

# An Examination of the Relationship Between Spirituality and Life Satisfaction Among Patients Awaiting Corneal Transplantation in Türkiye

## Abstract

**Background:** Transplant surgery significantly influences patients' spirituality and life satisfaction, reflecting the diverse beliefs and cultures of those awaiting the procedure.

**Aim:** This study aimed to explore the relationship between spirituality and life satisfaction in patients awaiting corneal transplantation.

**Methods:** This relational descriptive study involved 101 patients on the waiting list for corneal transplantation. Data were collected using a Patient Information Form, the Life Satisfaction Scale, and the Spirituality Scale. Percentage distribution, arithmetic mean, and Pearson correlation analysis were employed for data analysis.

**Results:** The majority of the participants were married (95%), with 56.4% being male and 26.7% retired. About 46.5% had completed primary education. The mean Life Satisfaction Scale score among the patients was  $21.83 \pm 8.96$ , and the mean Spirituality Scale Score was  $20.49 \pm 4.15$  before corneal transplantation. A positive, albeit weak, relationship was found between the patients' life satisfaction and spirituality levels, which was statistically significant ( $p < 0.01$ ,  $r=0.37$ ). Additionally, a weakly positive and significant correlation was noted between age and life satisfaction ( $p < 0.05$ ,  $r=0.19$ ).

**Conclusion:** The study found that patients exhibited high levels of life satisfaction and spirituality, with life satisfaction increasing alongside spirituality. It was therefore concluded that care should be provided to patients with a psychosocial and emotional approach, aiming to meet their spiritual needs and enhance their life satisfaction prior to corneal transplantation.

**Keywords:** Cornea transplant, life satisfaction, spirituality

Mehmet Ali Şen<sup>1</sup>, Hasan Genç<sup>2</sup>,  
Seher Tanrıverdi<sup>3</sup>

<sup>1</sup>Department of Public Health, Dicle University Atatürk Vocational School of Health Services, Diyarbakır, Türkiye

<sup>2</sup>Department of Nursing, Dicle University Atatürk

Faculty of Health, Diyarbakır, Türkiye

<sup>3</sup>Department of Nursing, Mardin Artuklu University Faculty of Health, Mardin, Türkiye

## Introduction

Corneal scarring represents a significant public health issue and is the leading cause of blindness worldwide.<sup>1</sup> Today, corneal transplantation, also known as keratoplasty, is one of the most frequently performed transplant operations globally. Despite these efforts, corneal blindness still affects 4.2 million people, ranking as the fourth leading cause of blindness.<sup>2</sup> A recent report by the World Health Organization (WHO) highlighted that cornea-related blindness or moderate to severe visual impairment affects 6 million people worldwide, including 2 million cases related to trachoma.<sup>3,4</sup> Moreover, the scarcity of grafts remains a critical issue.<sup>2</sup>

To facilitate the delivery of organs and tissues from cadaveric donors to transplantation centers and suitable patients in Türkiye, the National Organ and Tissue Transplantation Coordination Center was established in 2001 under the Ministry of Health. Across various provinces in Türkiye, there are 650 Eye Banks providing corneal transplant services to those in need. When examining the latest data in Türkiye, 38,209 patients have received corneal transplants, while 32,698 patients are still waiting for corneal transplantation as of this writing.<sup>5</sup>

Transplantation can significantly improve the quality of life for patients by removing many limitations associated with their conditions. However, once a transplantation decision is made due to tissue and organ issues, patients enter a waiting period. This waiting time can exacerbate feelings of anxiety, depression, fear, and anger, leading to competition among those awaiting transplantation.<sup>6-8</sup> Psychological issues, such as anxiety and fear, often surface in patients before surgery due to the risks associated with surgical

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Corresponding author: Hasan Genç  
E-mail: hasangenc4721@hotmail.com

