



Sexual Experiences, Exaggeration of Physical Senses and Alexithymia in Patients with Ankylosing Spondylitis

Ankilozan Spondilit Hastalarında Cinsel Deneyimler, Bedensel Duyumları Abartma ve Aleksitimi

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ABSTRACT

Aim: Ankylosing spondylitis is a chronic illness associated with physical discomfort. Evaluation of the accompanying mental illnesses and adding them to the treatment process will contribute positively to the healing process of the patients. Our study sought to add to the body of literature concerning mental health issues in individuals with ankylosing spondylitis.

Material and Methods: The research was a cross-sectional and observational study and a total of 54 patients with ankylosing spondylitis and 51 healthy controls were included in the study. The Arizona Sexual Experiences Scale, the Toronto Alexithymia Scale, and the Physical Senses Exaggeration Scale were administered to the participants.

Results: When comparing the scale scores between the patient and control groups, Arizona Sexual Experiences Scale total score ($p=0.002$), Exaggeration of Physical Senses Scale total score ($p=0.006$), Toronto Alexithymia Scale total score ($p<0.001$), Toronto Alexithymia Difficulty Identifying Feelings ($p<0.001$), Toronto Alexithymia Difficulty Describing Feeling ($p<0.001$) and Toronto Alexithymia Externally-Oriented Thinking ($p<0.001$) subscale scores of the patient group were significantly higher than the control group. However, no significant correlation was found between the Bath Ankylosing Spondylitis Metrology Index, Bath Ankylosing Spondylitis Patient Global Score, Bath Ankylosing Spondylitis Functional Index and Bath Ankylosing Spondylitis Disease Activity Index ($p>0.05$).

Conclusion: In the study, it was discovered that patients with ankylosing spondylitis exhibited worse sexual functions, higher levels of alexithymia, and exaggerated levels of physical sensations compared to the healthy control group. Ankylosing spondylitis also negatively affects the quality of life psychologically. Psychiatric pathologies should not be ignored in the follow-up of these patients

Keywords: Ankylosing spondylitis, alexithymia, exaggeration of physical senses, sexual dysfunction

ÖZ

Amaç: Ankilozan spondilit fiziksel yakınmalarla seyreden kronik bir hastalıktır. Uzun süren fiziksel belirtilerle birlikte kişilerde ruhsal hastalıkların görülme sıklığı artmaktadır. Hastalığa eşlik eden ruhsal hastalıkların değerlendirilmesi ve tedavi sürecine eklenmesi hastalarda iyileşme sürecine olumlu katkı sağlayacaktır. Araştırmamızda ankilozan spondilit hastalarında ruhsal patolojilere yönelik literatüre katkı sağlanması amaçlanmıştır.



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Gereç ve Yöntemler: Araştırma kesitsel ve gözlemsel bir çalışma olup, toplam 54 ankilozan spondilit hastası ve 51 sağlıklı kontrol çalışmaya dahil edildi. Katılımcılara Arizona Cinsel Yaşantılar Ölçeği, Toronto Aleksitimi Ölçeği ve Bedensel Duyumları Abartma Ölçeği uygulandı.

Bulgular: Hasta ve kontrol grubunun ölçek puanları karşılaştırıldığında Arizona Cinsel Yaşantılar Ölçeği total ölçek puanı ($p=0,002$), Bedensel Duyumları Abartma Ölçeği toplam ölçek puanı ($p=0,006$), Toronto Aleksitimi toplam ölçek puanı ($p<0,001$), Toronto Aleksitimi Duyguları Tanımada Güçlük ($p<0,001$), Toronto Aleksitimi Duyguları İfade Etmekte Zorlanma ($p<0,001$) ve Toronto Aleksitimi Dışa Vuruk Düşünme ($p<0,001$) alt ölçek puanları kontrol grubundan anlamlı derecede yüksektir. Ancak Bath Ankilozan Spondilit Metroloji İndeksi, Bath Ankilozan Spondilit Hasta Global Skoru, Bath Ankilozan Spondilit Fonksiyonel İndeksi, Bath Ankilozan Spondilit Hastalık Aktivite İndeksi arasında anlamlı bir ilişki bulunmamıştır ($p>0,05$).

