

## SYSTEMATIC REVIEW / SİSTEMATİK DERLEME

**Correlates of Self-Transcendence in Cancer Patients: A Systematic Review**Özkan UĞUZ <sup>1</sup>, Ebru GÜLCAN <sup>2</sup>, Simay YENİGÜN <sup>3</sup><sup>1</sup> Başakşehir Çam ve Sakura City Hospital, Liver Transplantation Service, İstanbul, Türkiye. **ORCID:** 0000-0002-9410-9511<sup>2</sup> Acıbadem Kent Hospital, Organ Transplant Service, İzmir, Türkiye. **ORCID:** 0009-0009-4361-4794<sup>3</sup> Acıbadem Kent Hospital, Organ Transplant Service, İzmir, Türkiye. **ORCID:** 0009-0009-4331-4556**ABSTRACT****Objective:** The aim of this systematic review is to analyse studies investigating factors associated with self-transcendence in cancer patients.**Material and Method:** The study was conducted by electronically searching EBSCOhost, Web of Science, PubMed, Scopus and Wiley Online Library databases, limiting the date range beginning until December 2023, and keywords "neoplasm", "cancer", "tumour", "carcinoma", "self-transcendence", "correlation", "factors", "predictive", "relationship", "association" and "determinant" to identify eligible studies reporting correlations.**Results:** This systematic review included eight articles involving 1013 patients who met the inclusion criteria. All the studies had a descriptive design. The "Self-Transcendence Scale (STS)" and "Temperament and Character Inventory Revised-Self-Transcendence (TCI-R-ST)" data-collection tools were used in these studies. The results showed that self-transcendence was positively correlated with optimism, social support, problem-focused coping, emotional well-being, quality of life, power, spiritual well-being, cognitive avoidance, fighting spirit, fatalism, and resilience among cancer patients. On the other hand, a negative correlation was found between uncertainty, pain frequency, pain severity, insomnia, fatigue, concentration, appearance, outlook, helplessness-hopelessness, anxious preoccupation, and self-transcendence. Finally, there was a correlation between cancer stage and self-transcendence.**Conclusion:** Health-related, disease-related, and psychosocial variables are associated with self-transcendence in patients with cancer. Our research suggests that these insights could be used to inform the development of health promotion and prevention strategies by oncology nurses for patients with cancer.**Keywords:** Cancer, self-transcendence, correlation, systematic review.**Kanser Hastalarında Öz Aşkınlığın Korelasyonları: Bir Sistematik Derleme****ÖZET****Amaç:** Bu sistematik derlemenin amacı, kanser hastalarında öz-aşkınlık ile ilişkili faktörleri araştıran çalışmalarını analiz etmektir.**Gereç ve Yöntem:** Çalışma, EBSCOhost, Web of Science, PubMed, Scopus ve Wiley Online Library veri tabanlarında, Aralık 2023'e kadar olan tarih aralığı sınırlandırılarak ve "neoplazm", "kanser", "tümör", "karsinom", "öz aşkınlık", "korelasyon", "faktörler", "öngörücü", "ilişki", "birliktelik" ve "belirleyici" anahtar kelimeleri ile elektronik olarak arama yapılarak gerçekleştirilmiştir.**Bulgular:** Bu sistematik incelemeye, dahil edilme kriterlerini karşılayan 1013 hastayı içeren sekiz makale dahil edilmiştir. Tüm çalışmalar tanımlayıcı bir tasarıma sahiptir. Bu çalışmalarda "Öz Aşkınlık Ölçeği (STS)" ve "Mizaç ve Karakter Envanteri Gözden Geçirilmiş-Öz Aşkınlık (TCI-R-ST)" veri toplama araçları kullanılmıştır. Sonuçlar, öz aşkınlığın kanser hastalarında iyimserlik, sosyal destek, sorun odaklı başa çıkma, duygusal iyi olma hali, yaşam kalitesi, güç, manevi iyi olma hali, bilişsel kaçınma, mücadele ruhu, kadercilik ve dayanıklılık ile pozitif yönde ilişkili olduğunu göstermiştir. Öte yandan, belirsizlik, ağrı sıklığı, ağrı şiddeti, uykusuzluk, yorgunluk, konsantrasyon, dış görünüş, çaresizlik-umutsuzluk, endişeli meşguliyet ile öz aşkınlık arasında negatif bir korelasyon bulunmuştur. Son olarak, kanser evresi ile öz aşkınlık arasında bir korelasyon bulunmuştur.**Sonuç:** Sağlığa ilişkin, hastalığa ilişkin ve psikososyal değişkenler kanserli hastalarda öz aşkınlık ile ilişkilidir. Araştırmamız, bu bulguların onkoloji hemşireleri tarafından kanserli hastalara yönelik sağlığı geliştirme ve önleme stratejilerinin geliştirilmesinde kullanılabileceğini göstermektedir.**Anahtar Kelimeler:** Kanser, öz aşkınlık, korelasyon, sistematik derleme.**1. Introduction**