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interventions. Literature indicates a negative correlation between preoperative spirituality and levels of anxiety and fear, suggesting that spiritual care interventions effectively mitigate these feelings of anxiety and depression.<sup>9-12</sup>

Corneal transplantation is a life-changing procedure that can restore sight to individuals who have lost it due to disease or injury. However, the period leading up to corneal transplantation can be very difficult and stressful for patients. During this time, nurses play an important role in assessing and addressing the physical and spiritual needs of the patients. By listening to patients' concerns and fears, nurses facilitate the expression of feelings and help patients access resources to meet their spiritual needs. Support from nurses before corneal transplantation includes guidance on preparing for surgery, understanding post-operative recovery, and managing the emotional impact of vision loss. It is believed that assisting corneal transplant patients in coping with their problems and providing necessary care during the pre-transplant period can enhance their spirituality and life satisfaction.<sup>13,14</sup>

The sense of spirituality in individuals positively affects life satisfaction, with studies in literature demonstrating a relationship between these two aspects. It has been noted that patients with a well-developed sense of spirituality are healthier across multiple dimensions, including physical, social, and emotional well-being. Individuals with a strong spiritual foundation view life more optimistically, exhibit lower levels of depressive attitudes, cope better with stress, and enjoy higher levels of life satisfaction and quality of life.<sup>15,16</sup> However, research exploring the connection between spirituality and life satisfaction specifically in the context of corneal transplantation is limited. Consequently, this study aimed to examine the levels of spirituality and life satisfaction and their interrelation to inform nursing care in corneal transplantation and offer new insights for nursing interventions during the transplantation process. Our literature review revealed no similar studies focused on corneal transplant patients, and the findings of this research are intended to illuminate future studies in this area.

### Research Questions

1. What factors influence the level of spirituality prior to corneal transplant surgery?
2. What factors influence the level of life satisfaction prior to corneal transplant surgery?
3. Is there a relationship between spirituality and life satisfaction before corneal transplant surgery?

## Materials and Methods

### Study Design and Sample

The research's design was a relational descriptive study. This study was conducted at the Eye Bank unit of Mardin Artuklu University Hospital. The study population comprised 101 patients registered on the waiting list for transplantation and awaiting corneal transplantation after being evaluated by the Cornea Unit. Utilizing a non-probability sampling technique, the entire population was included in the study, which was completed with 101 patients. At the study's conclusion, the G\*Power software version 3.1 was used to calculate the study's power. With an effect size of 0.37,  $p=0.05$ , and a sample size of 101, the correlation test revealed that the power of the study was 0.97. These values indicate that the sample size was sufficient.<sup>17</sup>

Inclusion criteria for the study included being over the age of 18, applicable to both genders, capable of communication, volunteering to participate in the study, having no orientation issues with person, place, and time. In addition, individuals admitted to the hospital during the study period were included. Exclusion criteria for the study were having any neurological (e.g., dementia, Alzheimer's disease) or psychiatric (e.g. schizophrenia) diagnosis that affects the patient's cognitive status.

## Data Collection Tools

### Patient Information Form

The patient information form contains ten questions covering the patient's characteristics (age, gender, education level, etc.).

### Life Satisfaction Scale

The Life Satisfaction Scale (LSS), developed by Diener et al. in 1985, comprises five items that measure life satisfaction. Scores from each question range from 1 to 7, with the total score varying between 5 and 35. Higher scores indicate greater life satisfaction. The Turkish validity and reliability of the scale were established by Köker and Yetim.<sup>18</sup> The Cronbach's alpha coefficient for the scale was found to be 0.90 in this study.

### Spirituality Scale

The Spirituality Scale (SS) was developed by Demirci in 2017 to assess spirituality. This scale comprises six items within a single sub-dimension and utilizes a 5-point Likert-type format. The total score varies between a minimum of 6 and a maximum of 30. Exploratory factor analysis revealed item load values between 0.68 and 0.86. The Cronbach's alpha internal consistency reliability coefficient was calculated to be 0.88.<sup>19</sup> In this study, the Cronbach's alpha coefficient of the scale was found to be 0.96

### Data Collection

Data were collected through face-to-face interviews with patients attending the eye clinic for corneal transplantation from September to December 2022. Completing the survey and forms took approximately 15 minutes.

