

ORIGINAL ARTICLE

A Comparison between the Quality of Life and Mental Health of Patients with Hypothyroidism and Normal People Referred to Motahari Clinic of Shiraz University of Medical Sciences

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ABSTRACT

Background: Hypothyroidism is a condition caused by a decrease in the thyroid gland hormones. This disease is very common at all age ranges. Regarding its long term therapeutic procedure, this disease can affect the quality of life and the mental health of the patients. The present study aimed to compare the quality of life and mental health in hypothyroid patients and normal people.

Methods: This descriptive-analytic investigation was performed using convenience sampling on 95 patients with hypothyroidism and 95 normal cases referring to Motahari clinic between October 2014 and August 2015. Data were collected through General Health Questionnaire (consisted of 4 fields; physical signs, anxiety, social function disorder, depression) and Quality of life Questionnaires. Data were analyzed using Independent t- test, Pearson correlation coefficient and Variance analysis. P-values<0.05 were considered as significant.

Results: Both control (normal) and test (patient) groups were matched in demographic characteristics in this study ($P>0.001$). The results showed that there was no significant difference between the quality of life of patients and that of the normal people (test and control groups) ($P>0.001$). But the comparison of mental health level of patients (59.70) and normal people (48.68) showed a significant difference at all aspects ($P<0.001$)

Conclusion: Considering and improving the mental health status of such patients can be positively effective in their treatment procedure. Considering this key point in a country like Iran with rich religious backgrounds can be useful in designing self-care and therapeutic programs and even for all people.

KEYWORDS: Quality of life, Mental health, Nursing, Hypothyroidism

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INTRODUCTION

Hypothyroidism is a clinical syndrome caused by thyroid gland secretion dysfunction.¹ Thyroid hormones failure leads to significant interferences and malfunctions at different physical, mental and social aspects.² According to an investigation performed in Colorado State of USA at 2000, screening of 25000 people showed that nearly 2.6 million people would be apparently afflicted with hypothyroidism in the next 20 years.³ A thyroid screening investigation in Tehran at 2001 revealed that the prevalence of hypothyroidism in people over 20 years old is 3.5 people per thousand and its subclinical feature prevalence is 2.2 people per thousand; the prevalence of hyperthyroidism is less than one people per thousand and subclinical hyperthyroidism prevalence is 4.2 people per thousand.⁴

Mental health is considered as one of the most important indicators of the health and hygiene of a society and is mainly affirmed by the psychologists and other scientists of behavioral and social sciences; this has developed a background for evaluating and assessing mental disorders caused by hypothyroidism.⁵

The purpose of mental health is a person's complete ability to perform his/her daily affairs, communicate with his/her family and environment properly, and show no adverse behaviors culturally and socially.⁵ Mental health is very important because it is correlated with a person's individual and social performance. In fact, providing mental health can lead to increased efficiency in both personal and social aspects.⁶

Many studies have reflected that duration of treatment will be prolonged in patients with lower mental health levels and these patients can be prepared through necessary interventions in order to achieve more adaptation and encounter to the tension of the disease.⁷ A study has indicated that psychiatric disorders are usually common in patients with acute hypothyroidism and these disorders are (to some extent) recovered along

with the treatment of the causative disease.⁸ The effect of hypothyroidism on increase of depression parameters in older people has been proved in another study.⁹

Hypothyroidism can also affect the conceptive (perceptive) and temperamental (behavioral) functions of the patient.¹⁰ Mental signs, stress, tension, memory loss (par amnesia), and physical dysfunctions are the factors that cause quality of life deterioration.¹¹ Quality of life is the state of our good or bad feeling about our own life.¹² Effect of auto-immunity thyrotoxicosis on the quality of life of patients with auto-immune hypothyroidism has been determined.¹³

The results of another study have determined that men with hypothyroidism have weaker physical conditions than hypothyroid women.¹⁴ Another study surveying the relationship between the quality of life and hypothyroidism has revealed that the quality of life of most of the patients with hypothyroidism was at an intermediate level.¹⁵

Anyway, psychological factors affect the occurrence of all diseases and the fact that whether their role is related to the beginning, progression, severity or recurrence of the disease or predisposing or reaction to the disease has been a controversial issue and it is variable among different diseases.¹⁶

Generally, the importance of quality of life and mental health in hypothyroid patients is considerable. Changes in mental health condition of these patients have been approved. Also, mental health is one of the most important factors affecting the quality of life. Therefore, in the present study, the mental health condition and the quality of life level of patients with hypothyroidism have been compared with the normal people in order to perform appropriate care programs to increase these patients' mental health condition and quality of life. Therefore, the purpose of present study was to compare the quality of life and mental health of hypothyroid patients with normal people referring to Motahari Clinic, affiliated to Shiraz University of Medical Sciences.