Sonuç: Çalışmamızda, ankilozan spondilit hastalarının sağlıklı kontrol grubuna göre cinsel işlevlerinin daha kötü, aleksitimi ve bedensel duyumları abartma düzeylerinin daha yüksek olduğu bulunmuştur. Ankilozan spondilit ayrıca psikolojik olarak yaşam kalitesini olumsuz etkiler. Bu hastaların takibinde psikiyatrik patolojilerin göz ardı edilmemesi gerekir.

Anahtar Sözcükler: Ankilozan spondilit, aleksitimi, bedensel duyumları abartma, cinsel disfonksiyon

INTRODUCTION

The origin of Ankylosing Spondylitis (AS), a chronic rheumatic disease that primarily affects the sacroiliac joints and less frequently the spine and peripheral joints, is still unknown. Sacroiliitis is a key feature of the disease, and over time, inflammation occurring in the entheses leads to spinal ankylosis. The male-to-female ratio is approximately 2:1. The most common age of onset of the disease is in the third decade, with occurrences becoming less frequent after the age of 45 and may also be observed in older age groups. Its prevalence varies between 0.1% and 1.4% in different populations. A study conducted in our country found a prevalence of approximately 1.1%. AS leads to a decrease in spinal mobility over time, resulting in impaired physical function and decreased quality of life (1,2).

In individuals with AS, the rates of psychiatric disorders are significantly high, with depression and anxiety being the most prevalent. In a study that was carried out, depression was found in 55.5% of AS patients, while anxiety was found in 60% of them. Additionally, Martindale et al. found a relationship between symptom severity and depression levels in AS patients in their study. Particularly among younger patients, the functionality of the patients deteriorates and their daily lives are adversely affected. The burden of chronic illness and restrictive physical activity contribute to decreased quality of life, sexual dysfunction, and difficulties in interpersonal relationships and daily functions. As a result, the frequency of depression and the severity of depressive symptoms may increase in these patients with the burden of chronic disease and restrictive physical activity (3,4). While symptoms can be observed in many areas related to depression, psychiatric complaints independent of depression can also be observed from time to time (5). Studies have shown that patients with AS are more depressed, as well as have reduced problem-solving skills and difficulty in emotion management. Compliance of patients with current treatment becomes more difficult and their living standards decrease (6).

Exaggeration of physical senses refers to a person's pre-occupation with and increased sensitivity to bodily symptoms. People may overestimate even the slightest physical symptoms and may experience illness anxiety. Sometimes symptoms can be overestimated and negatively affect the disease process. Excessive focus on physical sensations can lead to exaggeration of symptoms, unnecessary medical consultations, and excessive medication use, ultimately exacerbating the chronicity of the disease (7). Alexithymia is the inability to describe one's feelings in words. Many physical symptoms are used instead of emotions in alexithymic individuals. There are difficulties in recognizing and identifying feelings, inability to describe them, and experiencing more physical illness symptoms (8).

In our study, it was hypothesized that patients with AS would have lower sexual function, higher levels of alexithymia, and exaggeration of physical senses compared to healthy controls. Based on this hypothesis, the sexual satisfaction, alexithymia, and exaggeration of physical senses levels of both patients and control groups were examined. Ankylosing spondylitis represents a chronic condition. It progresses with a serious decrease in quality of life. In addition, the sensitivity to physical symptoms increases. Providing psychiatric support to AS patients in the clinic is important for the treatment process and alleviation of disease symptoms. Despite the significant impact of AS on sexual function and emotional well-being, studies investigating these aspects are limited. Our study aimed to explore the symptoms pertaining to sexual functions and emotions in this patient group, and to investigate the relationship between these symptoms.

MATERIAL and METHODS

Our research took place at the Recep Tayyip Erdogan University Training and Research Hospital Physical Medicine and Rehabilitation Clinic between April 1, 2022, and April 1, 2023. Our research was a cross-sectional and observational study and the sample of the study consisted of 54 pa-

tients who presented to the physical therapy and diseases outpatient clinic and were followed up with the diagnosis of AS for at least one year, and 51 healthy control groups. The non-interventional research ethics committee at Recep Tayyip Erdogan University Faculty of Medicine approved this study (approval number: 2022/24).