### Data Analysis

The data obtained from the questionnaires and scales were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25.0 (IBM Corp., Armonk, N.Y., USA) for Windows. Numbers, percentages, and means were utilized to describe the statistical distributions of patient information. The normality of the data was assessed using skewness and kurtosis values. As a result of the examinations, the data were found to have a normal distribution. For the statistical analysis of data exhibiting normal distribution, parametric tests including Pearson Correlation, Student's T-test, and One-Way Analysis of Variance (ANOVA) were conducted.

### Ethical Considerations

Before the commencement of data collection, ethics committee approval was secured from the Mardin Artuklu University Hospital Scientific Research and Publication Ethics Committee (Approval Number: 2022/66629, Date: 02.01.2020), and clinical study permission was granted by the Health Sciences University Faculty of Medicine (#38948411-900-257595). Patients who agreed to participate in the

**Table 1.** Mean Scores of the Life Satisfaction Scale and Spirituality Scale According to Some Descriptive Characteristics of the Patients (n=101)

Features	Number / Percentage		Life Satisfaction	Test and Significance	Spirituality	Test and Significance
	n	%	$\bar{X} \pm SD$		$\bar{X} \pm SD$	
Marital status						
Married	96	95	22.23 ± 8.94	t=-2.03	20.41 ± 4.14	t=.83
Single	5	5	14.00 ± 5.47	P=.04*	22.00 ± 4.47	P=.40
Gender						
Female	44	43.6	21.36 ± 8.58	t=-.45	20.22 ± 3.88	t=-.56
Male	57	56.4	21.19 ± 9.30	P=.64	20.70 ± 4.37	P=.57
Profession						
Retired	27	26.7	22.22 ± 8.58		21.85 ± 3.43	
Officer	1	1	10,00		25	
Farmer	5	5	27.00 ± 9.74		19.00 ± 5.47	
Self-employed	10	9.8	24.50 ± 8.31	F=2.33	18.50 ± 4.74	F=1.45
Not working	24	23.8	17.50 ± 9.78	P=.04*	20.62 ± 4.49	P=.18
Housewife	34	33.7	23.38 ± 7.85		20.00 ± 3.89	
Income status						
Income less than the expense	84	83.2	21.66 ± 8.82	F=.16	20.53 ± 4.18	F=.04
Income equals expense	17	16.8	22.64 ± 9.86	P=.68	20.29 ± 4.13	P=.82
Income more than the expense	0	0				
Education status						
Illiterate	8	7.9	20.00 ± 8.86		19.37 ± 4.17	
Literate	35	34.7	22.42 ± 7.98		20.71 ± 3.46	
Primary School	47	46.5	21.48 ± 9.60	F=.93	20.31 ± 4.47	F=2.94
High school	8	7.9	25.62 ± 10.50	P=.45	23.75 ± 3.53	P=.02*
University	3	3	15		15	
Operated eye						
Right	52	51.5	21.92 ± 8.91	t=.10	20.67 ± 3.96	t=.44
Left	49	48.5	21.73 ± 9.10	P=.91	20.30 ± 4.37	P=.65
Surgery history						
Yes	68	67.3	21.76 ± 8.92	t=-.10	20.88 ± 3.95	t=1.35
No	33	32.7	21.96 ± 9.18	P=.91	19.69 ± 4.49	P=.18
Reason for the transplant						
Pseudophakic Corneal edema (PCE)	31	30,7	21.93 ± 8.91		20.64 ± 3.81	
Bullous Keratopathy	16	15,8	24.37 ± 8.34		19.68 ± 3.85	
Keratoconus	3	3,0	35.00		25.00	
Dystrophy	6	5,9	25.00 ± 7.74		20.00 ± 3.16	
Herpetic keratitis	5	5,0	19.00 ± 8.94		20.00 ± 5.00	

