



## The Health-Related Quality Of Life in Patients with Goiter

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**Abstract:** Now a day the iodine deficiency is the beyond of the thyroid gland enlargement and it may as a major nutritional problem affect quality of life. This study was conducted to evaluate the health-related quality of life (HRQOL) in patients with goiter. This study is a cross sectional study in which 70 patients with goiter were referred to the health centers affiliated with Yasuj University of Medical Science were participated during 2012. Iranian version of SF36 questionnaire was used to collect data and its validity and reliability was approved by preceding studies. The collected data were analyzed by SPSS software under Windows, through descriptive and inferential statistics such as chi-square and t-test with  $\alpha=0.05$ . The results showed that the mean score of HRQOL in patients with goiter is  $45.2 \pm 15/8$ . Average scores on the eight dimensions of HRQOL except bodily pain and physical function were less than 50. A significant correlation was found between age and physical functioning domain ( $p=0.006$ ), however, a significant relationship was not found with other areas. Also a significant relationship was found between gender, education level, marital status and income with some domains of HRQOL ( $p<0.05$ ). According to the mean scores for the eight dimensions of health-related quality of life, the majority of patients with goiter had not satisfactory level of HRQOL.

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### 1. Introduction

Iodine is an essential micronutrient in human body, and has a significant role for hormones produced by thyroid gland. The lack of adequate dietary could cause iodine deficiency disorders (IDD) Goiter is the earlier sign of iodine deficiency (ID), and means enlarged thyroid gland in response to reduction of thyroid hormones in blood. Increased secretion of thyroid –stimulating hormone as a compensatory function maximizes uptake of available iodine, and it can cause thyroid hypertrophy especially if it is associated with chronic iodine deficiency. ID is the most common cause of goiter worldwide(1). Low dietary supply of iodine is the main etiological factor for endemic Goiter(2), but selenium, copper, zinc, vitamin A and iron deficiency (3-6), goitrogens in food and drinking water(7, 8) and autoimmune disease(9) may contribute to the development of goiter.

Based on the global statistics, about two billion people in the world are at risk for ID and majority of them live in Asia and Africa(10, 11). A descriptive cross-sectional study has reported 6.5 percent (6% grade 1 and 0.5% grade 2) of the goiter rate in Iran, and the weighted goiter rate was 5.7percent. The total

goiter rate in some provinces such as Hamedan, Zanjan, Kermanshah, Mazandaran, and Gilan provinces was over 10 percent(12). Although two decades ago, the Islamic Republic of Iran was among in areas with ID, however, Iran has achieved great success in the control of IDD following the national salt iodization program initiated in 1989(13, 14).

Despite oral iodization supplement, goiter continues to be a major public health problem worldwide(15). Now a day goiter is considered beyond the enlarged thyroid gland, and it can threaten the socioeconomic development of countries. Goiter could adversely affect individual's growth and development and quality of life (QOL) of populations living in regions with low iodine soil. Several studies had shown the effects of thyroid disease on health-related quality of life (HRQOL) (16, 17), but HRQOL of patients with goiter is not much studied. Fatigue, Sexual dysfunction, emotional susceptibility, intolerance of cold, bradycardia, constipation, dysphagia and limited physical activity are symptoms that may affect the level of general health in patients with IDD(18-21). Also a study by Razvi et al. had

reported low health status of patients with subclinical hypothyroidism in comparison to healthy individuals(22).

HRQOL comprises aspects of physical, mental and social well-being and function, and it has been described as patients' experience of the disease and its impacts on their lives. Although goiter as a benign thyroid disease is rarely life threatening, however, its successful treatment deals with improving patients' HRQL. The assessment of HRQL in patients with goiter may help to evaluation of the effects of goiter as and its treatment on all aspects of patient's life(23) as well as its assessment could guides health professional staffs in determining patient educational requirements. Since most parts of the province of Kohgiluyeh and Boyer-Ahmad such as Yasuj city is mountainous regions with high prevalence of endemic goiter, the present study was conducted to examine the HRQL of patients with goiter.