Cancer is a prevalent health issue that is characterized by a range of symptoms and necessitates long-term treatment and care (1). It poses a significant threat to global health and serves as a major impediment to increasing life expectancy (2). In 2020, the Global Cancer Observatory (GLOBOCAN) reported that 19.3 million cancer cases were diagnosed

worldwide, with this number expected to rise to 21.6 million by 2030 (3,4). The World Health Organization (WHO) estimates that approximately 10 million lives were lost to cancer in 2020 (5). In Turkey, cancer is the second leading cause of death, according to the death and cause of death statistics of the Turkish Statistical Institute (TSI) for 2022 (6).

**Corresponding Author:** Özkan UĞUZ, Acıbadem Kent Hospital, Organ Transplantation Service, Ataşehir, 8229/1 Sokak No:56 35630, Cigli, İzmir, Türkiye  
**E-mail:** ozknugz1@gmail.com **ORCID:** 0000-0002-9410-9511

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The diagnosis of a malignant disease is undoubtedly one of the most trying times in an individual's life. This critical moment not only presents biological challenges but also has profound psychological effects (7). Cancer is not merely a physical affliction that requires intricate and multidisciplinary treatment; it is also deeply intertwined with emotional, spiritual, and interpersonal dimensions.

Thus, in addition to the patient's struggle with the disease itself, it is equally important for the patient to strive for emotional balance and maintain spiritual strength (8-10). Consequently, the need to seek well-being beyond one's current vulnerable state is believed to be greater in cancer patients than in other populations. Achieving well-being may be possible through self-transcendence (ST), which involves altering one's inner life and perspective.

The ST theory proposed by Reed is based on the hemodynamic principle, and aims to explain an individual's ability to overcome current conditions (10,11). This ability, also known as "the ability to expand boundaries in various dimensions," allows individuals to maintain a sense of well-being and integrity when faced with challenging life events (11,12). The importance of ST in patients with cancer lies in its potential to provide insight into how they find meaning, purpose, and connection beyond their current health problems. This understanding is of great importance for the success of treatment processes and the overall well-being and quality of life of patients with cancer (13). Recent studies have emphasized the positive impact of ST on various aspects of cancer patients' experiences. For example, in patients with cancer, ST is linked to improved mental well-being and serves as a protective factor against demoralization and loss of dignity (14). Similarly, studies on colon and/or rectal cancer (CRC) patients have shown that self-compassion can predict both adaptive and maladaptive coping strategies, especially in young patients, and reveal its role in disease management (15), which has been identified in the literature as a key element that helps cancer patients adapt to physical and mental changes, as well as environmental stressors (16,17). ST is not only a significant concept in the experiences of cancer patients but also plays a crucial role in the well-being and professional competence of nurses working with them. Oncology nurses are particularly vulnerable to compassion fatigue and burnout because of their prolonged exposure to patient suffering, death, and grieving family members (18,19). The literature indicates that oncology nurses who demonstrate higher levels of ST exhibit an increased capacity to overcome negative emotions, enhanced commitment to work, improved participation, and a greater ability to provide quality care (20,21). This underscores the significance of ST not only for patients, but also for oncology nurses who provide direct and indirect care to patients.

