Psychosocial Predictors of Quality of Life among Patients with Hypothyroidism; A Cross-sectional study in Pakistan

Nazia Mustafa[1], Iram Gul[2], Midhat Farzeen[3], Adeela Rehman[4], Fahad Haleem[5] Gul Hussain[6]

[1] Student of Behavioral Sciences, Fatima Jinnah Women University, Pakistan

[2] Assistant Professor, Department of Behavioral Sciences, Fatima Jinnah Women University, Pakistan; iramgul@fjwu.edu.pk

[3] Field Epidemiology & Laboratory Training Program-NIH, Islamabad

[4] Assistant Professor, Department of Sociology, Fatima Jinnah Women University, Pakistan; adeela.rehman@fjwu.edu.pk

[5] National University of Science and technology; fahad_haleem@hotmail.com

[6] Professor of pediatrics, Riphah International University, Rawalpindi; drgul786@yahoo.com

ABSTRACT

About 750 million people are suffering from Thyroid related disorders, 5–10% of which are from Pakistan. Although psychosocial factors and quality of life are associated, psychosocial predictors of quality of life among patients with hypothyroidism are unknown. Fifty patients (38females, 12males) with hypothyroidism were recruited from public sector hospitals of Rawalpindi in this cross-sectional study using purposive sampling technique. Socio-Demographic and Clinical variables information Form; Hospital Anxiety and Depression scale, Multidimensional scale of perceived Social Support, General Preventive Health Behaviors checklist and WHO Quality of Life Scale-Brief were used for collecting data. Results revealed that 60% patient with hypothyroidism had symptoms of anxiety; 44% had depression; 8% had poor social support; 14% had maladaptive health behaviors and 16% had low quality of life. Depression was found to be most significant predictor (β = -0.532, p< 0.001) of quality of life among patients with hypothyroidism explaining 38% of the variance. It is concluded that depression is the most significant predictor of quality of life while social support and healthy lifestyle behaviors also play a part in improving quality of life. Therefore, it is important to provide psychological help to cope with psychological distress of patients with hypothyroidism.

Keywords

Hypothyroidism, Quality of Life, Psychosocial Predictors, Depression, Anxiety

ABSTRACT

The current study was designed to assess the role of Mindfulness Based Stress Reduction Interventional Program (MBSR) in reducing body image dissatisfaction among young adults. In this experimental study the sample comprised of 175 participants (female = 100, male = 75). Age range of participants was between 19-25 years. Data was collected from different colleges and universities of Rawalpindi and Islamabad. Participants were assessed on different measures i.e. Body Shape Questionnaire-16b (BSQ-16b), Mindfulness Attention Awareness Scale (MAAS). Psychometric indices of the measures provided satisfactory evidence for the use in research. Results also indicated that significant difference exists between the means of experimental (M= 59.62, SD= 13.65) and control (M = 38.16, SD= 5.94) groups on body image dissatisfaction t (46) = 7.06, p<.001 among young adults after applying MBSR intervention. This indicates the efficacy of using MBSR intervention in reducing level of body dissatisfaction among young adults. Present research demonstrated the effectiveness of Mindfulness Based Stress Reduction Interventional Program (MBSR) in improving level of body dissatisfaction among young adults. Training sessions should be arranged in universities about the use of Mindfulness Based Stress Reduction interventional program (MBSR). This will help students in solving their socio-cultural, psychological and other related issues in the best possible way. Mental health professionals should also seek MBSR training so that they can help the individuals suffering from different psychological and social issues with advanced ways of treatment.

Keywords

Body image, Body image Dissatisfaction, Mindfulness Based Stress Reduction Program

Introduction

Endocrine disorders are increasing globally and according to World Health Organization, Thyroid related disorders are affecting almost 750 million people around the world[1]. In Pakistan, estimated prevalence of hypothyroidism and sub clinical hypothyroidism is 4.1 and 5.4% respectively which is higher in females than males (Alam., et al 2002). The prevalence and pattern of thyroid

disorders depend upon many factors such as geographical factors, environmental conditions, socioeconomic status, nutritional status and unhealthy life style (James & Kumar, 2012).

