The Impact of Alexithymia on Quality of Life in a Sample of Healthy University Students: A Structural Equation Modelling Approach

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Abstract

The relationship between alexithymia and quality of life has attracted the attention of researchers recently. However, these studies have been conducted on patient groups or the general population. This study aims to determine the simultaneous effect of the level of alexithymia on the components of quality of life in a healthy university student population using the structural equation model. The sample of this cross-sectional study consists of 183 healthy volunteer university students without mental and physical illnesses. Sociodemographic Data Form, Short Form-36 (SF-36) Quality of Life Scale, and Toronto Alexithymia Scale (TAS-20) were applied to the participants. In this current study, 48.6% (n=89) of the participants were female and 51.4% (n=94) were male, and the mean age was 21.88±2.11 years. 13.1% (n=24) of the volunteers were categorized as alexithymic, 25.2% (n=46) as borderline alexithymic and 61.7% (n=113) as non-alexithymic. It has been shown that Toronto Alexithymia Scale has an inverse significant and moderate effect on the SF-36 Quality of Life Scale (Standardized regression coefficient -0.40). Our study shows that alexithymia has a detrimental impact on the quality of life of healthy university students who are not suffering from any medical or mental illnesses. It is thought that it would be beneficial to develop specific intervention methods for alexithymic individuals to remove these alexithymia-related problems and improve quality of life. Longitudinal research in the future will be beneficial in explaining the causal relationships between alexithymia and quality of life.

Keywords: alexithymia, quality of life, university students, structural equation modelling

Öz

Bir Sağlıklı Üniversite Öğrencisi Örprlemiinde Aleksitiminin Yaşam Kalitesine Etkisi: Bir Yapısal Eşitlik Modelleme Yaklaşımı

Aleksitimi ve yaşam kalitesi arasındaki ilişki son zamanlarda araştırmacıların dikkatini çekmektedir. Fakat bu araştırmalar hasta gruplarında veya genel popülasyonda yapılmıştır. Bu çalışma yapısal eşitlik modelini kullanarak, sağlıklı üniversite öğrencisi popülasyonunda aleksitimi düzeyinin yaşam kalitesinin bileşenleri üzerindeki eşzamanlı etkisini belirlemeyi amaçlamaktadır. Bu kesitsel çalışmanın örneklemini, ruhsal ve fiziksel hastalığı bulunmayan 183 sağlıklı gönüllü üniversite öğrencisi oluşturmaktadır. Katılımcılara Sosyodemografik Veri Formu, Kısa Form-36 (SF-36) Yaşam Kalitesi Ölçeği ve Toronto Aleksitimi Ölçeği (TAÖ-20) uygulanmıştır. Katılımcıların %48,6'sı (n=89) kadın ve %51,4'ü (n=94) erkekti ve yaş ortalaması 21,88±2,11 yıldı. Gönüllülerin %13,1'i (n=24) aleksitimik, %25,2'si (n=46) borderline aleksitimik ve 61,7 %'si (n=113) aleksitimik olmayan olarak kategorize edildi. Toronto Aleksitimi Ölçeği'nin SF-36 Yaşam Kalitesi Ölçeği üzerine ters yönde anlamlı ve orta büyüklükte bir etkiye sahip olduğu gösterildi. (Standardize regresyon katsayısı -0,40) Çalışmamız aleksitiminin fiziksel ve ruhsal hastalığı bulunmayan sağlıklı üniversite öğrencilerinde yaşam kalitesini olumsuz yönde etkilediğini göstermektedir. Aleksitimik bireylerin, aleksitimiye bağlı belirtini ortadan kaldırmak ve yaşam kalitelerini artırmak için spesifik müdahale yöntemleri geliştirilmesinin faydalı olacağı düşünülmektedir. Gelecekte yapılacak, uzunlamasına çalışmalar aleksitimi ile yaşam kalitesinin nedensel ilişkilerini açıklamakta faydalı olacaktır.

