ORIGINAL RESEARCH ORİJİNAL ARAŞTIRMA

10.5336/healthsci.2023-97638

Childhood Trauma, Depression, Anxiety, Stress and Quality of Life in Women with Hashimoto's Disease: Descriptive Research

Haşimoto Hastalığı Olan Kadınlarda Çocukluk Çağı Travmaları, Depresyon, Anksiyete, Stres ve Yaşam Kalitesi: Tanımlayıcı Araştırma

Kadriye SLOCUM[a], Işıl BİLİCAN[b]

[a]Department of Psychology, Fatih Sultan Mehmet Vakıf University and
İstanbul Medeniyet University Joint Clinical Psychology Doctorate Program, İstanbul, Türkiye
[b]Department of Psychology, Division of Clinical Psychology, İstanbul Medeniyet University Faculty of Literature, İstanbul, Türkiye

ABSTRACT Objective: Hashimoto's disease is the most common autoimmune thyroid disease and the most common cause of hypothyroidism. Recent studies demonstrate that many report significant impairment in quality of life (QOL) compared to controls of similar age and sex, even when they are adequately medically treated. As of yet, there are limited studies that have investigated this issue. The present study aimed to examine the unique contribution of childhood trauma, depression, anxiety and stress on QOL, among women with medically adequately treated Hashimoto's disease. In route of this aim, the study also contributes to the Hashimoto's disease literature available on childhood trauma and the associations between depression, anxiety, stress, childhood trauma and QOL. **Material and Methods:** Eighty three women (mean age=35.47±6.19 years) with well-controlled Hashimoto's disease for ≤6 months, filled out the World Health Organization Quality of Life Questionnaire, Childhood Trauma Questionnaire-33, Depression Anxiety Stress-21 scale and a sociodemographic form. Data was analyzed via correlation and simple linear regression. **Results:** Emotional neglect and OP-OC were the most commonly reported childhood traumas among women with Hashimoto's disease, but only emotional neglect ($p \leq 0.05$) and emotional abuse ($p \leq 0.01$) significantly negatively correlated with QOL. Depression (11.8%) and stress (9.8%,) were the only variables to explain the variance in QOL. Finally, stress was significantly negatively correlated with QOL, and OP-OC was significantly positively correlated with stress ($p \leq 0.05$). **Conclusion:** Emotional abuse, emotional neglect, depression and stress must be considered in terms of QOL in women diagnosed with Hashimoto's disease. Suggestions for future studies are discussed.

Keywords: Hashimoto's disease; childhood trauma; quality of life; depression; stress

ÖZET Amaç: Haşimoto hastalığı, en yaygın otoimmün tiroid hastalığı ve hipotiroidinin en sık sebebidir. Güncel çalışmalar, yeterli tıbbi tedaviye rağmen Haşimoto hastalığı olan bireylerin benzer yaş ve cinsiyetteki bireylere kıyasla azımsanmayacak düzeyde düşük yaşam kalitesi bildirdiklerini göstermektedir. Fakat bu düşük yaşam kalitesinin sebepleri henüz net değildir. Hâlihazırdaki çalışma, tıbbi anlamda yeterli tedavi görmüş Haşimoto hastalığı olan kadınlarda çocukluk çağı travmaları, depresyon, anksiyete ve stresin yaşam kalitesi açısından önemlerini incelemeyi amaçlamıştır. Bu amaç kapsamında, çalışma aynı zamanda çocukluk çağı travmaları ve depresyon, ankisyete, stres, çocukluk çağı travmaları ve yaşam kalitesi arasındaki ilişkiler açısından Haşimoto hastalığı literatürüne katkı sağlamaktadır. **Gereç ve Yöntemler: T**ıbbi tedavileri ≤6 ay boyunca stabil olan 83 Haşimoto hastalığı olan kadın (yaş ortalaması=35,47±6,19), Dünya Sağlık Örgütü Yaşam Kalitesi, Çocukluk Çağı Travmaları-33 ve Depresyon Anksiyete Stres-21 ölçekleri ile birlikte sosyodemografik form doldurmuştur. Veriler korelasyon ve basit doğrusal regresyon kapsamında analiz edilmiştir. **Bulgular:** Duygusal ihmal ve aşırı koruma-kontrol en yaygın bildirilen çocukluk çağı travmaları olmuş, ancak sadece duygusal ihmal ($p \leq 0,05$) ve duygusal taciz ($p \leq 0,01$) yaşam kalitesi ile istatistiki seviyede anlamlı negatif korelasyon göstermiştir. Yaşam kalitesindeki varyansı tek açıklayan değişkenler %11,8 ile depresyon ve %9,8 ile stres olmuştur. Son olarak, stres ile yaşam kalitesi arasında istatistiki seviyede anlamlı negatif korelasyon, aşırı koruma-kontrol ve stres arasında da istatistiki seviyede anlamlı pozitif korelasyon saptanmıştır ($p \leq 0,05$). **Sonuç:** Duygusal taciz, duygusal ihmal, depresyon ve stres Haşimoto hastalığı olan kadınların yaşam kalitesi açısından dikkate alınmalıdır. İleriki çalışmalar için öneriler tartışılmıştır.