According to American Thyroid Association (2016), hypothyroidism is the condition in which thyroid gland is underactive and produced less T3and T4 which causes the body's metabolism to slow down accompanied by changes throughout the organism (Arikan , Bahceci , Tuzcu , Celik Gokalp, 2012), resulting in physiological, psychological and gynecological issues (American Thyroid Association, 2013 & Jerome & Hershman, 2018). It is a lifelong disease which can't be cured but can be managed using medication and by adopting a healthy lifestyle.

In recent decades, assessment of the impact of disease on a patient's life has become an increasingly important therapeutic component, especially in patients with chronic disease. For example, hypothyroidism where goal becomes longevity in good health and thus treatment focuses on optimizing HR-QOL (Watt et al., 2006; Biondi & Cooper,2008).

Quality of life (QoL) is a broad multidimensional concept which is affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment (World Health Organization, 2019). However, for clinical medicine and clinical trials, health-related quality of life (HRQoL) is used which refers to how a disease influences well-being of an individual and describes its impacts on human life including mental, social and physical well-being (WHO,2019). Researchers have developed useful techniques that have helped to conceptualize and measure these multiple domains and how they relate to each other (National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health,2018).

Thyroid disease is a common endocrine disorder; however, only a limited number of studies have described the health-related quality of life (HR-QOL) in thyroid patients (Watt et al.,2006; Biondi & Cooper, 2008). Patients experience limited symptoms at diagnosis, especially in hypothyroidism which gradually get worse. That's why health-related quality of life (HR-QOL) is more severely impaired in subjects with more abnormal thyroid hormone function. A LifeLines Cohort Study between December 2009 and August 2010 of a sample of 9491Dutch adults (median age 45 years; 3993 men and 5498 women) showed that HR-QOL scores of subjects with suppressed TSH values or markedly elevated TSH values were generally not significantly lower than those of subjects with normal or mildly elevated TSH values (Klaver et al., 2013).

A narrative review of 27 scientific articles about psychiatric comorbidities and quality of life in patients with hypothyroidism was carried out by using three databases (ISI Web of Science, Pubmed and PsycInfo) and results showed positive association of hypothyroid with psychiatric disorders(depression and anxiety) and decrease QOL in these patients (Pelúcio , Nardi , Ornelas , Levitan, 2016). Another descriptive analytical comparative study conducted in Iran showed that the quality of life was somewhat similar in those people with or without hypothyroidism, but the mental health level significantly differed. Those with decreased levels of thyroid hormone, when assessed, were found to be depressed and suffering from anxiety (Rakhshan, et al.,2017).

A study conducted by Sanjay, Komal and Balhara (2017) outlined the depressive symptoms associated with hypothyroidism. These symptoms were multifaceted and included social, psychological, financial and health related aspects. The word "thyro-stress" was proposed to explain these emotions, which may range from concern to terror, from anxiety to misery, or from lack of self-confidence to embarrassment. Although, many of these symptoms may be explained by uncontrolled hypothyroidism itself, they may also be attributed to unrecognized stress due to disease burden.

Since management of hypothyroidism require adopting healthy living habits (e.g. healthy eating, physical activity etc.). In recent decades, life style as an important factor of health has been explored

by researchers. According to WHO, 60% of related factors to individual health and quality of life are correlated to lifestyle (Ziglio, Currie & smussen, 2004). Millions of people follow an unhealthy lifestyle. Hence, they encounter illness, disability and even death. Problems like metabolic diseases, joint and skeletal problems, cardio-vascular diseases, hypertension, overweight, violence and so on, can be caused by an unhealthy lifestyle. The relationship of lifestyle and health should be highly considered.