## 2. Material and Methods

This study is a cross-section study in which 70 goiter patients referred to healthy-medical centers affiliated with Yasuj University of Medical Science, 2010, were participated. The samples were randomly selected. The inclusion criteria of the research were age of more than 18 years, suffering from goiter at least for three months, being under treatment and having records at the healthy-medical centers. The exclusion criteria were suffering from other chronic disease, change of residence so that the patient was not accessible, unwillingness to participation in the research. Sampling began after giving full explanation to the cases on the objective of the research and taking informed consent from them, and also getting permission of the relevant authorities. Confidentiality of the collected data and unconditional exclusion in any stage of the research was emphasized. Persian version QOLquestionnaire was used for collecting data. Its validity and reliability was approved (24, 25). The questionnaire included 36 questions assessing the quality of life as total QOL and eight dimensions named as social function, mental health, liveliness, general health, physical pain, fulfill emotional role, fulfill physical role, and physical functioning. The total scores of quality of life varied in the range of 0-100, and classified based on the above mentioned questionnaire. Classification of scores in each domain was 0-50 as undesirable quality of life, 51-74 as moderate quality of life, and the scores 75 and more were classified as good quality of life. The collected data were analyzed under SPSS software, windows version 17 using descriptive and inferential statistics such as  $k^2$ , t test and correlation test with  $\alpha=0.05$ . Since the scores of quality of life had a normal

distribution, parametric tests were used for statistical analysis.

## 3. Results

Participants in this research were 61(87.1%) women and 9(12.9%) men with the mean age of  $32.6\pm 10.7$  (range of 18 to 68 years). The mean ages in terms of sex were  $23.6\pm 10.8$  and  $33\pm 10.9$  respectively. 22.9% of patients were single and 77.1% were married. In terms of educational level, eight patients (10%) were illiterate, twenty-four patients (34.3%) primary and guidance school, twelve patients (17.1%) high school and diploma, six people (8.6) associate degree (AD) and twenty-one (30%) with Bachelor sciences (BS) and higher. In view of job, majority of patients (55.7%) were house wives. Thirty-two patients (54.3%) were under treatment for less than one year, sixteen patients (22.9%) between 1-3 years, and thirteen (18.6%) between 4-6 years. Thirty-five patients (50%) referred to their physician alone and thirty-five (51.4%) said that they did not refer to physician regularly. fifty patients (72.5%) did not take their medicines as prescribed by the physician, and fifty-three (57.7%) said that they did not follow the diet prescribed by the physician. The most important chief complaints of patients were fatigue (42.9%) and dyspnea (21.9%).

The mean score of total QOL was  $45.2\pm 15.8$ . Table1 shows the mean scores of other eight domains of HRQOL. Also the study showed that the scores of total QOL and other domains except physical functioning was not desirable, and majority of patients were in the undesirable group or low HRQOL (table 2). In terms of age, except physical functioning ( $P=0.06$ ) no significant correlation was observed between age with total QOL and other domains of HRQOL ( $P>0.05$ ). In terms of age group, independent t test showed no a significant statistical difference in comparison of the mean scores of HRQOL. Although the mean scores of most domains of HRQOL in the individuals under 30 years was higher than patients over 30 years, but independent t test, except in the mean scores of domain of physical functioning ( $P=0.009$ ) showed no a significant difference in the comparison of the mean scores of other domains of HRQOL between the individuals under 30 years, and individuals over 30 years ( $P>0.05$ ). The mean scores of HRQOL in men were higher than women. But independent t test show no a significant difference in terms of other domains of HRQOL except the dimension of social functioning. The findings of the study showed a significant difference in comparing mean scores of total QOL and also domains of social functioning, mental health, liveliness and physical functioning between single and married patients ( $P<0.05$ ). Also patients with education level higher

than diploma had a higher mean scores of total QOL and other domains except in physical pain. In other words, individuals with diploma and lower were more complaining of physical pain in comparison to individuals of higher than diploma (Table 3). A significant correlation was found between level of

income, and scores of total QOL and domain of mental health, but there was no significant correlation in other dimensions. In terms of other variable no significant difference was observed in the means scores of total QOL and its dimensions.