Existing research on the correlates of ST in cancer patients is limited in terms of the ability to provide a clear definition of these correlates. Although many studies have investigated this topic, a comprehensive and systematic review has not yet been conducted. To address this gap in the literature, we conducted the first systematic review to identify the correlates of ST in cancer patients. Our findings will contribute to a better understanding of how ST can play a supportive role in the lives of patients with cancer, considering various factors that influence their well-being, including the side effects of cancer treatment and the importance of interpersonal relationships. The results of this review will be valuable to oncology nurses in clinical practice by providing guidance for a holistic approach to support patients with cancer.

### 1.1. Purpose

The aim of this review is to examine the factors associated with ST in cancer patients in line with the literature.

## 2. Materials and Methods

### 2.1. Research Design

This study is a systematic review to determine the results of studies, including factors associated with ST in cancer patients.

### 2.2. The Databases Used in the Study

The literature review of the study was conducted in the databases "EBSCOhost, Web of Science, PubMed, Scopus, and Wiley Online

Library", including studies conducted from the beginning until December 31, 2023.

### 2.3. Inclusion Criteria

- Research article
- Only any sample of cancer patients
- A study examining the factors associated with ST
- Use of English as the language of publication
- Access to the full text

### 2.4. Exclusion Criteria

- Review studies, unpublished theses, conference abstracts, qualitative studies, randomized controlled trials, quasi-experimental studies, treatment plans, and studies
- Studies involving samples with chronic diseases other than cancer

### 2.5. Research Population and Sample

Using the keywords "neoplasm", "cancer", "tumour", "carcinoma", "self-transcendence", "correlation", "factors", "predictive", "relationship", "association", "determinant", and combinations thereof, a retrospective search of relevant publications from inception to December 31, 2023 was conducted on January 15-31, 2024. Keywords were determined according to Turkish Science Terms (TBT) in Turkish and Medical Subject Headings (MeSH) in English. The selection of databases and keywords was aimed at reaching all studies related to the subject. The study was reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) statement. As a result of the search, EBSCOhost: 36, Web of Science: 39, PubMed: 34, Scopus: 1704, Wiley: 344 for a total of 2157 publications. After analysing the titles and abstracts, 2098 irrelevant studies were eliminated, leaving 59 studies for further evaluation. Of these, 33 duplicate studies were excluded, and the full texts of 26 studies were assessed based on specific inclusion and exclusion criteria. During the full-text screening, three studies with a sample age below 18 years, nine studies with different methods (four randomized controlled trials, two experimental, two reviews, one qualitative), one study that did not report a relationship, one unpublished thesis, one study in a different language (Spanish), and three studies conducted with different samples (patient relatives and patients diagnosed with stroke) were excluded within the exclusion criteria. As a result, eight studies for which the full text was available constituted the sample of the systematic review (Figure 1).