Anahtar Kelimeler: Haşimoto hastalığı; çocukluk çağı travmaları; yaşam kalitesi; depresyon; stres

Correspondence: Kadriye SLOCUM
Private Physician, İstanbul, Türkiye
E-mail: kadriyeslocum@gmail.com

Peer review under responsibility of Turkiye Klinikleri Journal of Health Sciences.

Received: 29 Apr 2023 ***Received in revised form:*** 21 Jun 2023 ***Accepted:*** 22 Jun 2023 ***Available online:*** 11 Jul 2023

Hashimoto's disease represents an organ-specific autoimmune disorder involving an autoimmune-mediated destruction of the thyroid gland via anti-thyroid antibodies, namely anti-thyroid peroxidase (TPOAb).[1] As a result of this destruction the thyroid gland is unable to produce adequate amounts of thyroid hormones, triiodothyronine (T3) and thyroxine (T4), resulting in a condition known as hypothyroidism. With a prevalence of 10-12% in the general population, it is the most prevalent autoimmune disease among all autoimmune diseases and the most common cause of hypothyroidism.[2,3] It is approximately 10 times more common in women, with most diagnoses occurring between 30-50 years.[4]

The pathogenesis of Hashimoto's disease entails genetic as well as nongenetic factors. Findings from gene studies demonstrate that the first degree relatives of those with Hashimoto's disease are 9 times more likely to be diagnosed with the disease and that histocompatibility, immunoregulatory and thyroid specific genes contribute to about 73% risk of developing anti-thyroid antibodies, including TPOAb.[5,6] Similarly, twin studies have shown that the prevalence of autoantibodies in monozygotic cotwins is 80% and 40% in dizygotic cotwins of individuals with Hashimoto's disease (p=0.36). TPOAb was found in 53% of the monozygotic cotwins, while 22% was found in the dizygotic cotwins. Nevertheless, the etiological significance of nongenetic factors cannot be overlooked as the concordance rate among monozygotic twins is below 1.[7] Research also shows that genetic penetration of the disease is between 30-70% with genes not being the absolute determinant of the disease.[8,9]

Possible nongenetic factors in the development of Hashimoto's disease have been reviewed. While factors such as iodine intake, infections, pregnancy, smoking, selenium and vitamin D have been widely studied, a less reviewed factor has been trauma.[3] One of the theories proposed in the area of trauma is the safety theory.[10] This theory suggests that symptoms of the disease, including hair loss, weight gain, dull skin, and infertility are a means of the body adapting to an environment that has become unsafe, specifically following sexual abuse, in order to protect the body from future abusers. A study investigating the relationship between having a history of childhood trauma with developing a thyroid disease in adulthood among 13,070 participants (48.4% men, 51.6% women) found that women who experienced childhood trauma were 40% more likely to develop a thyroid disease compared to their peers who had no history of childhood trauma (95% confidence interval=1.05-1.88), while there was no statistical significance between childhood trauma and thyroid disease in men.[11] No comment was made on the type of childhood trauma in the study, since it was investigated in the scope of a yes or no question on having a history of trauma in childhood or not, similar to the question in another study looking into childhood trauma among individuals with Hashimoto's disease.[12]

One study, decreased the gap in the literature by looking into the traumatic experiences of women diagnosed with Hashimoto's disease via the Traumatic Experiences Checklist (TEC).[13] This study noted that the most common type of childhood trauma was emotional neglect, and not sexual abuse, with sexual abuse being reported by only three of the twenty-five women included in the study. The need for future studies investigating childhood trauma with larger samples was among the suggestions of this study. TEC investigates emotional abuse, emotional neglect, physical abuse, physical neglect and sexual abuse. Another type of childhood trauma is overprotection-overcontrol (OP-OC). OP-OC involves negative parenting behavior, where caregivers limit the independence of children by not giving them the freedom to act upon personal initiative.[14] Studies have noted OP-OC as developmentally traumatizing.[15]

Apart from physical health, the ramifications of Hashimoto's disease are experienced in mental health. Several psychiatric co-morbidities are common, specifically depression and anxiety, with depression constituting the capstone of these disorders.[16] These diagnoses exist even before levothyroxine replacement therapy, the main treatment method of Hashimoto's disease to achieve the euthyroid state in which thyroid hormone levels are in the normal range. For example, one study compared euthyroid Hashimoto's disease individuals in the euthyroid state with and without levothyroxine replacement therapy, with healthy controls and found no

significant difference in the depression and anxiety scores of those who were on levothyroxine replacement therapy and those who were not.[17] Consequently, studies note that such comorbidities may be related to Hashimoto's disease.