According to Farhud (2015), Balanced diet, regular physical activity, enough sleep, staying away from self/unnecessary medications/drugs, normal sex life and having recreational activities in life are main components of healthy life style. Healthy life style specifically regular physical activity is most strong related to quality of life in patient with hypothyroidism as reported by many research conducted in past. A healthy lifestyle includes health protective and health promoting behaviors (Ping,et al.,2018). Numerous environmental health-related lifestyle factors have been extensively studied, such as dietary habits, substance abuse (e.g., smoking), physical exercise, and sleeping quality (Weisburger,2002). Health empowerment suggests that the individual has increased control over his/her life and health or has an internal health locus of control. "healthy" choices reflect an empowered individual, capable of controlling stress and making decisions that have long-term benefits (Starcke & Brand 2012).

In recent decades, public health specialists around the world have been emphasizing the importance of healthy lifestyle (Smith et al.,2014; Berra & Hughes, 2015). Number of stress management and health promotion programs with aim improve health by empowering people to take control over their lives has been carried out throughout the world. Daily health-related lifestyle choices are integral targets of these interventions and critical to evaluating their efficacy. To date, concepts such as self-efficacy, self-control and empowerment are assessed by tools that only partially address daily lifestyle choices. (Darviri et al., 2014).

Living with a chronic disease affects many areas of one's life like quality of life, acceptance, resilience, coping with stressful thoughts and continuing to participate in the society. Therefore, social support could be an important factor which can facilitate adapting to changing situation of life and improving quality of life of individual.

Social support has been found instrument in promoting mental wellbeing and acting as a protective gear against stressful life situation and depressive thoughts (Dollete & Phillips. 2004). Social support could be derived from either family, friend or from the community. however, people who lack a support network have been found to counter mental health issues like depressive symptoms as was found in university students (Bukhari & Afzal, 2017; Safree & Dzulkifli, 2010) which greatly affected quality of life of students (Dafaala et. al, 2016).

Evidence supports that social support and psychological issues like depression, anxiety/stress have an inverse relationship (Bukhari & Afzal, 2017). A cross-sectional study was conducted with 115 students which showed that students with high level of social support reported low level of stress (Friedlander et. al. 2007). Social support has been found to be associated with improved functioning, QOL as well as helpful in reducing psychological problems by providing people with defense mechanisms which facilitates in overcoming stressors of life. (intro)

Rationale of the Study

A detailed review of research literature revealed that though a number of researches have been done on the prevalence and biological causes of thyroid disorders worldwide and in Pakistan (Akhtar, Khan & Siddiqui, 2001,; Anwarullah, et al., 2012.; Rehmanet al., 2015.; Attaullah, Haq & Muska, 2016). But the studies relating to psychosocial aspects such psychosocial distress, life style, and social support are lacking (McMillan et al., 2008; Sonino, Tomba & Fava, 2007). Specifically in Pakistan, only one cross-sectional study to assess the health-related quality of life in patients with benign thyroid disorders

has been conducted (Danish,et al.,2014). But no research work has been done on the analysis and management of psychosocial aspects of hypothyroid condition and to improve the quality of life in these patients. The Present research was designed to study psychosocial variables i.e. psychosocial distress, social support and life style that affect quality of life in patients' with hypothyroidism.

The objectives of study were to determine the prevalence of psychological distress, social support, health behaviors and quality of life among patients with hypothyroidism. Furthermore, it was intended to explore relationship between psychosocial predictors such as psychosocial distress-including depression and anxiety; positive health behaviors, social support and Quality of life among patients with hypothyroidism. Lastly, it was hypothesized that social support, psychological distress and health behaviors will predict quality of life among patients with hypothyroidism.

Materials and Methods

Study design and participants
An exploratory cross-sectional research design was used to test hypotheses of this study. The study participants constituted of Hypothyroidism patients recruited from the General medicine departments (Endocrinology units) of various public sector hospitals in Rawalpindi, Pakistan after taking their approval. Since hypothyroidism is not diagnosed in many of the patients thus the frequency of diagnosed patients is low. Therefore, purposive sampling was used in present study to obtain sample. All the patients of hypothyroidism were eligible except for those diagnosed with a serious psychiatric disorder or chronic medical diseases; those who has undergone any traumatic event or any type of surgery in past 6months; those who have history of any psychiatric illness, and pregnant women were excluded from the study to avoid maximum confounding variables.

