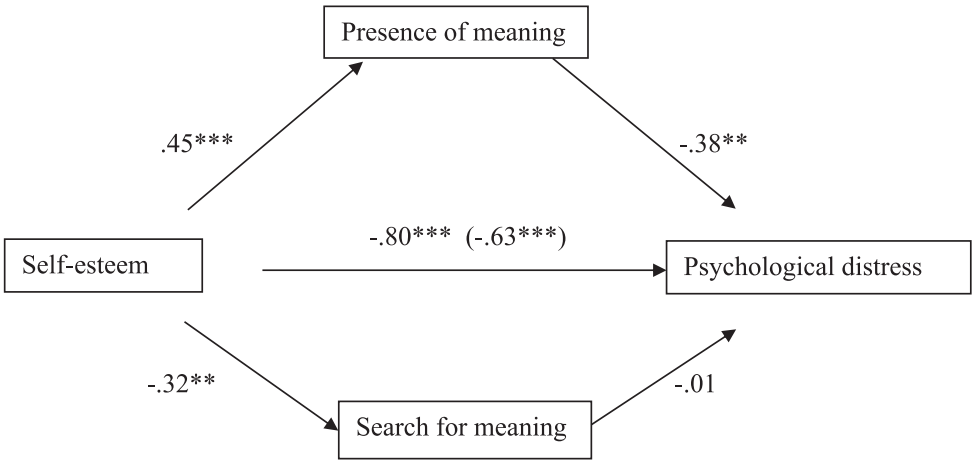
Psychological Distress

As can be seen in Figure 2, self-esteem predicted the presence of meaning (B = .45, SE = .07, t = 6.53, p < .001, LLCI = .31, ULCI = .59) and psychological distress (B = -.63, SE = .11, t = -5.80, p < .001, LLCI = -.84, ULCI = -.41). Moreover, the presence of meaning predicted psychological distress (B = -.38, SE = .14, t = -2.75, p = .007, LLCI = -.66, ULCI = -.11). *H2a* was supported and the absolute value of direct effect (c') of self-esteem on psychological distress (B = -.63, SE = .11, t = -5.80, p < .001, LLCI = -.84, ULCI = -.41) was lower than the total effect (c) of self-esteem on psychological distress (B = -.80, SE = .10, t = -8.31, p < .001, LLCI = -.99, ULCI = -.61) indicating

that the presence of meaning partially mediated the relationship between self-esteem and psychological distress. However, *H2b* was not investigated because the conditions of mediation were not met (the search for meaning does not significantly predict psychological distress).

Figure 2

A Diagram of Model 2 Showing the Mediating Roles of the Presence of, and the Search for, Meaning in the Relationship between Self-esteem and Psychological Distress



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

Discussion

The purpose of this study was to explore the predictors of two dimensions of meaning in life among middle-aged women diagnosed with breast cancer. Additionally, as a second aim, the mediator role of the presence of and search for meaning in life in the relationship between self-esteem and psychological adjustment were investigated. The findings obtained for these two aims are discussed respectively in the following section.

The cross-sectional and longitudinal data of previous research has indicated a moderate, negative relationship between the presence of and search for meaning in life (Steger et al., 2006). A significant negative correlation between these two dimensions was found, indicating that the search for meaning in life increased as the reported presence of meaning decreased, consistent with some of the previous research conducted in American (e.g., Steger et al., 2008a) and Turkish samples (e.g., Boyraz et al., 2013; Yarar, 2015). The finding can be explained by the fact that middle-aged women have various ways of making their lives meaningful (e.g., careers and marital satisfaction) and when

such factors are taken into account, the need to search for meaning would be less likely. It is known that receiving a cancer diagnosis often prompts people to reevaluate the meaning of life and they review the past, present, and future of their lives and revise their view of life (Aldwin & Levenson, 2001). Another explanation for this finding could be that cancer patients may focus on completing their half-finished work or short-term goals and may refrain from setting new, long-term goals, considering their life expectancy.

Some earlier findings have provided relatively strong evidence that people experience different dimensions of meaning in life at different ages. For example, Steger and colleagues (2009) found that individuals in later life stages generally reported a greater presence of meaning in their lives, whereas those in earlier life stages reported higher levels of searching for meaning. Similarly, Reker (2005) examined the factor structure of the Personal Meaning Index across samples of young, middle-aged, and older adults and found that personal meaning increases with age. In accordance with these studies, the findings also revealed that the presence of meaning increases with age across middle adulthood (although it only included middle-aged women), whereas the search for meaning decreases with age. Developmental theorists, such as Erikson (1968) suggested that young people use significant resources to discover what they like to do and with whom they want to become intimate, which may lead younger adults to search for life's meaning. However, as people move towards the end of middle adulthood, they may have found more meaning in their lives because of the goals and aims that they have achieved in their lives. In terms of income level, Scheffold and colleagues (2014) reported that one of the most important sources of meaning was 'feeling financially secure'. The findings also indicated that although individuals experienced more meaning in their lives as their perceived income level increased, there is no correlation between the search for meaning and perceived income level. It can be inferred that feeling financially secure may help cancer patients cope with the burden that the disease brings and regulate this process more easily, or financial security might help to keep the presence of meaning in life.