(Continued)

Features	Number / Percentage		Life Satisfaction	Test and Significance	Spirituality	Test and Significance
	n	%	$\bar{X} \pm SD$		$\bar{X} \pm SD$	
Graft rejection	9	8,9	22.77 ± 9.39	F=1.62	20.55 ± 3.90	F=.51
Keratitis	5	5,0	17.00 ± 10.36	P=.11	20.00 ± 5.00	P=.87
Nephelion	6	5,8	21.66 ± 9.83		20.83 ± 3.76	
Puncture wound	5	5,0	14.00 ± 6.51		19.00 ± 6.51	
DMEK	12	11,9	19.58 ± 8.38		20.83 ± 5.57	
Melting (Ulcer)	3	3,0	20.00 ± 10.00		21.66 ± 2.88	
	$\bar{X} \pm SD$					
Age	62.07 ± 16.25			r=.19 P=.00**		r=.07 P=.37
Transplant waiting time (Month)	5.54 ± 3.87			r=.13 P=.16		r=.08 P=.44

X: Mean, SD: Standard Deviation, r: Correlation, F: One Way Anova, t: Student T, \*P <.05;\*\*P <.01, DMEK: Descemet Membrane Endothelial Keratoplasty

research were informed about the study's purpose, duration, and scope. Written consent was obtained from all participants, with an explanation that participation in the research was voluntary. This study was conducted in compliance with the Principles of the Declaration of Helsinki.

### Results

The average age of the patients was 62.07 ± 16.25 years. It was found that 95% of the patients were married, 56.4% were male, 26.7% were retired, and 83.2% had an income less than their expenses. Additionally, 46.5% had completed primary education, 51.5% had a history of surgery on their right eye, 67.3% had a history of surgery, and 30.7% required the transplant due to pseudophakic corneal edema (Table 1).

When comparing the descriptive and clinical characteristics of the patients with the mean scores of life satisfaction and spirituality, significant differences were found between gender, occupation, and the mean scores of the Life Satisfaction Scale (P < 0.05). However, no significant difference was observed in the mean scores of spirituality (P > 0.05). While no statistically significant relationship was observed between educational status and the mean score of the Life Satisfaction Scale (P > 0.05), a statistically significant relationship was identified between educational status and the mean score of the Spirituality Scale (P < 0.05). Additionally, it was determined that there was no statistically significant difference (P > 0.05) in the mean scores of life satisfaction and spirituality based on gender, income status, operated eye, surgical history, and reason for transplantation (Table 1).

When analyzing the relationship between the patient's age and waiting time for transplantation with the mean scores of the Life Satisfaction Scale and Spirituality Scale, a weakly positive and significant relationship was identified between age and life satisfaction (r=0.19, P < 0.01). However, no statistically significant relationship was found between age and spirituality (p > 0.05), nor between the waiting time for transplantation and both life satisfaction and spirituality (P > 0.05) (Table 1).

The mean score on the Life Satisfaction Scale for patients participating in the study was 21.83 ± 8.96, while the mean score on the Spirituality Scale was 20.49 ± 4.15 before transplantation. A weakly positive significant correlation was observed between patients' life satisfaction and spirituality (r=0.37, P < 0.01) (Table 2).

### Discussion

This study is the first to assess the levels of spirituality and life satisfaction, as well as their relationship, among preoperative patients awaiting corneal transplantation. In our study, the mean scores for both the Life Satisfaction Scale and the Spirituality Scale before corneal surgery were high. This contrasts with findings by Doğan and Dönmez,<sup>20</sup> who reported low life satisfaction scores among kidney transplant patients. Our study suggests that the advancements in technology leading to an increased number of successful corneal operations may significantly enhance life satisfaction levels in patients awaiting corneal transplantation.