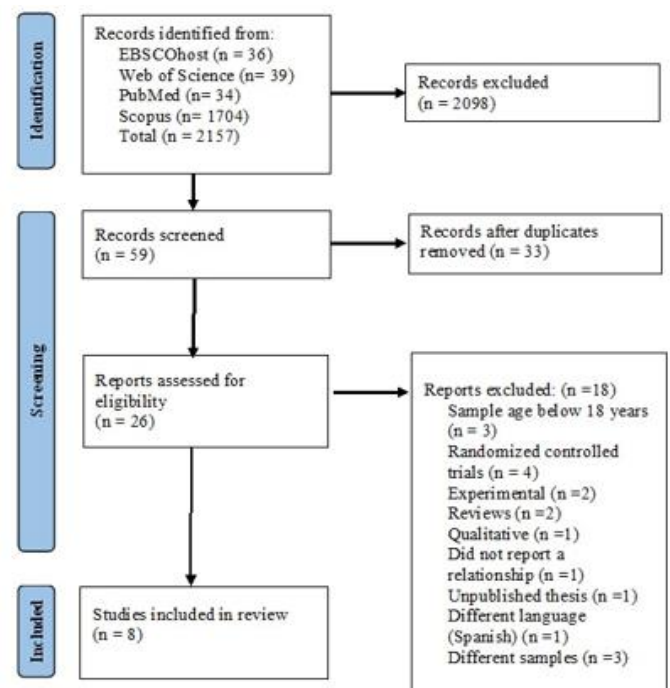


Figure 1. Flow chart of the study

## 2.6. Evaluation of Data

The databases were thoroughly searched using appropriate subject headings and pertinent keywords, and a standard data summarization form developed for data analysis was utilized. This form comprised the author's name, publication year, country, sample size, study design, cancer type, ST evaluation tool, and correlations. The data was screened for suitability by two separate investigators based on the predetermined inclusion criteria.

## 2.7. Limitations of the Study

The limitation of the study is that studies published outside the English language were not included.

## 2.8. Ethical Aspect of the Research

This study is a systematic review and the sources utilized are based on the results obtained from studies published in the literature. Therefore, it was not necessary to obtain permission from the authors or their legal representatives and ethics committee approval.

## 3. Results

### 3.1. Characteristics of the Studies

In this systematic review, we found eight articles published between 2009 and 2023 that met the inclusion criteria. The total sample size was 1013, and all studies were cross-sectional. The sample sizes of all included studies ranged from 87 to 220, and the diagnoses of the participants were mostly breast cancer (22-27). Other diagnoses were colorectal cancer (14) and lung cancer (15). The location of the studies revealed that two were conducted in the Mid-Atlantic region (22, 25), two in the United States (23, 24), and one each in the Philippines (26), Turkey (27), South Korea (14), and Italy (15). In most of the included studies (87.5%), the Self-Transcendence Scale (STS) (14, 22-27) was used as a measure of ST, and in one study, the Temperament and Character Inventory-Revised Self-Transcendence subscale (TCI-R-ST) (15) was used. The characteristics of the eight evaluated studies are presented in Table 1.

### 3.2. Results Obtained

When the studies included in the systematic review were examined (Table 2), the variables found to be related to ST were categorized under three main headings: psychosocial, physical health-related, and disease-related variables.

**Table 2.** Grouping of variables

Groups	Variables	
Psychosocial	Emotional well-being	Cognitive avoidance
	Quality of life	Fighting Spirit
	Uncertainty	Fatalism
	Social Support	Helplessness/Hopelessness
	Spiritual well-being	Anxious preoccupation
	Concentration	Resilience
	Appearance	Optimism
	Problem-focused coping	Power
	Outlook	
Health-related	Pain frequency	Insomnia
	Pain severity	Fatigue
Disease-related	Cancer stage	

### 3.2.1. Self-Transcendence and Psychosocial Variables

In a study conducted by Matthews and Cook (22), the relationship between optimism, emotional well-being, problem-focused coping, social support variables, and ST among women undergoing breast cancer treatment was examined.

The researchers reported positive correlations between optimism ( $r=0.360$ ,  $p<0.001$ ), emotional well-being ( $r=0.470$ ,  $p<0.001$ ), problem-focused coping ( $r=0.400$ ,  $p<0.001$ ), social support ( $r=0.460$ ,  $p<0.001$ ) and ST.

Farren (23) conducted a similar study of breast cancer survivors and investigated the relationships between power, uncertainty, quality of life, and ST. Positive and significant correlations were found between quality of life ( $r=0.604$ ,  $p=0.001$ ) and power ( $r=0.496$ ,  $p=0.001$ ) and ST, while a negative and significant correlation was reported between uncertainty and ST ( $r=-0.333$ ,  $p=0.001$ ).

Thomas et al. (24) investigated the relationship between ST and spiritual well-being among breast cancer patients and found a positive relationship ( $r=0.590$ ,  $p<0.000$ ).