Due to the presence of multiple health problems, research has indicated that individuals with Hashimoto's disease are subject to great stress.[18] Stress is implicated in the etiology of the most common type of autoimmune hyperthyroidism, Graves' disease. A number of studies have demonstrated that those with Graves' disease experience a higher number of stressful life events compared to controls the year prior to having been diagnosed.[19] However, there is scarce evidence regarding the role of stress in the etiology of Hashimoto's disease.[20] Two case-control studies within the Amsterdam autoimmune thyroid disease cohort assessing recent life events and daily hassles via questionnaires collected annually over the course of 5 years, found no association between stress and the presence of TPOAb or developing Hashimoto's disease.[21]

Finally, individuals with Hashimoto's disease report a significant impairment in quality of life (QOL) compared to controls of similar age and sex.[22] Recent studies demonstrate that many continue to have lower QOL in spite of being in the euthyroid state.[23] As of yet there is no clear explanation for this decrease in QOL. One hypothesis is that thyroid autoimmunity is responsible, as studies have identified a correlation between the symptoms of Hashimoto's disease and thyroid antibodies, independent of thyroid function.[24] In a study of 130 euthyroid individuals with Hashimoto's disease and 111 matched controls, a significant correlation was found between high TPOAb levels and poor QOL ($p \leq 0.05$) and depression ($p \leq 0.001$), independent of thyroid hormone levels.[25]

However, other studies have had varying results. One study, consisting of 218 individuals (57.1% Hashimoto's disease) found that higher thyroid stimulating hormone levels were associated with low QOL in individuals with primary hypothyroidism.[26] Another study found no association between QOL and thyroid hormone or auto-antibody levels, identifying only an inverse relationship between body mass index and QOL.[27] Other reasons indicated for low QOL are the awareness of suffering a chronic disease and increased prevalence of non-thyroid comorbidities.[8] Issues related to inadequacies in the medical treatment of individuals with Hashimoto's disease have specifically received greater attention.[26] Factors we are still unaware of could be contributing to the reduction in QOL in individuals with Hashimoto's disease.

In lieu with these findings, the aims of the present study were threefold. Firstly, to investigate childhood trauma, including the dimension of OP-OC and in a larger population then prior studies in order to contribute to the literature on childhood trauma among women with Hashimoto's disease. Secondly, to investigate the associations between childhood trauma, depression, anxiety, stress and QOL, to further the literature regarding these variables in women with Hashimoto's disease. Finally, to investigate the unique contributions of childhood trauma, depression, anxiety and stress on QOL, in order to further identify factors that may explain the reduction in QOL in women with medically well-controlled Hashimoto's disease.

MATERIAL AND METHODS

PARTICIPANTS AND PROCEDURE

In order to recruit as many participants as possible and collect data on concepts that have not yet been adequately studied in Hashimoto's literature, the cross-sectional design was chosen for the present study. Participants were recruited via the snowball technique and the referral of physicians who were informed about the study by the researchers. Participants who contacted the researchers with the desire to partake in the study were then screened in the scope of study criteria via phone screening, conducted by the same individual for all participants. Inclusion criteria included being diagnosed with Hashimoto's disease by a physician, being a female between 18-45 years and being on the same dose of levothyroxine for ≤6 months as an indicator of having medically well-controlled hypothyroidism. Exclusion criteria included menopause, pregnancy or puerperium, hav-

ing cancer, a cognitive impairment or psychotic disease, lacking the ability to read and understand the Turkish language and having experienced a recent stressful life event, which was specified as all stressors seriously impacting the psychological state, such as the passing of a family member, experiencing a serious injury or having financial problems. Upon phone screening, the final study population consisted of 83 Turkish women.

ETHICAL CONSIDERATIONS

The study design was approved by an Fatih Sultan Mehmet Vakıf University Scientific Research and Publication Ethics Committee (date: June 3, 2021; number: 05/11). Each participant signed an online informed consent form in which they were given a full explanation of the purpose and nature of the study. All reported research was conducted in accordance with the principles set forth in the Helsinki Declaration 2008.

COLLECTION AND EVALUATION OF DATA

Participants of the present study resided in different cities of Türkiye. Consequently, data was collected via an online Google Form (Google LLC, U.S). All participants accessed the online Google Form, containing the data collection instruments described below, via a link sent personally to their e-mail address by one of the researchers. Participants were given the contact details of all researchers in the circumstance of any questions or difficulties.