Anahtar Kelimeler: aleksitimi, yaşam kalitesi, üniversite öğrencisi, yapısal eşitlik modeli

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INTRODUCTION

Alexithymia, which has attracted the attention of researchers in recent years, is a multifaceted personality structure that is common in the general population and is characterized by impaired identification and expression of emotions (Franz et al., 2008; Taylor, Bagby, & Parker, 1999). However, studies show that individuals with alexithymia have impoverishment in dreams, a limited capacity of symbolic thought, and difficulties with cognitive processing and coding of emotion (Lane et al., 1996; Suslow & Junghanns, 2002; Taylor & Bagby, 2004). It is believed that alexithymic individuals will become prone to psychological and somatic symptoms due to these deficiencies and may misinterpret somatic sensations associated with emotional arousal as symptoms of the disease (somatization) (Mattila et al., 2009). Therefore, alexithymia has been studied in many psychiatric diseases such as depression, anxiety, addiction, eating disorders, and sleep quality (Yaşar & Gündoğmuş, 2021; Gündoğmuş, Aydin & Algül, 2021; Günther, Rufer, Kersting, & Suslow, 2016; Westwood, Kerr-Gaffney, Stahl, & Tchanturia, 2017). It has also been studied in diseases such as fibromyalgia, rheumatoid arthritis, asthma, atopic dermatitis, and chronic pain (Ebrahimi, Asadi, Akbari, & Naderi, 2017; Galli et al., 2017; Garip, Öztaş, Tuncer, & Telci, 2015; Vazquez et al., 2010).

Quality of life is described as a multidimensional concept that includes physical, mental, and social health. World Health Organization Quality of Life (WHOQOL) group defined this term as an "individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns (WHO 1998). However, quality of life has been associated with people's satisfaction and happiness in their lives. Therefore, many studies have focused on the quality of life and its markers (Zeller & Modi, 2006). Since the quality of life is thought to be related to subjective perception, its relationship with alexithymia was examined (Honkalampi, Hintikka, Tanskanen, Lehtonen, & Viinamäki, 2000; Mattila et al., 2009). Studies have generally shown that there is a relationship between alexithymia and lower quality of life (Ebrahimi et al., 2017; Franz et al., 2008; Honkalampi et al., 2000; Mattila et al., 2009; Taylor et al., 1999; Vazquez et al., 2010). In literature there is a limited number of studies that suggest the opposite (Weinryb, Gustavsson, Liljeqvist, Poppen, & Rössel, 1997). However, the studies were mostly conducted in patient groups with small samples or in general population groups with a large sample

(Ebrahimi et al., 2017; Franz et al., 2008; Mattila et al., 2009; Taylor et al., 1999; Vazquez et al., 2010). However, there is no study investigating the relationship between alexithymia and quality of life in a healthy population who are not suffering from any physical or mental illness.

The reason for using the structural equation model in this study is that it allows simultaneous analysis of the effect of the independent variable (alexithymia) on dependent variables (quality of life components) on a latent variable (quality of life). Therefore, it is possible to directly compare the effects of independent variables on dependent variables. In contrast, the multiple regression analysis tests allow only one dependent variable (one of the quality-of-life components) to be evaluated at a time. In the light of this information, the present study aims to determine the simultaneous effect of alexithymia level on the components of quality of life in a population of healthy university students who are not suffering from any physical or mental illness by using the structural equation model. The hypothesis of this study is that individuals with alexithymia has lower quality of life scores and this personality trait negatively predicts quality of life.

MATERIAL AND METHODS

Participants

The sample of this cross-sectional study consists of a total of 183 healthy volunteer university students, 89 women, and 94 men, without known mental and physical illnesses, who applied to the Gulhane Training and Research Hospital health committee for non-illness reasons. Volunteers who did not have any psychopathology according to the 90-Item Symptom Checklist-Revised (SCL-90-R) (Derogatis, 1983) which is applied to the individuals who applied for the health committee before starting a new job or enrolling a school or as routine checking to take a medical board report. The medical board report was examined for physical disease before the participants were enrolled in the study. Only those who were physically healthy were invited to participate in the study. Inclusion criteria of the study; being between 18–35 years old, currently being a university student, being a volunteer as a participant. Exclusion criteria is having mental and physical illness after examinations, substance abuse history, having previous psychiatric illness, suicide attempt history, having serious head trauma history. First of all, 358 university students were invited to our study.

However, 96 people were removed because they were not willing to participate, 36 participants had chronic physical conditions, 27 participants had a mental diagnosis and/or drug use, 9 participants had substance misuse, and 7 participants had a history of suicide attempts. All participants who volunteered to participate in the study provided informed consent. Local ethics committee approval was obtained for the study Gulhane Training and Research Hospital Clinical Research Ethics Committee (2019/07–19/143). and all stages were completed in accordance with the principles of the Declaration of Helsinki.