The control group consisted of individuals who were relatives of patients and healthcare employees without any diagnosed mental illness, and who consented to participate in the research. The control group was matched to the patient group based on sociodemographic data, including age and gender. Power analysis was performed while determining the research sample, the research sample was formed with 0.05 significance level, 80% power and 0.558 effect size (9). Patients with AS who consecutively applied to the outpatient clinic and the control group who were eligible for the study were included in the study. The study participants were informed about the research, and their consent, both written and verbal, was obtained prior to their involvement. Those who agreed to participate in the study were directed to a psychiatrist. Persons diagnosed with mental illness after a clinical interview according to Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria (American Psychiatric Association, 2013) were excluded from the study. As it may affect the parameters to be examined in the research, participants with a diagnosis of mental illness were excluded from the study. Sociodemographic data forms developed by the researcher, Arizona Sexual Experiences Scale, Toronto Alexithymia Scale Exaggeration of Physical Senses Scale, and Bath Ankylosing Spondylitis Disease Activity Index applied to the patients and control groups participating in the study. Also, Bath Ankylosing Spondylitis Disease Activity Index, Bath Ankylosing Spondylitis Global Index, Bath Ankylosing Spondylitis Metrology Index and Bath Ankylosing Spondylitis Functional Index applied to the patients.

We included patients who were between the ages of 18 and 65, who were literate, who gave consent to participate in the study, who had the academic capacity to fill in the scales, who were diagnosed with AS for at least one year, and who were followed up. Patients with chronic disease such as diabetes mellitus, heart failure, renal failure, and chronic obstructive pulmonary disease, as well as those taking medication for these conditions, were excluded from the study. We also excluded patients who had any mental illness and drug use in the last two years, a history of suicide attempt, alcohol and substance use disorder, and diseases that may affect cognitive functions such as dementia, and Parkinson's. Ethics committee approval of the study was got. This study adhered to the principles of the 1964 Declaration of Helsinki and its subsequent amendments, or comparable ethical standards.

Scales Used in the Study

Sociodemographic Data Form: The authors devised this form to gather sociodemographic data from participants, encompassing gender, age, marital status, and presence of disease.

Arizona Sexual Experiences Scale (ASES): It is a short scale consisting of 5 questions about sexual life. Two separate forms have been developed female and male form. It questions sexual problems with short and clear questions. It is scored on a Likert type, and scores of 17 and above suggest sexual dysfunction. As the scores obtained from the scale increase, it is considered an increasing sexual problem. The Cronbach's alpha value of the scale in our study sample was evaluated as 0.78. Soykan conducted the Turkish validity and reliability study. A valid Cronbach alpha value was found for both genders in the Turkish sample (10,11).

Toronto Alexithymia Scale (TAS): The scale was developed by Taylor. It is a self-report scale filled by persons themselves. Increased scores are considered as increased alexithymia. It consists of 26 questions. The cut off score is 11. Its validity and reliability studies were conducted by Derbey. In our study sample, the Cronbach's alpha coefficient for the scale was calculated to be 0.82 (12,13).

Exaggeration of Physical Senses Scale (EPSS): It is a self-report scale developed by Barsky et al. Increased scores are associated with increased exaggeration of physical sensations. It is a 10-item scale, and each question is graded between 1 and 5 points. Its validity and reliability studies were conducted by Güleç et al. In our study sample, the Cronbach's alpha value for the scale was determined to be 0.72 (14).

Bath Ankylosing Spondylitis Disease Activity Index (BASDAI): It is a criterion used to assess disease activity. It includes a series of questions encompassing symptoms such as back pain, morning stiffness, insomnia, pain, swelling, and limited range of motion in muscles. Higher BASDAI scores potentially indicating a more active disease state, while lower scores may suggest a less active disease or a period of remission (15).

Bath Ankylosing Spondylitis Functional Index (BASFI): This index is employed to assess patients' abilities to carry out their daily activities and evaluate their functional status. Higher scores indicate greater impairment as the score increases (16).