SOCIODEMOGRAPHIC FORM

The sociodemographic form prepared for the purposes of this study consisted of questions on age, age of diagnosis, economic status, marital status, level of education, working status and the impact of diagnosis on daily life.

WORLD HEALTH ORGANIZATION QUALITY OF LIFE QUESTIONNAIRE

The measure of QOL was the first question of the Turkish and brief version of the World Health Organization Quality of Life Questionnaire (WHOQOL-BREF-TR), where participants were asked to rate their overall perception of their QOL on a 1 to 5 Likert scale, where "1" represents "very bad" and "5" represents "very good". Higher scores indicate a better QOL. The WHOQOL-BREF is a cross-culturally valid self-administered scale for well-being, with the first question being fit to be analyzed separately as a measure of QOL.[28]

CHILDHOOD TRAUMA QUESTIONNAIRE

Childhood Trauma Questionnaire (CTQ-33) is a 33-item, self- report instrument, assessing 6 types of childhood abuse and neglect (emotional abuse, emotional neglect, physical abuse, physical neglect, sexual abuse, OP-OC).[15] It is the expanded version of the Turkish version of CTQ-28, originally developed by Bernstein et al., through the integration of a 6th dimension (OP-OC) for better differentiation of childhood adversities.[29] Scoring is based on a 1 to 5 Likert scale where "1" is equivalent to "never" and "5" is equivalent to "very frequently". While scores for each type of childhood trauma can total between 5 to 25 points, the denial of trauma score can total between 0 to 3 points, with higher scores representing more severe childhood trauma or denial of trauma. The Turkish version of CTQ-33 used in the present study demonstrated good internal consistency (Cronbach alpha=0.87) and test-retest reliability (0.91; $p \leq 0.001$), with 18 of the 33 item/item-deleted total score correlations being above 0.50. Cronbach alpha of the instrument was 0.83 for the present study.

DEPRESSION ANXIETY STRESS SCALE-21

Depression Anxiety Stress Scale-21 (DASS-21) is a 21- item, self- report instrument developed by Loviband and Loviband to assess depression, anxiety and stress.[30] The original version consisted of 42 items and was shortened to 21 items by Lovibond and Lovibond to reduce administration time.[30] Since its publication, it has been widely used in various types of research and has been validated as a scale that distinguishes well between depression, anxiety and stress in a number of populations. The Turkish version of DASS-21 is among these populations and has proven to be psychometrically sound, with good validity and internal consistency (Cronbach alpha of depression=0.808; anxiety=0.819; stress=0.755).[31] The scale consists of 7 items each for depression, anxiety and stress. Scoring is based on a 0 to 3 Likert scale where "0" represents "never" and "3" represents "al-

most always". Scores for each category total between 0 to 21 points, with higher scores representing higher symptomatology in the related category. The Cronbach alphas of the instrument in the present study was 0.872 for depression, 0.780 for anxiety, and 0.852 for stress.

STATISTICAL ANALYSES

Numerical data are reported as mean and standard deviation, and categorical variables as number and percentage. The crude associations between each type of childhood trauma, anxiety, depression, stress and QOL were evaluated by means of Pearson correlation. Regression analyses were necessary to test the unique contributions of childhood trauma, depression, anxiety and stress on QOL. All types of childhood trauma and anxiety were variables identified as not suitable for regression analyses, since they had a correlation lower than r=0.30 with the outcome variable, QOL. Depression and stress were the only variables that correlated above level r=0.30 with QOL, and were therefore suitable for regression. However, since depression and stress correlated with one another at a level above r=0.70, the assumption of no multicolinearity between the predictor variables was not met and multiple regression analysis could not be conducted. Consequently, simple linear regression analysis was suitable for the present study. Statistical significance was set at p≤0.05. Data were analyzed using the SPSS 21.0 for Windows (IBM SPSS Software, U.S).

RESULTS

Eighty three women, with a mean age of 35.47±6.19 years, a mean duration of 6.81±5.83 years of having been diagnosed with Hashimoto's disease and a mean QOL score of 3.55±0.88 participated in the study. 69.9% had an income between 3,000-9,999 TL, 67.5% were married, 63.9% had a university degree, 62.7% were working, and 50.6% selected the impact of the diagnosis on their daily life as "a lot" (Table 1).

The most common type of childhood trauma reported was emotional neglect (mean=12.55±4.81) and the highest reported symptom from among depression, anxiety and stress was stress (mean=10.08±5.12) (Table 2).

TABLE 1: Characteristics of participants.