Study Design

Standardized forms including the Sociodemographic Data Form containing descriptive information such as age and gender, SF-36 Quality of Life Scale and Toronto Alexithymia Scale were given to healthy university students who had no psychopathology (according to the Symptom Screening List) and had inclusion criteria. Missing data were excluded from the study. The data obtained from the study were recorded in the data set and basic statistical analysis was performed. Considering clinical opinions and basic statistical analyzes, the effect of the Toronto Alexithymia Scale on the SF-36 Quality of Life Scale was tested with structural equation model analysis.

Data Collection

Sociodemographic Data Form was created by researchers in accordance with the literature and the aims of the study. In the form, the participants' information such as age, gender, psychiatric illness history, chronic and/or physical illness status, current drug use was questioned.

In this study, 20-Item Toronto Alexithymia Scale was used to evaluate the alexithymia levels of the participants. The scale was developed by Bagby et al. in 1994 to determine the alexithymia levels of practitioners in clinical practice and research (Bagby, Parker, & Taylor, 1994). The scale consists of 20 items, which was described as the ideal model for measuring alexithymia, each of which is rated between 1 and 5. The total score of the scale is calculated by adding the scores obtained from the items. The scale, which is self-report and Likert type, has 3 different subscales; 'Difficulty Identifying Feelings (DIF)' (7 items-e.g., "I am often confused about what emotion I am feeling"), 'Difficulty Describing Feelings (DDF)' (5 items-e.g., "It is difficult for me to reveal my innermost feelings, even to close friends") and 'Externally-Oriented Thinking

(EOT)' (8 items-e.g., "I prefer to analyze problems rather than just describe them"). It was studied that internal consistency (r=0.81) and test-retest reliability (r=0.77) of the scale. The Turkish validity and reliability study of the scale was conducted by in 2009. The Cronbach alpha for the scale was found to be 0.78 and, for the three subscales; 0.80, 0.57, and 0.63, respectively (Güleç et al., 2009).

SF-36 Quality of Life Scale was used to evaluate the health-related quality of life (HRQoL) of the participants in the study. It was developed by Rand Corporation. In the reliability study performed with the original scale, the Cronbach's alpha coefficient for each subscale was found to be between 0.62 and 0.94. It was determined that the item-total score correlation coefficients were between 0.43–0.9 (Ware Jr & Sherbourne, 1992). It is a self-report scale consisting of 36 items, filled in considering the last four weeks. It has eight different subscales: 'Physical Functioning', 'Physical Role Functioning', 'Emotional Role Functioning', 'Vitality', 'Mental Health', 'Social Functioning', 'Bodily Pain' and 'General Health' . For the scale that does not have a total score, scores between 0 and 100 are obtained from each subscale. The decrease in the score points indicates a low quality of life. The Turkish validity and reliability study was conducted. As a result of the reliability study in the Turkish version of the scale, Cronbach's alpha values were determined to be between 0.73 and 0.76, and the item-total score correlation coefficients were between 0.47 and 0.88. (Koçyigit, Aydemir, Olmez, & Memis, 1999).

The SCL-90-R (90-Item Symptom Checklist-Revised) is a self-report instrument used to assess psychopathological symptoms (Derogatis, 1983). It consists of 90 items that are scored on a 5-point Likert scale to determine the extent to which people have experienced the specified symptoms in the previous 7 days. The greater the SCL-90-R score, the greater the psychological anguish experienced by the individual. A Turkish validity and reliability study was carried out (Dag, 1991).

Data Analyses

The data of the study were analyzed using SPSS 20.0 and Analysis of Moment Structures (AMOS) 24.0. According to Kline (2005), the study has sufficient sample size to be at least 10 times the number of variables. Continuous variables were expressed as mean ± standard deviation and categorical variables as 'number (%)'. The compatibility of the data with normal distribution was tested using Kolmogorov-Smirnov, skewness and kurtosis values.

Relationships between continuous variables were evaluated with Pearson Correlation analysis for those with normal distribution, and with Spearman correlation analysis for those with non-normal distribution. The relationship between continuous variables was evaluated using correlation analysis. Structural equation modelling (SEM), a multivariate analysis model, was applied to validate the theoretically constructed model that includes alexithymia and quality of life subscales. In accordance with the purpose of the study, after the model was created, it was tested with the model fit parameters with AMOS. Adding the correlation between "error" and limiting the parameters where necessary was made to develop the model. The maximum likelihood technique was preferred for the analysis of the parameters in the YEM. Model compatibility has been tested with the Goodness-of-Fit Index (GFI), relative chi-square statistic (CMIN/DF), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). The effects of alexithymia on each of the quality-of-life subscales were calculated using standard regression weights.