Bath Ankylosing Spondylitis Metrology Index (BASMI): It is employed to assess spinal mobility. BASMI comprises five clinical measurements. The results are then totaled, yielding a score that represents a value between 0 and 10 (17).

Table 1. Sociodemographic data of the patient and control groups.

Sociodemographics	Patient Group (n=54)		Control Group (n=51)		p
Age, (Min-Max, Med(IQR))	20-65	47.31 (17.0)	22-65	43.73 (19.0)	0.052*
Gender, n (%)					0.300**
Female	35	(64.8)	28	(54.9)	
Male	19	(35.2)	23	(45.1)	
Marital Status, n (%)					0.339**
Married	48	(88.9)	42	(82.4)	
Single	6	(11.1)	9	(17.6)	
Occupation, n (%)					0.426***
Not working	28	(51.9)	27	(52.9)	
Clerk	4	(7.4)	10	(19.6)	
Worker	12	(22.2)	10	(19.6)	
Student	2	(3.7)	1	(2.0)	
Retired	8	(14.8)	3	(5.9)	
Education Level, n (%)					0.660**
Primary School	35	(64.8)	31	60.8	
High School	8	(14.8)	6	11.8	
University	11	(20.4)	14	27.5	

*Mann Whitney U Test, **Chi square Test, ***Fisher exact test, p<0.05.

Bath Ankylosing Spondylitis Global Index (BAS-G): It is used to evaluate overall disease activity. This index aims to measure patients' subjective perceptions of their disease and their overall health status (18).

Statistical Analysis

The study data were evaluated utilizing IBM SPSS Statistics version 25.0 program. Descriptive statistics of the research data are presented as min-max, median, number and percentage. Categorical data underwent analysis via the chi-square test. Normality of the data was evaluated by histogram, Kolmogorov-Smirnov test and skewness kurtosis values. The distinction between groups was assessed using the Mann-Whitney U test. The data correlation was analyzed using the Spearman correlation test, with a significance level set at $p < 0.05$.

RESULTS

The study included 54 patients diagnosed with AS and 51 healthy controls with no diagnosis. The age range of the patient group varied between 20 and 65 years old. The sociodemographic data of the patient and control groups were presented in detail in Table 1, and there was no significant difference between the sociodemographic data of the two groups (Table 1). We compared the scale scores of the patient and the control groups. ASES total score ($p = 0.002$), EPSS total score ($p = 0.006$), TAS total score ($p < 0.001$),

Table 2. Comparison of scale scores between patient and control groups.

	Patient Group (n=54)	Control Group (n=51)	p
	Med(IQR)	Med(IQR)	
ASES	16.0 (11.0)	13.0 (5.0)	0.002**
EPSS	30.0 (15.0)	24.0 (10.0)	0.006**
TA-DIF	17.5 (11.0)	12.0 (6.0)	0.000**
TA-DDF	14.0 (10.0)	10.0 (4.0)	0.000**
TA-EOT	21.5 (11.0)	13.0 (5.0)	0.000**
TAT	55.0 (21.0)	41.0 (9.0)	0.000**

ASES: Arizona Sexual Experiences Scale, **EPSS:** Exaggeration of Physical Senses Scale, **TA-DIF:** Toronto Alexithymia -Difficulty Identifying Feelings, **TA-DDF:** Toronto Alexithymia -Difficulty Describing Feelings, **TA-EOT:** Toronto Alexithymia Externally-Oriented Thinking, **TAT:** Toronto Alexithymia Total
Mann Whitney U, **IQR:** Interquartile Range, ** $p < 0.01$

TAS-Difficulty identifying Feelings ($p < 0.001$), TAS-Difficulty Describing Feelings ($p < 0.001$), and TAS-External-oriented Thinking ($p < 0.001$) subscale scores were statistically significantly higher in the patient group compared to the control group (Table 2). When we examined the relationship between the scale scores in the patient group and BASMI, BASDAI, BASFI, and BASG, we did not find a significant relationship between the scale scores ($p > 0.05$) (Table 3).

Table 3. Correlation of the scale scores used in the study in the patient group.