	$\bar{X}$±SD		
Age	35.47±6.19 years		
Duration of Hashimoto's diagnosis	6.81±5.83 years		
QOL	3.55±0.88		
		n	%
Economic status	0-2,999 TL	12	14.5
	3,000-5,999 TL	32	38.6
	6,000-9,999 TL	26	31.3
	10,000-14,999 TL	8	9.6
	>15,000 TL	5	6.0
	Total	83	100
Marital status	Single	25	30.1
	Married	56	67.5
	Divorced	2	2.4
	Total	83	100
Level of education	Highschool	8	9.6
	University	53	63.9
	Master's degree	16	19.3
	PhD	6	7.2
	Total	83	100
Working status	Working	52	62.7
	Not working	31	37.3
	Total	83	100
Impact of diagnosis on daily life	A little	9	10.8
	Somewhat	30	36.1
	A lot	42	50.6
	Extremely	2	2.4
	Total	83	100

SD: Standard deviation; QOL: Quality of life.

Emotional neglect, emotional abuse, physical neglect, physical abuse and OP-OC were found to be significantly correlated with all types of childhood trauma, except for sexual abuse. OP-OC and stress (r(81)=0.219; p≤0.05) were also significantly correlated. Emotional neglect (r(81)=-0.241; p≤0.05) and emotional abuse (r(81)=-0.294; p≤0.01) had a significant negative correlation with QOL. Depression (r(81)=-0.343; p≤0.01), anxiety (r(81)=-0.280; p≤0.05) and stress (r(81)=-0.314; p≤0.01) were also significantly negatively correlated with QOL (Table 3).

Finally, two simple linear regression analyses were conducted. One to analyze how much depression predicted the variance in QOL and one to analyze how much stress predicted the variance in QOL. Results demonstrated that depression predicted

TABLE 2: CTQ-33 and DASS-21 results.

	n	Minimum	Maximum	X̄±SD
Emotional neglect	83	5	25	12.55±4.81
Emotional abuse	83	5	24	9.41±3.91
Physical neglect	83	5	20	8.25±0.88
Physical abuse	83	8	21	10.05±2.10
Sexual abuse	83	5	21	7.51±3.95
OP-OC	83	5	24	11.48±4.95
Denial	83	0	2	0.64±0.67
Depression	83	0	21	8.24±5.37
Anxiety	83	0	17	6.27±4.54
Stress	83	0	20	10.08±5.12

CTQ-33: Childhood Trauma Questionnaire; DASS-21: Depression Anxiety Stress Scale-21; SD: Standard deviation; OP-OC: Overprotection-overcontrol.

TABLE 3: Pearson correlations of types of trauma, depression, anxiety, stress and QOL.

	EN	EA	PN	PA	SA	OP-OC	D	A	Stress	QOL
EN	1									
EA	0.681**	1								
PN	0.551**	0.433**	1							
PA	0.482**	0.539**	0.543**	1						
SA	0.101	0.009	-0.009	-0.088	1					
OP-OC	0.565**	0.431**	0.371**	0.393**	-0.026	1				
D	0.006	-0.030	-0.026	-0.124	-0.078	0.052	1			
A	0.044	0.057	0.077	-0.092	0.050	0.146	0.701**	1		
Stress	0.124	0.159	0.078	-0.013	0.059	0.219*	0.724**	0.671**	1	
QOL	-0.241*	-0.294**	-0.051	-0.008	-0.057	-0.106	-0.343**	-0.280*	-0.314**	1

*p≤0.05; **p≤0.01; QOL: Quality of life; EN: Emotional neglect; EA: Emotional abuse; PN: Physical neglect; PA: Physical abuse; SA: Sexual abuse; OP-OC: Overprotection-overcontrol; D: Depression; A: Anxiety.

TABLE 4: Simple linear regression results.

Predictor variable: Depression	B	SE B	β	t value	R^2
Model	-0.057	0.017	-0.343	-3.286	0.118**
Predictor variable: Stress	**B**	**SE B**	**β**	**t value**	**R^2**
Model	-0.054	0.018	-0.314	-2.973	0.098**

**p≤0.01.

11.8% (F (1, 81)=10.799; p≤0.01) of the variance in QOL, and stress predicted 9.8% (F(1, 81)=8.839; p≤0.01) of the variance in QOL (Table 4).

DISCUSSION

Based on our knowledge this is the first study to assess OP-OC as a traumatic experience, as well as the first study to investigate childhood trauma, depression, anxiety and stress in lieu with QOL in women diagnosed with Hashimoto's disease.