RESULTS

Characteristics of Observed Variables

The sociodemographic characteristics of the participants who were included in the study and the TAS-20 and SF-36 subscale scores are presented in Table 1. Of the participants, 48.6% (n=89) were female and 51.4% (n=94) were male. The average age was 21.88±2.11 years. In addition, 3.6% (n=6) of the participants were married and 9.8% (n=18) were working part-time. 13.1% (n=24) of the participants were categorized as alexithymic, 25.2% (n=46) as borderline alexithymic and 61.7% (n=113) as non-alexithymic.

Correlation Coefficients of Variables

Correlation coefficients of observed variables are presented in Table 2. There is a negative correlation between 'Difficulty Identifying Feelings' and 'Emotional Role Functioning', 'Vitality', 'Mental Health', 'Social Functioning', 'Bodily Pain' and 'General Health' (p <0.05). There is a negative correlation between 'Difficulty Describing Feelings' and Emotional Role Functioning', 'Vitality', 'Mental Health', 'Social Functioning', and 'General Health' (p <0.05). There is a negative correlation between 'Externally-Oriented Thinking' and 'Vitality', 'Mental Health', and 'General Health' (p <0.05). There is a negative correlation between TAS-20 total score and

Table 1: Demographic and clinic properties of participant	
Variable	*Mean ± SD/n (%)*
Age	21.88±2.11
Gender	
Female	89 (48.6%)
Male	94 (51.4%)
Marital Status	
Single	177 (96.4%)
Married	6 (3.6%)
Part time working	
Yes	18 (9.8%)
No	165 (90.2%)
Smoking	
Yes	107 (58.5%)
No	76 (41.5%)
Alexithymia	
Yes	24 (13.1%)
Borderline	46 (25.2%)
No	113 (61.7%)
20-Item Toronto Alexithymia Scale	
Difficulty identifying feelings	14.88±4.80
Difficulty describing feelings	11.93±3.50
Externally-oriented thinking	20.83±3.75
Total	47.65±9.60
SF-36 Quality of Life Scale	
Physical functioning	87.67±16.46
Physical role functioning	69.67±22.59
Emotional role functioning	54.46±42.82
Vitality	56.55±16.65
Mental health	64.91±15.66
Social functioning	74.11±21.84
Bodily pain	82.48±16.47
General health	66.58±17.83

'Emotional Role Functioning', 'Vitality', 'Mental Health', 'Social Functioning', and 'General Health' (p <0.05).

SEM Model

Figure 1 shows the paths of the final model. We show the measurement components by using elliptical shapes. Circles represent latent variables and rectangles represent measure variables. According to the model, it has been shown that the Toronto Alexithymia Scale has an inverse significant, and moderate effect on the SF-36 Quality of Life Scale. Interactions between clinical parameters are

Table 2: Relationship of the 20-Item Toronto Alexithymia Scale and SF-36 Quality of Life Scale