Our findings indicate that less than one-third of the patients awaiting corneal transplantation required it for conditions such as pseudophakic corneal edema, bullous keratopathy, and descemet membrane endothelial keratoplasty (DMEK), with 8.9% needing it for graft rejection. According to a comprehensive systematic study that gathered data from 148 countries, fuchs dystrophy—a type of corneal

	Range of Points Receivable	$\bar{X} \pm SS$	Range of Points Receivable	Test and Significance
Life satisfaction	5-35	21.83 ± 8.96	5-35	r=.37
Spirituality	6-30	20.49 ± 4.15	10-25	P=.00**

X: Mean, SD: Standard Deviation, r: correlation, \*\*P <.01

edema that accounts for 39% of all corneal transplants—predominantly affects older individuals. Conversely, sequelae of keratoconus (27%), which progressively distorts the cornea, and sequelae of infectious keratitis (20%) are more common among younger individuals.<sup>21</sup> Another study found that patients underwent operations for pseudophakic or aphakic corneal edema (13%), corneal dystrophy (11.3%), and graft failure (11.3%).<sup>20</sup> Our study's results are in line with these findings in the literature.

A significant positive relationship was found between age and life satisfaction in patients awaiting corneal transplantation. This finding highlighted that as individuals' age increases, so does their level of life satisfaction. Thus, interventions aiming to improve the healthy aging of individuals can also increase levels of life satisfaction. Büssing et al.<sup>22</sup> observed a directly proportional relationship in patients with chronic diseases. Similarly, Bowling noted that an increase in age leads to a rise in chronic diseases, which negatively impacts life satisfaction.<sup>23</sup> Furthermore, other research focusing on patients with chronic conditions has shown that their quality of life declines as they age.<sup>24-26</sup> The varying results found in the literature can be explained by factors such as the waiting time for surgery, the frequency of disease-related symptoms, the severity of the disease, or the extent of its impact on daily life.

The primary findings of this study revealed a relationship between the patients' life satisfaction and spirituality levels was statistically weak positive. This outcome indicates that the higher the spirituality of the patients, the higher their level of life satisfaction tends to be. This suggests that as spirituality increases, individuals may become more aware of the meaning and purpose of life. Studies conducted on chronic obstructive pulmonary disease (COPD) and arthritis patients in India, as well as COPD patients in Australia, discovered a significant link between patients' psychological resilience and their quality of life.<sup>27,28</sup> A similar study involving COPD patients in Türkiye also concluded that psychological resilience influences life satisfaction.<sup>29</sup> The findings of our study align with those reported in the literature.

### Study Limitations

This study was conducted with patients at a single university hospital in eastern Türkiye, limiting the generalizability of the results to the wider population. Nonetheless, these findings can serve as a foundation for future research involving patients of different religious beliefs and cultural backgrounds. Another limitation is the lack of comparison with eye bank patients from another city.

### Conclusion

This study found that patients awaiting corneal transplantation exhibit high levels of life satisfaction and spirituality, with life satisfaction enhancing as spirituality increases. Furthermore, it was observed that life satisfaction rises with age. Offering psychosocial and emotional support to these patients could further elevate their spiritual levels and life satisfaction. Study in the field of nursing on this subject is scarce, indicating the potential for more extensive studies. Additionally, in-service training focused on spiritual care is recommended.

**Ethics Committee Approval:** Ethics committee approval was obtained from Mardin Artuklu University Hospital Scientific Research and Publication Ethics Committee (Approval Number: 2022/66629, Date: 02.01.2020), and clinical study permission was granted by the Health Sciences University Faculty of Medicine (#38948411-900-257595).

**Informed Consent:** Written consent was obtained from all participants, with an explanation that participation in the research was voluntary.

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