All participants of the present study reported childhood trauma, with the denial scores being very low (0.64±0.67 out of 3). This finding shows support for the safety theory which proposed that those with Hashimoto's disease develop symptoms that allow evolutionary advantage in an environment that is no

longer safe.[10] According to Wentz, the most prominent example of this is that women are more likely to be physically, emotionally and sexually abused and this abuse is what sends a signal to the body of not being safe. For example, symptoms of Hashimoto's disease, including hair loss, dull skin, weight gain and infertility are noted as adaptive symptoms following sexual abuse, in order to make women less attractive to potential partners and hence, protect from future abusers.[10] However, based on the results the main cause of this does not seem to be sexual abuse. Sexual abuse was not the most commonly reported childhood trauma, and had no significant correlation with either one of the other childhood trauma types or the other dependent variables of the present study. The most commonly reported childhood trauma was emotional neglect (mean=12.55±4.81), followed by OP-OC (mean=11.48±4.95), with sexual abuse being the least commonly reported childhood trauma (mean=7.51±3.95). This is in harmony with the study of Slocum and Sever, in which emotional neglect was found to be the most commonly reported childhood trauma among the twenty-five women included in the study, with sexual abuse being the least common form of childhood trauma reported.[13]

OP-OC being the second most commonly reported childhood trauma is also of significance, since this type of childhood trauma has not yet been taken into consideration in Hashimoto's disease literature. Furthermore, aside from emotional neglect and emotional abuse which were the only childhood trauma variables to significantly correlate with QOL, but not correlate with depression, anxiety or stress, the only childhood trauma that had a significant correlation with QOL and with a depression, anxiety and stress variable was OP-OC, with OP-OC having a significant negative correlation with stress ($r(81)=0.219$; $p\leq0.05$). This finding may shed some light on the implications of stress in the pathogenesis of Hashimoto's disease.[20] On the other hand, a study investigating the moderating effect of childhood trauma on the associations between thyroid, anxiety and depressive disorders, found that anxiety disorders were more common in individuals with childhood trauma and thyroid disorders, while depressive disorders were more common in individuals without childhood trauma and thyroid disorders.[32] Since no correlation was found between any type of childhood trauma and depression or anxiety in the present study, further research may be needed on such forms of childhood trauma being possible modifying variables in thyroid disorders.

At the same time, although the most commonly reported childhood trauma was emotional neglect, the childhood trauma with the most significant correlation with QOL in women with Hashimoto's disease was emotional abuse ($p\leq0.01$), followed by emotional neglect ($p\leq0.05$). Past studies on the causes of lower QOL in those diagnosed with Hashimoto's disease have considered thyroid hormone levels, antibody levels, body mass index and other comorbidities as possible factors. However, the present study appears to be the first to investigate childhood trauma in terms of QOL. As noted, many individuals with Hashimoto's disease suffer from a decrease in QOL, in spite of being treated for the condition and achieving a euthyroid state, with no clear explanation for this decrease at present. Issues related to inadequacies in treatment have specifically been brought to attention.[28] Present findings regarding the associations of emotional abuse and emotional neglect with QOL, could contribute to the development of future treatment protocols for those suffering from Hashimoto's disease.

At the same time, depression, anxiety and stress were all found to be significant in terms of QOL, with depression ($p\leq0.01$) and stress ($p\leq0.01$) being specifically significant in the correlation and regression analyses. While data on stress and QOL in women with Hashimoto's disease is negligible, there are previous studies that have stated depression as the capstone of all disorders in those diagnosed with Hashimoto's disease.[16,33]

In one study, while thyroid levels or menopausal status were not related to depression, the presence of TPOAb antibodies was significantly associated with depression.[33] The present study demonstrates that depression in turn is a significant predictor of QOL in women with Hashimoto's disease, accounting for 11.8% of the variance. Similarly, in the correlation analyses, while depression and stress were found to

be significantly correlated with QOL at a p≤0.01 level, anxiety was correlated with QOL at a p≤0.05 level.

CONCLUSION

In conclusion, emotional neglect and OP-OC are commonly reported childhood traumas in women suffering from Hashimoto's disease and both emotional neglect and emotional abuse are significantly correlated with QOL, with emotional abuse being specifically significant at p≤0.01 level. Depression seems to be a more significant diagnosis in Hashimoto's disease compared to anxiety, with depression being the most significant predictor of QOL, followed by stress. At the same time, OP-OC was found to have a significant positive correlation with stress, which is important in terms of the paucity of data available on the role of stress in the etiology of Hashimoto's disease. Since stress is significantly negatively correlated with QOL, OP-OC may indirectly be contributing to QOL levels in women with Hashimoto's disease.