MATERIALS AND METHODS

This study is a descriptive-analytic investigation performed in Motahari Clinic of Shiraz city. Research samples were 95 patients (more than 20 years old) with hypothyroidism confirmed by specialists; they referred to Motahari clinic and were selected through convenience sampling method. Recruitment was performed by attendance of the researcher at the Motahari clinic and selection of the patients based on inclusion and exclusion criteria, between October 2014 and August 2015. A control group of 95 normal people was assigned among the relatives of the other patients and also the personnel of the clinics by convenience sampling method.

Participants

Sample size was estimated on the basis of a pilot study on 50 cases. Then, the sample volume was calculated and determined using Med-Calc statistical software with 5% error rate and 80% statistical power (attrition of 20%) as 190 cases.

$$N = \frac{\left(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta} \right)^2 (\sigma_1^2 + \sigma_2^2)}{(\mu_2 - \mu_1)^2}$$

$\alpha=0.05$, $\beta=0.10$, $\mu_1=20.1$, $\mu_2=19.6$, $SD_1=2.95$, $SD_2=2.8$, $Z_{1-\alpha/2}=1.96$, $Z_{1-\beta/2}=0.85$.

Age more than 20 years old and ability to write and read or to participate in the interview were the inclusion criteria. Exclusion criteria were lack of willingness to participate and cognitive disorders or chronic diseases. Eligible patients with hypothyroidism referring to Motahari Clinic of Shiraz University of Medical Sciences were placed in the test (patients) group. Normal people (control group) were the eligible relative of the other patients (except patients with hypothyroidism) with or with no other diseases except hypothyroidism referring to the Motahari clinic without any direct relationship or affinity to patients with hypothyroidism.

Procedure

After approval of the ethics committee of Shiraz University of Medical Sciences (No

93-01-08-8062) and coordination with the clinic, the researcher attended the clinic on all working days of the week and at two work shifts of morning and afternoon and selected the eligible samples. The purpose of the research was explained to the participants, written consent forms were obtained, and they were ensured about the privacy of the data. Then, the individual questionnaire, General Health Questionnaires (GHQ) and the quality of life questionnaire were delivered to the study units. If the participants were not able to fill the questionnaire, the questions were read to them by the researcher and their answers were recorded completely.

Instruments

Data collection tool in this study was a 3 part questionnaire. In the first part, the demographic information was gathered through 5 questions (age, sex, marital status, level of education and occupation) and in the second part, the questions of GHQ through 28 questions in 4 domains of physical signs, anxiety, social dysfunction and depression on the basis of a 4- choice Likert scale (not at all, normally, more than usual and much more than usual). Higher scores showed lower mental condition levels. Reliability coefficient of the whole test were reported as 0.88 and those of the fields were 0.77, 0.81, 0.50 and 0.58, respectively.¹⁷ Taghavi et al. (2001) evaluated the GHQ-28 psychometric properties; the coefficients of test-retest and split half and Chorenbach Alpha were obtained as 0.70, 0.93 and 0.90, respectively. The simultaneous validity was obtained 0.55 through Midlex questionnaire and the construct validity was reported 0.72 to 0.87.¹⁸ The third part was about the questions of WHOQOL-BREF questionnaire, evaluating the quality of life generally and totally; this part consisted of 26 questions in 4 fields of physical health, mental health, social relations and environmental health (3, 6, 7 and 8 questions for each field respectively) and 2 other miscellaneous questions surveying the health condition and quality of life level in a general manner. Each field was given a score

range of 4-20, scoring 4 representing the worst and score 20 the best condition in the related field. These scores were transformable to the 0-100 scores range. Nejat et al. evaluated the reliability of WHOQOL-BREF questionnaire in Iranian community with test-retest of all domains; physical health, mental health, social relations and environmental health respectively 0.77, 0.77, 0.75, 0.84. Also, internal consistency of all domains using alpha Cronbach between patients and healthy subjects was reported 0.52-0.84. Qualitative content validity was reported optimal.¹⁹