Instruments
A Socio-demographic & Clinical form was used to get basic demographic information of participants (age, gender, marital status, no. of children, family monthly income, level of education, occupation and family setup). It also inquired about duration of illness, level of Thyroid stimulating hormone, medication & diagnosed mental or physical illness. *Hospital Anxiety and Depression scale (HADS)* (Zigmond & Snaith, 1983) was used to measure psychological distress of hypothyroidism patients. It is a 14 item self-report questionnaire comprising of two subscales i.e. anxiety and depression. Anxiety is measured through 7 items i.e. 1,3,5,7,9,11,13 & Depression is measured through other 7 items which are 2,4,6,8,10,12,14. The items are rated on a 4-point likert scale (0 to 3) and their description varies from item to item. Scoring range is as follows: 7 or less is normal (non-case)8-10 is mild (borderline), 11-14 is moderate and 15-21 is considered severe (case). HADS is a validated tool and is widely used. In present study, both subscales showed good reliability with cronbach's alpha of 0.71 for anxiety and 0.82 for depression.

Multidimensional scale of perceived Social Support (MSPSS) (Zimet et. al., 1988) was used to measure participant's perception of support that they get from family, friends and significant others. It is a 12 item self-report questionnaire with 7 point likert scale where 1 denotes very strongly disagree and 7 denotes very strongly agree. It contains three subscales and each contains 4 items. Total mean score can be generated by adding score of all 12 items and dividing it with 12. Mean score of 1-2.9 means low support, 3-5 means moderate support and 5.1-7 is considered high support. In this study, MSPSS showed good reliability with cronbach's alpha of 0.94.

The short version of *General Preventive Health Behavior checklist* (Amir, 1987) was used to explore healthy behaviors of participants. This shorter version contains 8 items with three point likert scale (0-No I do not, 1- Sometimes, 2-Yes, Always or almost always). High score on checklist indicates healthy behavior and low score indicate maladaptive behaviors. Present study found moderate reliability of tool with cronbach's alpha of 0.59.

Quality of Life WHO-BREF (WHOQOL-BREF) (WHO Group, 1998) was used to measure quality of life of hypothyroidism patients. It is a self-administered tool which consists of 26 items with 4 subscales i.e. physical health, psychological health, social relationships and environment. Each item is rated on 5-point likert scale with varying description. Items 3, 4 and 26 and reversed coded items. High scores indicate good quality of life. In present study, cronbach's alpha was 0.74 which showed good reliability.

Procedure

Approval from the Ethical committee of Fatima Jinnah Women University (Academic studies and Research Board) has been taken before the conduct of research. After obtaining permission from concerned hospital authorities, an assessor was appointed at the OPDs. She screened all the patients who came to OPDs. Those patients who had hypothyroidism were then explained the purpose of research and were asked for their consent for participation. They were ensured that they will not have to participate if they chose not to and that they can withdraw from the study at any time. Furthermore, they were assured that all information will be kept confidential. Those who agreed to participate in the study were then given assessment protocol to fill. Protocol was filled by interviewing the participants who were illiterate or were unable to understand tool. On average, it took 30 minutes to complete one assessment. Enquiring about the impact of thyroid disorders on an individual's life can make them distress. So Debriefing and support was provided to them interviews and serious cases were referred counseling center at FJWU, AFIMH or other private facility near to them). The obtained data was analyzed using SPSS version 21.

Results

Data collection took place in month of March and April. The sample obtained comprised of 50 participants, 38 of which were females and 12 were males. Details about sample characteristics are explained below in table 1.