Finally, findings must be interpreted in light of the limitations of the present study, specifically the cross-sectional design, the use of self-report instruments and the lack of a control group and collection of thyroid laboratory variables such as TPOAb. Future studies can investigate concepts of the present study longitudinally, with a larger sample and a control group and the incorporation of thyroid laboratory results. Furthermore, concepts such as childhood trauma, depression, anxiety, stress and QOL could be evaluated with methods other than self-report instruments, and whether childhood trauma causes post-traumatic stress disorder could be investigated.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Kadriye Slocum, F. Işıl Bilican;* ***Design:*** *Kadriye Slocum, F. Işıl Bilican;* ***Control/Supervision:*** *Kadriye Slocum, F. Işıl Bilican;* ***Data Collection and/or Processing:*** *Kadriye Slocum;* ***Analysis and/or Interpretation:*** *Kadriye Slocum, F. Işıl Bilican;* ***Literature Review:*** *Kadriye Slocum;* ***Writing the Article:*** *Kadriye Slocum;* ***Critical Review:*** *F. Işıl Bilican.*

REFERENCES

1. Ajjan RA, Weetman AP. The pathogenesis of Hashimoto's thyroiditis: further developments in our understanding. Horm Metab Res. 2015;47(10):702-10. [Crossref] [PubMed]
2. Dayan CM, Daniels GH. Chronic autoimmune thyroiditis. N Engl J Med. 1996;335(2):99-107. [Crossref] [PubMed]
3. Wiersinga WM. Hashimoto's thyroiditis. In: Vitti P, Hegedüs L, eds. Thyroid Diseases Pathogenesis, Diagnosis, and Treatment. 1st ed. Cham: Springer; 2018. p.205-47. [Crossref]
4. Merrill SJ, Mu Y. Thyroid autoimmunity as a window to autoimmunity: An explanation for sex differences in the prevalence of thyroid autoimmunity. J Theor Biol. 2015 ;375:95-100. [Crossref] [PubMed]
5. Özata M. Tiroid Hastalıklarına Fonksiyonel Bakış. 1. Baskı. İstanbul: Efe Akademi Yayınevi; 2020.
6. Attard CC, Vella S. Aetiology of thyroid autoimmunity. Malta Medical Journal. 2018;30(1):26-30. [Link]
7. Brix TH, Hansen PS, Kyvik KO, Hegedüs L. Aggregation of thyroid autoantibodies in first-degree relatives of patients with autoimmune thyroid disease is mainly due to genes: a twin study. Clin Endocrinol (Oxf). 2004;60(3):329-34. [Crossref] [PubMed]
8. Skov J, Calissendorff J, Eriksson D, Magnusson P, Kämpe O, Bensing S, et al. Limited genetic overlap between overt Hashimoto's thyroiditis and Graves' disease in twins: a population-based study. J Clin Endocrinol Metab. 2021;106(4):1101-10. [Crossref] [PubMed] [PMC]
9. Attard CC, Sze WCC, Vella S. Predictors of autoimmune thyroid disease. Proc (Bayl Univ Med Cent). 2022;35(5):608-14. [Crossref] [PubMed] [PMC]
10. Wentz I. Haşimoto Protokolü. 1. Baskı. İstanbul: Totem Yayınları; 2021.
11. Fuller-Thomson E, Kao F, Brennenstuhl S, Yancura LA. Exploring gender differences in the association between childhood physical abuse and thyroid disorders. Journal of Aggression Maltreatment & Trauma. 2013;22(6):590-610. [Crossref]