Matthews et al. (25) categorized symptoms experienced by women with breast cancer during radiotherapy and examined the significant correlations between these symptoms and ST. Analyses revealed statistically significant negative correlations between cognitive symptoms such as concentration, appearance and outlook and ST ( $r=-0.270$ ,  $p<0.01$ ).

Soriano and Calong (26) investigated the relationship between ST and spiritual well-being among breast cancer patients and found a positive relationship ( $r=0.480$ ,  $p=0.000$ ).

In a study by Er et al. (27) in which the effect of psychosocial distress and ST on resilience in individuals undergoing cancer treatment was examined, the slope coefficient was found to be statistically significant ( $p<0.05$ ). Accordingly, a one-unit increase in ST level resulted in a 1.293-unit increase in resilience.

Kang and Son (14) conducted a study to examine the differences in psychosocial/spiritual factors and coping mechanisms, as well as the factors that influence coping among colorectal cancer patients in different age groups (young and old). The study found that there were positive correlations between adaptive coping strategies such as cognitive avoidance ( $r=0.580$ ,  $p<0.001$ ), fighting spirit ( $r=0.540$ ,  $p<0.001$ ), and fatalism ( $r=0.531$ ,  $p<0.001$ ), with ST in patients under the age of 65. In the same study, it was found that there were negative correlations between ST and maladaptive coping strategies such as helplessness/hopelessness ( $r=-0.435$ ,  $p<0.001$ ) and anxious preoccupation ( $r=-0.433$ ,  $p<0.001$ ) in patients aged 65 years or older.

Bovero et al. (15) examined this relationship among terminal patients. According to the results of this study, a positive relationship was found between ST and spiritual well-being ( $r=0.483$ ,  $p<0.01$ ).

### 3.2.2. Self-Transcendence and Physical Health-Related Variables

Matthews et al. (20) demonstrated a statistically significant negative correlation between physical symptoms, such as pain frequency, pain intensity, insomnia, fatigue, and ST ( $r=-0.250$ ,  $p<0.05$ ).

### 3.2.3. Self-Transcendence and Disease-Related Variable

In the research conducted by Er et al. (27), it was discovered that the progression of illness had an impact on the scores achieved in the ST test. The findings of the study revealed that individuals with Stage II breast cancer had significantly higher ST scores compared to those with Stage III cancer ( $F=3.861$ ,  $p=0.012$ ).

## 4. Discussion

This systematic review aimed to examine the variables affecting ST levels in patients with cancer. In this context, five different databases were searched by the authors, and eight research articles that met the review criteria were included in the review process. The reviewed studies were categorized into psychosocial variables (e.g., spiritual well-being, quality of life, coping styles, etc.), physical health-related variables (e.g., pain, sleep, etc.), and disease-related variables.



**Table 1.** Characteristics of the included studies

Author/	Country	Sample size	Cancer type	Study design	Self-transcendence identification	Correlates
Matthews and Cook (22)	Mid-Atlantic Region	93	Breast	Cross-sectional	The STS	(1), (2), (3), (4)
Farren (23)	US	104	Breast	Cross-sectional	The STS	(5), (6), (7)
Thomas et al. (24)	US	87	Breast	Cross-sectional	The STS	(8)
Matthews et al. (25)	Mid-Atlantic Region	93	Breast	Cross-sectional	The STS	(9), (10), (11), (12), (13), (14), (15)
Soriano and Calong (26)	Philippines	170	Breast	Cross-sectional	The STS	(8)
Er et al. (27)	Turkey	105	Breast (mostly)	Cross-sectional	The STS	(21), (22)
Kang and Son (14)	Korea	220	Colorectal	Cross-sectional	The STS	(16), (17), (18), (19), (20)
Bovero et al. (15)	Italy	141	Lung (mostly)	Cross-sectional	The TCI-R-ST	(8)

Self-transcendence identification: STS the Self-Transcendence Scale, TCI-R-ST the Temperament and Character Inventory Revised-Self-Transcendence.