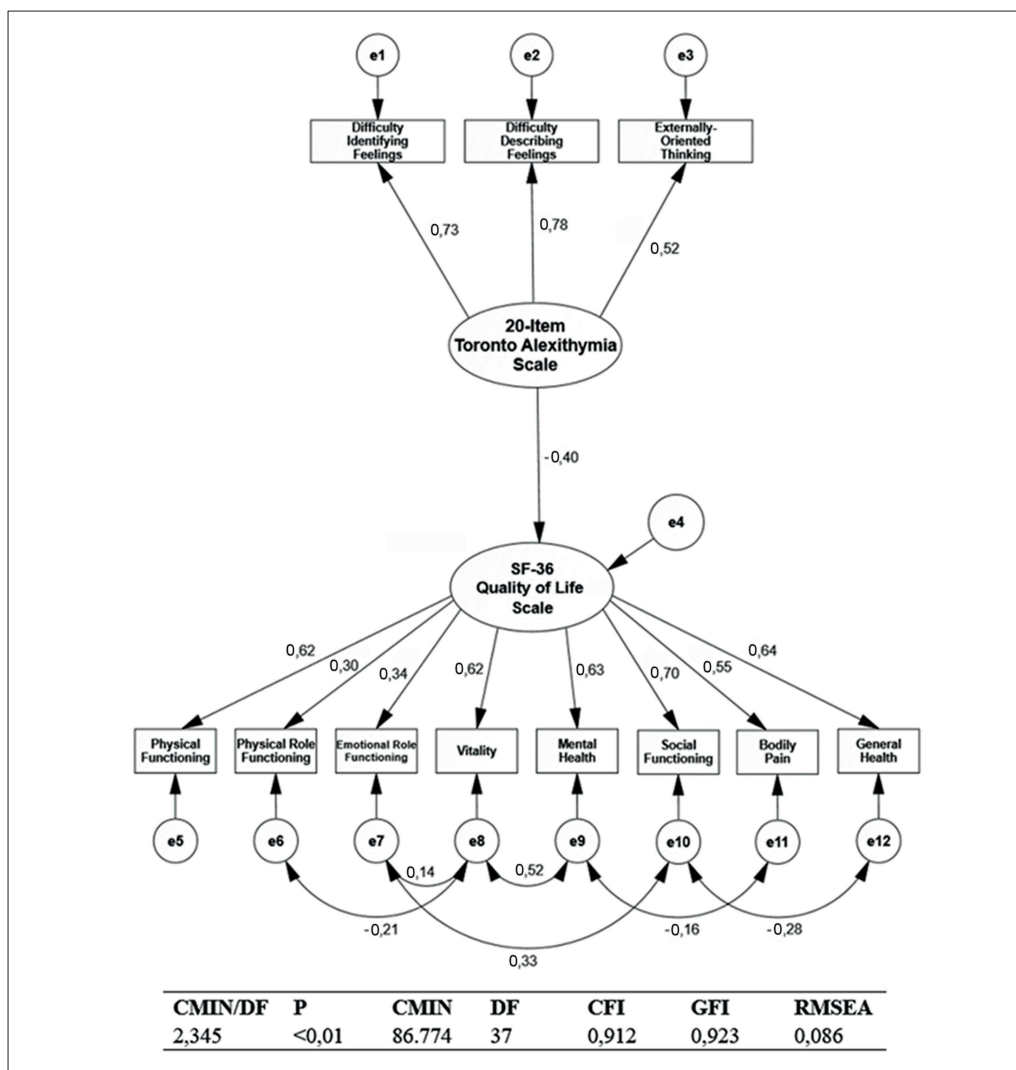|			20-Item Toronto Alexithymia Scale			
			Difficulty identifying feelings	Difficulty describing feelings	Externally-oriented thinking	Total
SF-36 Quality of Life Scale	**Physical functioning**	r	-0.057	0.030	-0.139	-0.072
		p	0.447	0.690	0.061	0.335
	Physical role functioning	r	0.015	-0.001	0.003	0.008
		p	0.845	0.990	0.972	0.915
	Emotional role functioning	r	**-0.211****	**-0.193****	-0.007	**-0.179***
		p	**0.004**	**0.009**	0.927	**0.016**
	Vitality	r	-0.335**	-0.275**	-0.180*	-0.339**
		p	0.000	0.000	0.015	0.000
	Mental health	r	-0.383**	-0.328**	-0.329**	-0.440**
		p	0.000	0.000	0.000	0.000
	Social functioning	r	**-0.350****	**-0.170***	-0.067	**-0.264**
		p	**0.000**	**0.021**	0.367	**0.000**
	Bodily pain	r	**-0.196****	-0.040	-0.070	-0.140
		p	**0.008**	0.594	0.346	0.059
	General health	r	-0.188*	-0.188*	-0.248**	-0.260**
		p	0.011	0.011	0.001	0.000

Figure 1. The structural equation model.

statistically significant and the standardized regression coefficient between the Toronto Alexithymia Scale and SF-36 Quality of Life Scale was found to be -0.40. Model fit criteria; CMIN / DF: 2.345, GFI: 0.923, CFI: 0,912 and RMSEA: 0.086. As a result, it was seen that the model has good and acceptable fit indexes.

DISCUSSION

The most important finding of our study is to show that alexithymia negatively affects the quality of life in university students who are not suffering from any physical or mental illness. While studies investigating the relationship between alexithymia and quality of life have been conducted in patient groups and the general population in the literature, we thought that our study is important because it is the first study investigating this relationship in healthy individuals.