	BASDAI		BASFI		BASMI		BASG	
	p	r	p	r	p	r	p	r
ASES	0.571	-0.079	0.662	0.061	0.173	0.188	0.401	-0.117
EPSS	0.207	-0.174	0.573	0.078	0.791	0.037	0.750	0.044
TA-DIF	0.328	0.136	0.719	0.050	0.419	0.112	0.969	0.005
TA-DDF	0.408	0.115	0.657	-0.062	0.580	0.077	0.431	-0.109
TA-EOT	0.481	0.098	0.766	-0.042	0.892	-0.019	0.960	-0.007
TAT	0.423	0.111	0.954	-0.008	0.582	0.077	0.775	-0.040

ASES: Arizona Sexual Experiences Scale, **EPSS:** Exaggeration of Physical Senses Scale, **TA-DIF:** Toronto Alexithymia-Difficulty Identifying Feelings, **TA-DDF:** Toronto Alexithymia -Difficulty Describing Feelings, **TA-EOT:** Toronto Alexithymia Externally-Oriented Thinking, **TAT:** Toronto Alexithymia Total, **BASDAI:** Bath Ankylosing Spondylitis Disease Activity Index, **BASFI:** Bath Ankylosing Spondylitis Functional Index, **BASMI:** Bath Ankylosing Spondylitis Metrology Index, **BAS-G:** Bath Ankylosing Spondylitis Patient Global Score
spearman correlation, $p < 0.05$

DISCUSSION

In the study, the sexual experiences, exaggeration of physical senses, and alexithymia levels of patients with AS were investigated. Upon examining the research results, it is observed that AS patients scored higher than healthy controls on the Arizona Sexual Experiences Scale, the Exaggeration of Physical Senses Scale, and the Toronto Alexithymia Scale. This suggests lower sexual functioning and higher levels of alexithymia and focus on physical sensations in AS patients.

Studies have reported that sexual dysfunctions are higher in AS patients than in healthy controls. In a study by Shen et al., higher sexual dysfunction was reported in AS patients (19). Likewise, in a large-scale study by Healey et al., higher sexual dysfunction was reported in AS patients (20). In some studies, sexual dysfunctions of AS patients were also investigated based on gender differences, and generally higher sexual dysfunctions were reported in male patients (21). However, studies comparing sexual dysfunctions in men and women are limited. There are also studies reporting sexual dysfunction in all sexes separately. However, the common consensus in the literature is that sexual dysfunction is more frequently observed in patients with AS (22,23).

In the study, the sexual function levels of female and male AS patients were not separately examined. However, upon reviewing the research data, it is observed that AS patients scored higher on the ASES. This suggests poorer sexual functionality in patients. In this regard, our research findings are consistent with the literature. Although there are studies that do not report any difference in sexual functions between AS patients and healthy controls. AS is a progressive, chronic inflammatory disease with sacroiliac joint and spine involvement, and sexual dysfunction is expected in chronic diseases, especially with anatomical involvement and pain (24). Studies have shown that pain symptoms, as well as

physical involvement, negatively affect sexual functions and quality of life in AS (22,25). Another factor that negatively affects the quality of life of patients in AS is chronic pain. Chronic pain not only causes the person to be inadequate in the face of living conditions but also negatively affects the quality of life of people and causes an increase in the frequency of mental illnesses such as depression. Studies have shown that the frequency of alexithymia and depression increases in people with chronic pain. At the same time, anxiety and disability can accompany the symptoms along with chronic pain (26,27). Studies report that alexithymia symptoms such as difficulty in identifying and describing feelings and difficulty in emotion management increase in patients suffering from chronic pain for a long time (28,29).

Alexithymia is often characterized by a reduced awareness of one's own emotions and difficulty in understanding or interpreting them. Studies report that alexithymia is more common in diseases that cause chronic pain such as AS. In a study by Karabıçak et al., high alexithymia levels were found in patients with AS. Consistently, in our study, AS patients exhibited higher levels of alexithymia compared to the healthy control group. Alexithymic individuals experience pain complaints more and their endurance to psychostressors decreases. These people have difficulty describing their physical symptoms and are likely to perceive their physical symptoms at a higher level. This situation negatively affects the treatment process in diseases with chronic pain (9,30). There are also studies on the coexistence of alexithymia and exaggeration of physical senses (31). Alexithymia and exaggeration of physical sensations in AS patients probably negatively affect the treatment process. Therefore, it is important to consider these concepts in this patient group. To our knowledge, there has been no study in the literature investigating the exaggeration of physical sensations in AS patients. Despite the limitations of our research, our findings will serve as a guiding light for future studies in this field.