Table 1. Demographic Information of the Respondents (N=50)

Variables	Categories	f (n=50)	%
Gender	Female	38	76
	Male	12	24
Age	18-35	22	44
	36-52	21	42
	53-69	7	14
Marital status	Single	5	10
	Married	42	84
	Divorced	1	2
	Widowed	1	2
	Separated	1	2
Family setup	Joint	24	48
	Nuclear	26	52
Years of Education	No education	5	10
	Up to Matriculation	22	44
	FA	6	12
	BA	3	6
	MA	13	26
Duration of illness	Less than 1 year	11	22
	1-5 years	25	50
	10 years	3	6
	More than 10 years	11	22

Majority of the participants (41) reported to be taking Thyroxin but the dosage varied based on their TSH levels. Comorbid conditions included high blood pressure, diabetes, difficulty in breathing, muscular pain and inability to conceive.

Reliability of all the scales used in this study was tested using coefficient alpha reliability which is shown in **Table 2.**

Table 2 *Coefficient alpha reliability (α) of measuring variables and their subscales (N=50)*

Variables	*n*	*M*	*S.D*	*α*	Range Actual	Range Potential	Skewness
HADS	50	15.8	8.16	.858	3-40	0-42	.600
Anxiety	50	8.64	4.19	.710	2-19	0-21	.509
Depression	50	7.16	4.72	.820	0-21	0-21	.538
MSPSS	50	5.2	1.53	.944	1-7	1-7	-.730
HB	50	9.02	2.66	.594	3-14	0-16	-.401
WHOQOL BREF	50	90.92	10.93	.740	66-110	26-130	-.630

Note: HADS= Hospital Anxiety & Depression scale, MSPSS=Multidimensional scale of perceived Social Support, HB= General Preventive Health Behaviors checklist, WHOQOL-BREF= WHO Quality of Life-Brief.

The value of alpha of HADS was .858, its subscale of Anxiety was .710 and for Depression .820, MSPSS was .944, health behavior checklist was .594 and WHOQOL BREF was found .740 which all represented good values of reliability. This indicates that the data collected in this study has produced reliable results (Heiman, Basic Statistics for the Behavioral Sciences, 2011) and could be used for further analysis.

Furthermore, in order to test relationships between variables, Pearson Correlation (r) was calculated between all variables. The results of correlation analysis showed that HADS has a significant negative relationship with MSPSS (r= -.361, p < 0.05) & HB (r= -.383, p < 0.01) meaning that people with anxiety or depression tend to have maladaptive health behaviors. Similarly, the value of r for HADS and WHOQOL-Bref also showed a strong negative significant relationship (r=.601, p < 0.01) indicating that people who scored higher on HADS will tend to have low quality of life and vice versa. Additionally, value of HADS and social subscale of WHOQOL showed a significant negative relationship (r=.41, p < 0.01) indicating that people who scored higher on HADS will have low scores on social domain of WHOQOL. Furthermore, an inverse significant relationship between anxiety and depression subscale with WHOQOL was also found (r=.473 & .613, p < 0.01). lastly, results showed a positive significant relationship between health behavior and WHOQOL indicating that people with healthy habits have good quality of life, physical & psychological health (r=.481, .295 & .290, p < 0.01). Table 3 depicts the nature and strength of relationship among all variables.

Table 3 *Prevalence of anxiety, depression, social support, health behaviors and quality of life in patients with hypothyroidism*

Variables	Categories	*f (n=50)*	%	
Anxiety	0-7 (normal)	20	40	
	8-10 (borderline)	13	26	
Depression	11-14 (case)		17	34
	0-7 (normal)		28	56
	8-10 (borderline)		6	12
	11-14 (case)	16	32	
MSPSS	1-2.9 (low support)	4	8	
	3-5 (moderate support)	19	38	
	5.1-7 (high support)	27	54	
Health behavior	0-5 (maladaptive behaviors)	7	14	
	6-12 (average behaviors)	39	78	
	13-16 (healthy behaviors)	4	8	
Quality of life	26-80 (low QOL)	8	16	
	81-109 (normal QOL)	41	82	
	110-130 (high QOL)	1	2	