In studies investigating the relationship between alexithymia and quality of life, it was found that alexithymic individuals had lower quality of life scale scores than the control group. It has also been shown that these individuals perceive the severity of their illness as more severe (Ebrahimi et al., 2017, Vazquez et al., 2010; Franz et al., 2008; Mattila et al., 2009). The effects of alexithymia on HRQoL have been studied in both the healthy population and patients. For example, it was showed a negative significant relationship between alexithymia and emotion dysregulation with quality of life, and the difficulty in identifying emotions and emotion dysregulation predict about 32% of the quality-of-life changes in patients with chronic pain (Ebrahimi et al., 2017). In a study of 60 cirrhotic patients, the frequency of alexithymia was found to be high, and it was reported to be one of the important determinants of HRQoL (Nardelli et al., 2013). Similarly, in a study conducted with asthma patients, it was determined that the effects of alexithymia on quality of life may continue even when the effects of anxiety and depression were considered (Vazquez et al., 2010). In contrast to the findings of previous research, it was discovered that the absence of alexithymic features affected the quality of life in this group of patients in a study on the effect of personality traits and alexithymia on the quality of life of people after pelvic pouch surgery. This condition is explained by the prolongation of the postoperative recovery period and the deterioration in quality of life as a result of those lacking alexithymic traits placing too much emphasis on their bodily sensations and the potentially dangerous aspects of

surgery. In a study using multiple correlation/regression analysis, alexithymia was found to predict poor postoperative quality of life (QOL) (Weinryb et al., 1997). Studies investigating the same issue in the general population have also emphasized comparable results (Franz et al., 2008; Mattila et al., 2009).

The results of the present study have shown that alexithymia has a negative effect on the quality of life, in accordance with the literature. The most likely reason for this result may be that individuals may not be able to define their body sensations and interpret them as symptoms of somatic disease with the increase in the level of alexithymia (Waller & Scheidt, 2006). It may appear counterintuitive to ask alexithymic people, who have limited emotional insight, to appropriately explain their physiological experiences. Indeed, these people's perceptions of simple and common body sensations as symptoms of a disease can be interpreted as having a negative impact on their quality of life. Moreover, it has been suggested that some cognitive and social mechanisms may affect the symptoms of the disease and change the perception of somatic symptoms in individuals with alexithymia (Lumley, Stettner, & Wehmer, 1996). In this context, this situation may be owing to the tendency of individuals to associate senses and emotions that they cannot make sense of with physical causes. As a result, having experiences manifested as somatic symptoms may have a negative impact on quality of life (De Gucht & Heiser 2003). Another reason may be that alexithymic individuals perceive and process external stimuli differently, depending on the subjective interpretation of quality of life (Mattila et al., 2009). Finally, one study found that medically ill people had greater alexithymia than the general population (Wise, Mann, Mitchell, Hryvniak, & Hill, 1990).

According to the findings of our study, DIF and DDF alexithymia subscales have a higher factor load on quality of life than EOT. This result is consistent with studies in the literature investigating the relationship between alexithymia and quality of life (Lumley et al., 1996; Waller & Scheidt, 2006). According to these results, it is possible to say that individuals who have difficulty identifying and expressing their feelings may have lower quality of life perceptions. On the other hand, regarding these findings, it was shown that alexithymia has a higher factor load on the subscales as "Social Functioning", "Mental Health", "Physical Functioning", "Vitality", and "General Health". Previous research has suggested similar correlations (Matilla et al., 2009). The findings concerning the

association between difficulty identifying emotions and somatoform disorder may explain why alexithymia has a detrimental impact on quality of life. It is possible to argue that the difficulty in detecting emotions leads to misinterpretation of physical emotions and a reduction in HRQoL. In other words, alexithymia is more than just an emotional condition; it is also linked to health consequences. According to research, people with alexithymia do not employ their normal coping strategies and may be more prone to undesirable behaviors such as emotion suppression and somatization (Fortune et al., 2002). As a result, it is natural that alexithymia has a higher impact on "Mental Health," "Physical Functioning," "Vitality," and "General Health." However, "Social Functioning" may grow as a result of physical and mental health.

The results of our study should be evaluated within some limitations. First, since our study has a cross-sectional design, it is not possible to draw causal results. Besides, the fact that alexithymia and quality of life are determined by self-report scales may be a factor affecting the results. In addition, it is a limitation that the confounding variables that may affect the results of our study, such as the participants' anxiety and depression levels, were not considered. Finally, the fact that the participants are healthy university students stands as an obstacle to the generalization of our results.

Our results clearly showed that the level of alexithymia negatively affects the quality of life in healthy individuals. Whether alexithymia causes changes in individuals' interpretation of body sensations through somatization or causes changes in the subjective interpretation of quality of life, it is certainly associated with the negativity of quality of life. We believe that alexithymia should be considered by clinicians in terms of quality of life since it is a common personality feature. It is thought that it would be beneficial to develop specific treatment methods for alexithymic individuals to better be up to these symptoms and other health problems. Future longitudinal studies will be useful in explaining the causal relationships between alexithymia and quality of life.

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