Data Analysis

Data were analyzed in SPSS software version 19 (SPSS Statistics; IBM Corporation, Chicago, Illinois, USA) using descriptive statistical methods and Independent T- test, Pearson correlation coefficient and ANOVA and $P < 0.05$ was considered statistically significant. Descriptive statistics were performed to characterize the sample. Frequencies and percentages were calculated for categorical variables, means and standard deviations for continuous variables. Independent t-test was performed to examine mental health, quality of life and quantitative demographic information.

RESULTS

95 patients (male and female) in the patient

group and 95 people (male and female) in the control group were studied. Minimum age in the patient group was 22 years old and maximum age was 70 years. The mean age of this group was 38.93 ± 7.37 . Both groups were demographically matched (uniform) generally ($P > 0.001$). Demographic information of the studied samples are demonstrated in Table 1.

Different aspects of the quality of life were assessed and compared between the two groups using independent T-test and no significant difference was noted between the test and control groups. In other words, the quality of life of patients with hypothyroidism and normal people was the same. The patients' mental health mean score was 59.70, compared with that of the normal people which was 48.68 ($P < 0.001$). In fact, the physical signs, anxiety and depression were higher and more severe in the test (patients) group. In other words, the mental health condition of hypothyroid patients was lower than the normal people. Corresponding results are represented in Tables 2 and 3.

Comparison of demographic data and both of mental health and quality of life showed a significant relationship ($P = 0.005$) just between education and mental health (Table 4). Also, evaluation of the relationship between demographic variables and mental health and quality of life revealed that there was a significant difference only between

Table 1: The sample's demographic characteristics

Variable	Group	Patients	Normal	Total
Sex	Female	85	86	171
	Male	10	9	19
Job	Unemployed	7	10	17
	Employed	32	69	101
	Housekeeper	49	3	52
	Retired	7	1	8
Marital Status	Single	21	15	36
	Married	74	80	154
Education	Under Diploma/	45	14	59
	Diploma			
	Junior College	18	17	35
	Bachelor and Higher	31	58	89

Frequency test

Table 2: Mean and standard deviation between the quality of life and mental health in hypothyroidism patients and healthy subjects

Variable	Group	Patient	Normal	t	P value
		Mean±SD	Mean±SD		
General Health (mental)	Physical singe	16.34±3.77	12.74±3.82	5.806	<0.001
	Anxiety	16.34±3.72	12.57±3.60		
	Social dysfunction	14.92±3.35	12.90±2.53		
	Depression	12.08±3.95	10.45±3.78		
	Total	59.70±11.93	48.68±10.70		
Quality of Life	Physical Health	20.12±2.95	19.60±2.87	2.423	0.215
	Mental Health	17.08±2.49	16.13±2.81		
	Social Health	7.51±2.00	7.68±2.33		
	Public Health	20.76±4.42	22.138±3.99		
	Total	64.02±9.40	67.10±9.12		

Independent t-test

Table 3: Comparison of the mean scores of mental health and quality of life in hypothyroidism patients and normal subjects

Variable	Groups	Patient	Normal	T Statistics	P value
		Mean±SD	Mean±SD		
Mental Health		59.83±12.47	49.19±11.26	5.806	<0.001
Quality of Life		72.29±10.16	68.38±10.68	2.423	0.016

Independent t-test

Table 4: Mental health and quality of life based on demographic variables

Variable	Mean±SD	F	Sig
Mental Health			
Education	54.56±12.86	5.451	0.005
Marital status	54.37±12.95	2.939	0.056
Job status	55.01±12.94	1.008	0.391
Quality of Life			
Education	70.31±10.68	2.632	0.075
Marital status	70.35±10.58	0.405	0.667
Job status	70.71±10.50	0.444	0.722

ANOVA

the mental health condition and physical signs ($P<0.001$) and anxiety ($P<0.001$) with degree of education. But this significant relationship was not observed in the quality of life and its aspects ($P>0.001$). No other significant relationship was found about other demographic variables.

These results also confirm the significant correlation between the mental health and quality of life in hypothyroid patients ($P<0.001$).