In order to test hypothesis that psychological distress, social support and health behaviors will predict quality of life among patients with hypothyroidism, Hierarchical multiple regression was calculated. Psychological distress was measured using HADS scale therefore in first step, subscales of Anxiety and Depression were added. The results showed that these variables accounted for about 38% ($F_{(2, 47)} = 14.63$; $p < 0.001$) of the variance, which was significant predictors of quality of life. At step 2, scale used to measure social support i.e. MSPSS was added. The total variance explained by the model as a whole became 46% ($F_{(3, 46)} = 13.40$; $p < 0.001$) explaining that additional 8.3% change is caused by addition of MSPSS. Finally, the addition of health behaviors to regression model at stage 3 explained additional 6.1% of the variation in quality of life and this change in R^2 was significant, ($F_{(4, 45)} = 12.58$; $p < 0.001$)

Therefore, it can be inferred that depression is most significant ($\beta = -0.532$, $p < 0.001$) determinant of. Quality of life among patients with hypothyroidism. Although, all four variables together account for 73% of variance in quality of life, with depression being the most significant as it explains 38% of the variance. Depression also had low scores on quality of life with addition to lower physical, social, emotional and cognitive functioning. All these studies support the result of present study.

Present study also hypothesized that social support and quality of life will have a positive correlation. This was proved through significant positive value of Pearson correlation (r) for the relationship between MSPSS and WHOQOL.

Therefore, it can be inferred that people having social support also have good quality of life which is supported by previous literature. Ryzewska et. al. (2018) reported in their study that social support and quality of life were significantly correlated. Mehmoud et. al (2017) described that in their study, more than half of patients with psychiatric problems had lower quality of life and they also has low social support. Furthermore, they found a significant positive correlation between the two variables.

The third hypothesis of study explained that quality of life will have a positive correlation with healthy lifestyle behaviors which was proven through correlation analysis. Health behaviors and quality of life did show a significant positive correlation depicting that patients who followed a healthier lifestyle also tend to have good quality of life. These findings are in accordance with previous research. Tan et. al (2018) found in their study that those people who did physical activity, took fruits and vegetables and has adequate sleep reported good quality of life. Similarly, Petek et. al (2018) also reported that physical activity was an important predictor of quality of life
.

Additionally, result of hierarchal regression model to explore the role of Social support, psychological distress and health behaviors in predicting quality of life among patients with hypothyroidism showed that these variables do play a role in predicting quality of life. Although, all four variables together account for 76% of variance in quality of life, with depression being the most significant as it explains 42% of the variance. The values suggest that depression is most significant (β = -0.572, p< 0.001) determinant of quality of life among patients with hypothyroidism. Abshire and colleagues (2016) also reported that anxiety and depression were significant predictors of quality of life. Furthermore, when depression was increase by 1 point, the scores of QOL decreased by 0.30. These findings are similar to a study conducted by Wickwar et. al. (2015) also found that depressed mood was a significant predictor in quality of life. Ozabaci (2010) also reported that quality of life predicted depression scores.

The study however has some limitations related to small sample size, data collected from one city and over a short period. If data was collected from multiple sites and over a longer time period, higher sample could have been obtained and comparison between multiple cities could help in generating more generalizable results.

Discussion

The study found that 34% of hypothyroidism patients had clinical anxiety while 32% had clinical depression. Furthermore, 26% patients had borderline anxiety and 12% reported borderline depression. Similar findings were reported by Bathla and colleagues (2016) in their study. They also found that 60% of their sample reported depression and 63% were found to have anxiety. They concluded that psychological problems are common in patients with hypothyroidism. Similarly, Pulicio et. al (2016) reported in their narrative review that most prevalent psychiatric issues in patients with hypothyroidism was anxiety and depression.