The study revealed that AS patients exhibited higher levels of exaggeration of physical sensations compared to the healthy control group. Considering the relationship between chronic pain and exaggeration of physical senses, a high level of exaggeration of physical senses in AS is expected. In some studies conducted to date, the level of exaggeration of physical senses was high in the patient group with diseases with chronic pain (32). The constant pain, restricted movement because of joint limitations, diminished quality of life, and chronicity of AS might diminish the tendency for exaggeration of physical sensations among affected patients. In diseases such as AS, which have a chronic course and negatively affect daily life, the evaluation of mental illnesses is important in terms of the general well-being of the patients and their positive response to treatment. In the literature, there are studies on the psychological symptoms, especially anxiety and depression levels of AS patients (5,25). However, there is limited data on alexithymia, sexual functions, and exaggeration of physical senses in AS. Whereas, ignoring mental symptoms in diseases with chronic somatic complaints will negatively affect the healing process. For this reason, in addition to focusing on the disease symptoms of patients with AS, it is necessary to evaluate their mental pathologies in detail.

One of the other research topics in our study is the relationship between the severity of AS disease symptoms and sexual functioning, alexithymia, and somatization. In our research, no significant relationship was observed between the BASDAI, BASFI, BASMI, and BAS-G scores measuring disease symptom severity and the ASES, TAS, and EPSS scores. Similar studies on this topic have been conducted in the literature (9,23). The higher psychological symptoms observed in the patient group, independent of disease severity, may suggest that the diagnosis of the disease could lead to psychological symptoms. AS, because of its chronic and prolonged nature, has the potential to significantly impair quality of life and precipitate psychological distress. However, further research is needed to investigate the relationship between psychological symptoms, AS, and disease severity in more depth. It's worth noting that existing research in the literature on this topic has yielded conflicting results and is also limited.

In conclusion, AS is a chronic condition that significantly impacts quality of life. Recognition of accompanying mental pathologies will both positively affect the healing process of patients and increase their quality of life. Interdisciplinary collaboration is important in chronic somatic diseases. Our study in this area will both contribute to the literature and increase awareness. Similar further studies examining the psychiatric pathologies accompanying AS are needed.

Study Limitations

Our study was single center and therefore research findings cannot be generalised. Furthermore, other factors that may influence sexual dysfunction and emotion identification have not been investigated. Economic conditions, partner relationships, childhood traumas, and family relationships are among the many factors that could influence our research hypothesis. However, in our study, none of these other confounding factors were examined. Additionally, detailed evaluations of patients' sexual functions were not conducted, and the research interpretations were made based on scales rather than clinical data. This is one of the most significant limitations of our study. Additionally, in the study, the diagnosis of mental illnesses was excluded by clinical interview and SCID was not applied to the participants. This situation is another of our limitations.

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Author Contributions

Concept: **Mehmet Serhat Topaloğlu, Meltem Puşuroğlu**, Design: **Mehmet Serhat Topaloğlu, Meltem Puşuroğlu**, Data Collection or Processing: **Mehmet Serhat Topaloğlu**, Analysis or Interpretation: **Mehmet Serhat Topaloğlu, Meltem Puşuroğlu**, Literature search: **Mehmet Serhat Topaloğlu, Meltem Puşuroğlu**, Writing: **Mehmet Serhat Topaloğlu**, Approval: **Meltem Puşuroğlu**.

Conflicts of Interest

The authors declare no conflict of interest.

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Ethical Approval

This study received approval from the non-interventional clinical research ethics committee at Recep Tayyip Erdogan University Faculty of Medicine (approval number: 2022/24).

Review Process

Deemed suitable for publication after blind peer review

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