DISCUSSION

The present study was performed to assess and compare the quality of life and mental health between patients with hypothyroidism and normal people. Results showed that hypothyroid patients have significant differences in all aspects of mental health compared with the normal people. It was revealed that these patients have the highest severity of depression, physical signs and anxiety. But there was no significant

difference in the quality of life and its aspects between the patients and the normal people.

These results regarding the low level of mental health in patients with hypothyroidism compared with the normal people are in agreement with other studies. A study performed to investigate the effect of thyroid disorders on anxiety and depression level of patients showed that anxiety and depression signs in patients with overt hypo- and hyperthyroidism were more intense than other thyroid disorders.²⁰

Another investigation has noted that anxiety - but not depression- was higher in patients with Differentiated Thyroid Cancer (DTC) than normal people.²¹ Also, another study revealed that neuropsychiatric disorders were very common in hypothyroidism which may be recovered through treatment done regarding the underlying cause (treatment associated with hypothyroidism).⁸

Because of the considered aspects of mental health have been evaluated and assessed in the mentioned investigations, it can be said that their results confirm our findings to some extent. On the other hand, because the depression feature has the most severity in patients with hypothyroidism, it can be seen that some investigations confirm it too. For example, the results of a study showed that subclinical hypothyroidism can increase the risk of depression.⁹

There was also a compatible study which showed the significant relationship between physical condition and anxiety aspects of mental health and patient's education level. Those results also showed that there was a direct correlation between hypothyroid patient's education level and their social condition;²⁰ this can be because of lower social and individual adaptation skills in patients with lower education levels to withstand the problems of the disease. Therefore, patients with higher education levels have better physical conditions and lower anxiety levels.

Our results are also compatible with other studies' results regarding the comparison of the quality of life of patients with hypothyroidism

and normal people. The quality of life of patients with different types of thyroid gland cancer undergoing TSH- suppressive thyroxin therapy was assessed in an investigation. These patients were considered as a model of subclinical hyperthyroidism. Finally, the results showed that restoration of euthyroidism (normal function of thyroid gland) had no effect on the quality of life of these patients.²¹ But the results of a similar study comparing the mental health condition and the quality of life of patients with hypothyroidism with the normal people were different. It was seen that the quality of life of these patients was lower than the normal people in the mentioned study.¹⁴ Also, another study implied the lower level of quality of life in patients with autoimmune hypothyroidism.¹³

This difference can be due to the varieties of the study population, culture and the type of investigation tool. In this regard, the results of a review study on evaluating tools of signs and condition of health and quality of life of hypothyroid patients showed that many of using tools were not appropriate to the purpose of the investigations; hence, they can increase or alter the results.²²

Moreover, there are some compatible studies about the significant correlation between mental health and the quality of life in patients with hypothyroidism. In a study performed to investigate the relationship between mental health and quality of life of patients with coronary arteries disorders, this relationship was reported as significant.²³ Unfortunately, in studies performed to compare the quality of life and mental health of patients with Multiple Sclerosis (MS)²⁴ and Irritable Bowel Syndrome (IBS),²⁵ only the results of the quality of life comparison and mental health comparison between 2 groups were reported, but no results regarding the existence or otherwise of the relationship between the two mentioned variables in one group were reported.

In this study, most of the subjects were male with a mean age of 38.93. In comparison with this result, the other study reported

the prevalence of overt and subclinical hypothyroidism more in female, respectively.⁴ This result disagrees with that of the current study and it can be due to the selection of subjects from one center. But another study conducted on hypothyroidism patients over 18 years of age, reported that the mean age of the subjects was 44 years old.¹³ This result is in the same line with that of the current study. Therefore, it is recommended that in the future studies in this field, multi-central sampling should be considered.

The most important limitation of the present study was the selection of patients from only one specialized clinic (Of course, it is the most active clinic in this field in the south of Iran). Therefore, generalization of the results of this study to larger fields must be performed with caution and in order to increase the extension capability of these findings, the population and sample size must be larger and multiple. Also, the use of several diagnostic methods for the selection of normal people in future studies is recommended.

CONCLUSION

With regard to the results of the present study indicating lower levels of mental health in patients with hypothyroidism, holding educational programs and protocols about this disease to improve the mental health is suggested. Also, these results indicate the relationship between mental health and quality of life; therefore, it is necessary to pay attention to their importance in such patient's care and treatment programs design.

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