The results of study found a strong negative significant relationship between psychological distress and quality of life indicating that people experiencing anxiety and depression will tend to have low quality of life and vice versa thus proving the second hypothesis. Many studies have found the similar results. This proved that patients of hypothyroidism experience psychological distress. Kale and Baviskar (2018) found that patient with subclinical hypothyroidism had mild depression while severe depression was found in patients diagnosed with clinical hypothyroidism. Furthermore, they also found that anxiety was common in patients with subclinical hypothyroidism. Additionally, Yohannes et. al (2012) found that quality of life had a significant relationship with anxiety and depression. They explained that presence of these psychological problems reduce quality of life. Ottaviani et. al. (2016) also reported existence of negative correlation between anxiety and depression with quality of life. Furthermore, Sadoughi & Salehi (2017) also found that quality of life has an inverse relationship with anxiety and depression

which meant that patients with anxiety and depression tend to have lower quality of life. Lastly, Moles et. al. (2017) found in their study that patients having higher scores on anxiety and

Conclusion

The findings of study prove that psychological distress (depression) is the most significant predictor of quality of life. In addition to depression, social support and healthy lifestyle behaviors also play a part in improving quality of life. Therefore, it is important to provide psychological help to cope with psychological distress of patients with hypothyroidism. Rakhshan, et al., (2019), found that improving the mental health status of hypothyroidism patients can be positively effective in their treatment procedure. Therefore, it is important for the patient to seek psychological treatment along with medicine upon receiving a diagnosis of hypothyroidism, in order to avoid and/or impair future developments in relation to emotional health that may be associated with the chronic nature of the disease. It is affirmed that, early treatment is relevant for everyone in the population, as when the patient has their emotions regulated; this also increases their quality of life. The mental health of these patients can be enhanced, not only through medicinal treatment but also through psychotherapy (Pelúcio , Nardi , Ornelas , Levitan, 2016).

Disclaimer
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Conflict of Interest
None

Author contributions

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Table 4: *Pearson Correlation coefficient between HADS and its subscales, MSPSS, HB & WHOQOl BREF (n=50)*

	HADS	Anxiety	Depression	MSPSS	HB	WHOQOL-Bref	QOL-Physical	QOl-Psych	QOL-Social	QOL-Env
HADS	-	.899**	.923**	-.361*	-.383**	-.601**	-.522**	.039	-.409**	-.548**
Anxiety	-	-	.661**	-.314*	-.363**	-.473**	-.413*	.154	-.322*	-.478**
Depression	-	-	-	-.341*	-.336*	-.613**	-.531**	-.068	-.418**	-.519**
MSPSS	-	-	-	-	.236	.488**	.256	-.007	.580**	.429**
HB	-	-	-	-	-	.481**	.295*	.308*	.290*	.412**
WHOQOL-Bref	-	-	-	-	-	-	.778**	.425**	.734**	.834**
QOL-Physical	-	-	-	-	-	-	-	.199	.371**	.508**
QOl-Psych	-	-	-	-	-	-	-	-	.275	.155
QOL-Social	-	-	-	-	-	-	-	-	-	.522**
QOL-Env	-	-	-	-	-	-	-	-	-	-

*p < 0.05, ** p< 0.01

Table 5: *Hierarchal multiple regression analysis to explore psycho-social predictors of Quality of Life of patients with Hypothyroidism*

Variables	R	R^2	ΔR^2	B	SE	β	t	Sig(p)
Model 1	.619	.384	.384					**.000****
Anxiety				-.314	.394	-.122	-.797	.429
Depression				-1.211	.347	-.532	-3.490	**.001****
Model 2	.683	.466	.083					**.008****
Anxiety				-.189	.374	-.073	-.504	.617
Depression				-1.045	.332	-.459	-3.144	**.003****
MSPSS				.181	.068	.308	2.671	**.010****
Model 3	.727	.528	.061					**.010***
Anxiety				.026	.362	.010	-.071	.943
Depression				-.956	.318	-.420	-3.006	**.004****
MSPSS				.163	.065	.278	2.511	**.016***
HB				1.075	.444	.271	2.421	**.020***

*p < 0.05, ** p< 0.01

Note: R^2 = amount of variance explained by IVs; ΔR^2= additional variance in DV; B = Unstandardized coefficient; SE= Standard Error; β = Standardized coefficient; t = estimated coefficient