12. Sheikh MA. Child maltreatment, psychopathological symptoms, and onset of diabetes mellitus, hypothyroidism and COPD in adulthood. J Affect Disord. 2018;241:80-5. [Crossref] [PubMed]
13. Slocum K, Sever E. A closer look at the past traumatic experiences and current unconditional self-acceptance of women with Hashimoto"s disease: a quantitative and qualitative analysis. Journal of Social and Humanities Sciences Research. 2019;6(33):534-45. [Link]
14. Wood JJ, McLeod BD, Sigman M, Hwang WC, Chu BC. Parenting and childhood anxiety: theory, empirical findings, and future directions. J Child Psychol Psychiatry. 2003;44(1):134-51. [Crossref] [PubMed]
15. Şar V, Necef I, Mutluer T, Fatih P, Türk-Kurtça T. A revised and expanded version of the Turkish childhood trauma questionnaire (CTQ-33): overprotection-overcontrol as additional factor. J Trauma Dissociation. 2021;22(1):35-51. [Crossref] [PubMed]
16. Giynas Ayhan M, Uguz F, Askin R, Gonen MS. The prevalence of depression and anxiety disorders in patients with euthyroid Hashimoto's thyroiditis: a comparative study. Gen Hosp Psychiatry. 2014;36(1):95-8. [Crossref] [PubMed]
17. Yalcin MM, Altinova AE, Cavnar B, Bolayir B, Akturk M, Arslan E, et al. Is thyroid autoimmunity itself associated with psychological well-being in euthyroid Hashimoto's thyroiditis? Endocr J. 2017;64(4):425-9. [Crossref] [PubMed]
18. Markomanolaki ZS, Tigani X, Siamatras T, Bacopoulou F, Tsartsalis A, Artemiadis A, et al. Stress management in women with Hashimoto's thyroiditis: a randomized controlled trial. J Mol Biochem. 2019;8(1):3-12. [PubMed] [PMC]
19. Radosavljević VR, Janković SM, Marinković JM. Stressful life events in the pathogenesis of Graves' disease. Eur J Endocrinol. 1996;134(6):699-701. [Crossref] [PubMed]
20. Wiersinga WM. Clinical relevance of environmental factors in the pathogenesis of autoimmune thyroid disease. Endocrinol Metab (Seoul). 2016;31(2):213-22. [Crossref] [PubMed] [PMC]
21. Effraimidis G, Tijssen JG, Brosschot JF, Wiersinga WM. Involvement of stress in the pathogenesis of autoimmune thyroid disease: a prospective study. Psychoneuroendocrinology. 2012;37(8):1191-8. [Crossref] [PubMed]
22. Saravanan P, Chau WF, Roberts N, Vedhara K, Greenwood R, Dayan CM. Psychological well-being in patients on 'adequate' doses of l-thyroxine: results of a large, controlled community-based questionnaire study. Clin Endocrinol (Oxf). 2002;57(5):577-85. [Crossref] [PubMed]
23. Ott J, Promberger R, Kober F, Neuhold N, Tea M, Huber JC, et al. Hashimoto's thyroiditis affects symptom load and quality of life unrelated to hypothyroidism: a prospective case-control study in women undergoing thyroidectomy for benign goiter. Thyroid. 2011;21(2):161-7. Erratum in: Thyroid. 2011;21(4):467. [Crossref] [PubMed]
24. Watt T, Hegedüs L, Bjorner JB, Groenvold M, Bonnema SJ, Rasmussen AK, et al. Is Thyroid autoimmunity per se a determinant of quality of life in patients with autoimmune hypothyroidism? Eur Thyroid J. 2012;1(3):186-92. [Crossref] [PubMed] [PMC]
25. Vasovic O, Nikolic-Djurovic M, Djukic V. Quality of life and mood disorders in patients with Hashimoto thyroiditis. Broad Research in Artificial Intelligence and Neuroscience. 2020;11(1Sup2):67-74. [Crossref]
26. Morón-Díaz M, Saavedra P, Alberiche-Ruano MP, Rodríguez-Pérez CA, López-Plasencia Y, Marrero-Arencibia D, et al. Correlation between TSH levels and quality of life among subjects with well-controlled primary hypothyroidism. Endocrine. 2021;72(1):190-7. [Crossref] [PubMed]
27. Kelderman-Bolk N, Visser TJ, Tijssen JP, Berghout A. Quality of life in patients with primary hypothyroidism related to BMI. Eur J Endocrinol. 2015;173(4):507-15. [Crossref] [PubMed]
28. Skevington SM, Lotfy M, O'Connell KA; WHOQOL Group. The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report from the WHOQOL group. Qual Life Res. 2004;13(2):299-310. [Crossref] [PubMed]
29. Şar V, Öztürk E, İkikardeş E. Çocukluk Çağı Ruhsal Travma Ölçeği'nin türkçe uyarlamasınıngeçerlilik ve güvenilirliği [Validity and reliability of the Turkish Version of the Childhood Trauma Questionnaire (CTQ)]. Turkiye Klinikleri Tip Bilimleri Dergisi (Turkiye Klinikleri Journal of Medical Sciences). 2012;32(4):1054-63. [Crossref]
30. Lovibond, PF, Lovibond, SH. The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. Behav Res Ther. 1995;33(3),335-43. [Crossref] [PubMed]
31. Yılmaz Ö, Boz H, Arslan A. Depresyon Anksiyete Stres Ölçeğinin (Dass 21) Türkçe kısa formunun geçerlilik-güvenilirlik çalışması [The validity and reliability of depression stress and anxiety scale (DASS21) Turkish short form]. Finans Ekonomi ve Sosyal Araştırmalar Dergisi. 2017;2(2):78-91. [Link]
32. Ittermann T, Völzke H, Baumeister SE, Appel K, Grabe HJ. Diagnosed thyroid disorders are associated with depression and anxiety. Soc Psychiatry Psychiatr Epidemiol. 2015;50(9):1417-25. [Crossref] [PubMed]
33. Pop VJ, Maartens LH, Leusink G, van Son MJ, Knottnerus AA, Ward AM, et al. Are autoimmune thyroid dysfunction and depression related? J Clin Endocrinol Metab. 1998;83(9):3194-7. [Crossref] [PubMed]