Correlates: 1. optimism; 2. social support; 3. problem-focused coping; 4. emotional well-being; 5. quality of life; 6. power; 7. uncertainty; 8. spiritual well-being; 9. pain frequency; 10. pain severity; 11. insomnia; 12. fatigue; 13. concentration; 14. appearance; 15. outlook; 16. cognitive avoidance; 17. fighting spirit; 18. fatalism; 19. helplessness-hopelessness; 20. anxious preoccupation; 21. cancer stage; 22. resilience.

Matthews and Cook (22), one of the studies included in the systematic review, reported positive relationships between ST, emotional well-being and optimism in breast cancer patients. Mazanec et al. (28) suggested that optimists have difficulties when faced with a life-threatening stressor such as cancer because their expectations in the treatment process are often not met, and typically, their active coping styles become ineffective due to their lack of control over the situation. Optimistic individuals can cope with difficult and unchanging situations and transform these difficulties into human success or enlightenment thanks to their positive future expectations. With this process, they tend to experience an increase in their level of emotional well-being (11). Although we did not find a direct relationship between optimism and ST in the literature, Covard (29) reported a positive relationship between emotional well-being and ST in his study of breast cancer patients. They concluded that emotional well-being may increase an individual's capacity for ST, which may have positive effects on social relationships, search for meaning, and personal development. In the same research, Matthews et al. (22) found a positive relationship between social support and problem-focused coping strategies.

Accordingly, memes with higher levels of social support and problem-focused coping skills were found to have a positive relationship with social support and problem-focused coping strategies. Accordingly, it has been reported that breast cancer patients with higher levels of social support and problem-focused coping skills have higher levels of ST. In another study included in the review, Kang and Son (14) found a positive relationship between adaptive coping styles of cognitive avoidance, fighting spirit, fatalism, and ST and a negative relationship between maladaptive coping styles of helplessness-hopelessness and anxious preoccupation and ST in patients diagnosed with colorectal cancer. This study also showed that young participants with low ST use less adaptive and maladaptive coping strategies. These findings are consistent with previous studies showing a weak association between negative coping strategies and ST (30). Social support and stress coping are two factors that support emotional well-being. Previous studies have stated that emotional well-being forms the basis for overcoming one's limitations and strengthening ST efforts. This may increase an individual's ability to cope with daily challenges, which may positively affect their capacity for ST. In conclusion, emotional well-being, optimism, social support, and stress-coping mechanisms are important factors affecting the ST process.

A study included in the systematic review conducted by Farren (23) found a positive correlation between ST and quality of life. Essentially, higher levels of ST are associated with better quality of life. Several

studies have reported that ST enhances quality of life by reducing anxiety and hopelessness in individuals and increasing adaptation to the disease (31,32). Furthermore, many studies (33,34) have emphasized the significance of improving patients' self-love in terms of their physical and mental health and quality of life. An additional finding by Farren (23) indicates a positive correlation between power and ST, as well as a negative correlation between uncertainty and ST. These results suggest that ST may increase when individuals possess greater power, whereas ST may decrease in the presence of uncertainty. Theoretical statements and research examining survivors' experiences provide evidence for the significance of power and uncertainty in relation to ST (29,35). Therefore, it is essential to explore how these factors can enhance the ST of cancer patients both theoretically and practically.