In contrast to previous research reporting that time since diagnosis does not have any influence on meaning in life (Jim & Andersen, 2007), the results indicated that patients who were more proximal to their diagnosis reported a higher search for meaning and lower presence of meaning than those who had known about their diagnosis for longer. The finding is consistent with Landmark and Wahl's (2002) findings which revealed

that existential issues arose as an important aspect of living with newly diagnosed breast cancer. It seems that patients who have been recently diagnosed may set new goals that can be achieved in the short term. In addition, changing roles and life purposes due to their diagnoses may lead them to search for meaning in their lives. Furthermore, ambiguity after the diagnosis may also explain our findings. With regard to these findings, supplementary analysis was conducted and it was found that patients who were within the first year of diagnosis reported more distress and lower well-being than other patients (i.e., diagnosed one year or more).

The findings indicated that perceived social support predicted both dimensions of meaning in life but in different directions. It was found that when the level of perceived social support from family members increases, women experience more meaning in life, contrary to the search for meaning. These findings are consistent with previous studies, which found that social support was the most significant correlate of global meaning (Jadidi & Ameri, 2022; Lethborg et al., 2007). It seems that social support has an important influence on how these women interpret this highly stressful life event and what they feel about their existence in life. The findings are noteworthy but may be, to some extent, interpreted in terms of culture. Considering the family dynamics and atmosphere in Turkey, a culture that emphasizes interdependence and closeness among family members (Kagitcibasi, 2005), it may be that Turkish middle-aged women generally have greater expectations from their spouses, children, and extended family members because of their critical role in the family.

Jim and Anderson (2007) explored meaning in life as a possible mechanism for the relationship between social/physical functioning and heightened distress among cancer survivors. Researchers found that the relationship between social functioning and distress was fully mediated by meaning in life, whereas the relationship between physical functioning and distress was partially mediated. In line with these findings, it was found that the presence of (not search for) meaning in life partially mediated the relationship between self-esteem and psychological adjustment. In other words, women with high self-esteem reported more presence of meaning, which in turn leads to lower distress and greater well-being. The findings are in line with previous studies indicating that having high self-esteem can arouse a sense of life significance and purpose, which in turn leads to lower distress and greater well-being among chronic pain (Dezutter et al., 2015), and breast cancer patients (Heijer et al., 2011). So, it can be proposed that how

these women respond and adapt to this life-threatening condition is to a certain extent related to the increased sense of purpose in their lives.

There are some controversial ideas concerning the function of the search for meaning. One of the perspectives stated the search for meaning is a natural and healthy part of life (e.g., Frankl, 1963). Some other scholars (e.g., Baumeister, 1991) regarded this aspect of meaning in life as a dysfunctional process. In this respect, Baumeister (1991) assumed that searching only occurs when an individual's need for meaning has been frustrated. Although the sources of meaning in life are similar for both dimensions, the findings indicated that the search for meaning is not significantly related to psychological distress and psychological well-being. In terms of this dimension, some empirical research also suggests that the search for meaning is related to life satisfaction and a lack of well-being among people who also feel life is highly meaningful (e.g., Steger et al., 2011). There is considerable evidence that age, gender and sample characteristics (healthy or clinical) have been reliably linked to various dimensions of meaning in life (e.g., Reker, 2005; Steger et al., 2009; Yeniceri, 2013). Therefore, the results of this study would be strengthened if future research designed longitudinally would yield similar results across more diverse and representative samples.

This study has several limitations. Firstly, the cross-sectional nature of the data is an important limitation for the direction of relationships among study variables. Second, only self-reporting measures were used, so this may be an issue, especially in terms of psychological distress. Third, future research will benefit from large-sample models including both middle-aged women and men representing healthy and clinical samples from diverse cancer types. Despite these limitations, the strengths of this study lie in the fact that the data was obtained from a relatively under-studied population (in Turkey), and meaning in life was examined with a broad range of sociodemographic and medical characteristics in a very specific sample, consisting only of middle-aged women diagnosed with breast cancer. Since the poor reliability of self-reported disease-related variables such as cancer stage or time since diagnosis among cancer patients has been well documented, medical data was obtained from the primary oncologist of the patients in the present study.

In conclusion, the present study revealed that high self-esteem was associated with improved psychological adjustment, and this association appears to be accounted for, in

part, by the presence of meaning in patients' lives. In other words, if cancer patients believe that their existence is meaningful and life is comprehensible as well as manageable, then their distress may be reduced and their well-being increased. In view of the findings, it may be proposed that how these women respond and adapt to this life-threatening condition is to a certain extent related to the increased sense of the presence of meaning in their lives. In this regard, health psychologists may target meaning-making coping strategies that are especially helpful in times of chronic stress throughout the cancer trajectory. Therefore, the findings might have some important implications for early intervention solely focusing on this sensitive and critical period, and for psychosocial support programs targeting this stressful experience.

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