In the evaluated studies, the relationship between spiritual well-being and ST was mainly investigated (15,24,27). According to Reed's social theory, the concept of spiritual well-being includes elements such as the individual's search for personal and psychological meaning, self-efficacy, and meaningfulness (36). In this context, understanding the function of spiritual well-being in ST is vital to better understanding patients' efforts to overcome their own limitations and cope effectively with the process (37). Thomas et al. (24) observed a significant relationship between spiritual well-being and ST in US patients diagnosed with breast cancer. Similarly, Bovero et al. (15), Soriano and Calong (26) supported this relationship in their studies of Filipino and Italian cancer patients, respectively. This finding was corroborated by Landis (38), who observed that individuals exhibiting high levels of ST and spiritual well-being perceived life challenges, such as experiencing a disease like cancer, as obstacles to be surmounted and as opportunities to derive meaning from their circumstances. Matthews et al. (25) examined the clustering of symptoms occurring during radiotherapy in breast cancer patients and reported their correlation with ST. Using confirmatory factor analysis, the researchers identified three different symptom clusters: physical discomfort (pain frequency, pain severity, insomnia fatigue), cognitive discomfort (concentration, outlook) and gastrointestinal discomfort (nausea frequency, nausea severity, bowel, appetite). In this study, pain-insomnia-fatigue and cognitive disturbance-appearance clusters were inversely related to ST scores. This suggests that individuals with higher ST levels experience lower levels of symptoms such as pain, insomnia, fatigue and cognitive disturbances during radiotherapy. These findings provide important guidance for developing effective interventions to address the distress experienced by individuals undergoing treatment. It also provides a useful framework for evaluating ST-focused interventions to assess and manage symptoms experienced by patients during treatment processes.

In the last study included in the review, Er et al. (27) demonstrated a positive association between ST and resilience in a sample mostly comprised of breast cancer patients. Resilience refers to an individual's ability to positively adapt, persevere, and maintain psychological and physical well-being despite adverse circumstances (39). The capacity to adapt positively to life-threatening diseases, such as cancer, may be an indicator of psychological resilience (40). Thus, resilience may help cancer patients discover the meaning of life and continue with their lives. ST is a positive outcome associated with psychological resilience (39), and thus, individuals with high levels of resilience are expected to have high levels of ST. Another finding from the study by Er et al. (27) is that there is a relationship between the cancer stage and the level of ST. The results of the study showed that patients with stage II cancer had a higher level of ST than those with stage III cancer. This likely reflects the capacity of patients at this stage to cope more effectively, adapt, and utilize their internal power resources.

## 5. Conclusion and Recommendations

This systematic review aimed to identify factors associated with ST in patients with cancer. The findings revealed that health-related, disease-related, and psychosocial variables are associated with ST in patients with cancer. Healthcare providers and researchers are recommended to develop targeted interventions to increase positive factors while addressing and reducing negative factors to support patients with ST. This will help strengthen the evidence base and potentially uncover additional factors that influence ST in cancer patients.

## 6. Contribution to the Field

In our country, there are no studies investigating the factors associated with ST in cancer patients. Due to the limited studies on this subject, studies with a large sample group are needed to determine the factors associated with ST in cancer patients and to reveal the factors affecting the level of ST in cancer patients. In this study, research articles in the international literature were reviewed to examine the variables associated with ST in cancer patients. This systematic review serves as a guiding article by elucidating the factors influencing ST levels in cancer patients. In this context, a comprehensive assessment of patients' spiritual beliefs and practices, support systems and social connections, coping mechanisms and resilience, personal goals and values, life experiences and meaning-making processes, emotional well-being and psychological state, physical symptoms and their impact on quality of life, readiness for change, and personal development is of paramount importance. Furthermore, revealing and encouraging attitudes towards sense of purpose and life satisfaction, ability to find meaning in the disease experience, sources of hope and inspiration, level of self-awareness and introspection, attitudes towards mortality and end-of-life concerns, capacity for forgiveness and reconciliation, personal strengths, and perspectives on new experiences will enable healthcare professionals, particularly oncology nurses, to provide more specialized, effective support and conduct holistic assessments.

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## Conflict of Interest

There is no conflict of interest regarding any person and/ or institution.

## Authorship Contribution

Concept: ÖU, EG, SY; Design: ÖÜ; Supervision: ÖÜ, EG; Funding: -; Materials:-; Data Collection/ Processing: ÖÜ, SY; Analysis/Interpretation: ÖÜ, EG; Literature Review: ÖÜ, EG, SY; Manuscript Writing: ÖÜ; Critical Review: ÖÜ, EG, SY.

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