Table 1. Mean scores of domains of HRQOL in patients with goiter

Domains of HRQOL	Mean	Standard deviation
QOL (total)	45.2	15.8
Social functioning	48.6	24.6
Mental health	47.3	18.2
Liveliness	42.9	18.5
General health	35.8	18
Physical pain	47.5	26.4
Fulfill emotional role	21.4	17.2
Fulfill physical role	16.1	9.4
Physical functioning	63.8	18

Table 2. Status of HRQOL in the patients with goiter

Status of HRQOL Dimensions of HRQOL	undesirable		Moderate		Desirable	
	frequency	percent	frequency	percent	frequency	percent
QOL (total)	48	68.9	17	24.3	5	7.1
Physical functioning	19	27.1	31	44.3	20	28.6
Fulfill physical role	63	90	-	-	7	10
Fulfill emotional role	55	78.6	5	7.1	10	14.3
Physical pain	38	54.3	14	20	18	25.7
General health	55	78.6	14	20	1	1.4
Liveliness	50	71.4	15	21.9	5	7.1
Mental health	38	54.3	27	38.6	5	7.1
Social functioning	37	52.9	15	21.4	18	25.9

Table 3. Comparison of the mean of dimensions of HRQOL in terms of demographic data

Dimensions of HRQOL demographic variables	QOL (Total)	Social functioning	Mental health	Liveliness	General health	Physical pain	Fulfill emotional role	Fulfill physical role	Physical functioning	
Age group	31 years and less	48.2±17	34.8±24.8	38.8±18.9	46.2±20.8	40.9±19.4	65.5±27.6	23.8±16.9	17.8±10	68.1±17.9*
	Over 31 years	41.3±13.3	39.2±25.1	44.9±17.1	38.3±14.1	39.7±14.4	60±26	18.6±13	15.5±7.7	58.6±16.7
Sex	Woman	47.8±19	43.2±22.3*	46.4±19.6	44.4±29.9	35±20.3	65.9±22.1	29.1±12.3	23.5±17.5	65.9±19.8
	Man	54.79±14.9	72.2±23.8*	53.7±17.9	52.7±17.3	41.2±17.8	68.3±27	37±26.2	33.3±27.6	70±17.7
Marriage	Single	57.1±18.2*	64.7±20.9*	20.7±10.8*	20.3±14.4*	14.2±2	66.9±28.7	33.3±25.6	39±30	19.9±9.9*
	Married	41.4±12.9*	47.1±24.7*	16.4±6.4*	14.9±8.9*	15.8±8.8	67.6±26.3	27.6±13.7	24.3±15.3	16.2±9.2*
Education	Diploma and lower	40.6±13.2*	49.4±26.3	42.6±17.9*	38.5±16.8*	40.4±16.4	68.2±25.9	25.5±14.4	12.9±5.5*	59.3±16.9*
	Over diploma	52.5±17*	59.6±22.5	54.9±16.3*	50±19.5*	44.5±17.5	66.4±28.2	30.2±20.2	25.9±10.3*	71.1±17.6

\* Significant at the P < 0.05

#### 4. Discussions

This research was carried out to examine the HRQOL in goiteric patients. The results showed that the patients have no a desirable HRQOL. Comparing the findings of present study with the studies by Tavafian et al., Mohammadpour and Yousefi who have used similar questioner in the healthy individual of Iranian population(24, 26) shows that goiteric patients have a lower QOL in comparison to healthy individuals. Also HRQOL of patients in the present research has been lower than hypothyroidism patients in other studies (22, 27, 28). In addition to existence of difference between QOL of individuals in different countries, this finding may also be affected by other variables such as duration of disease, type of medical services, and method of giving patient education. But it must be considered that goiter similar to other thyroid disorders could be followed by many psychosocial consequences that ultimately will be accompanied by diminished HRQOL. In the present research, variables such as age, sex, marital status, level of education, and income are correlated to one or several dimensions of HRQOL. There are inconsistent findings in the available studies. For example, in confirmation to this finding, the result of the study by Montazeri et al, showed that young individuals and people with higher education have a more desirable QOL (29)), while in other study, with increasing age has been accompanied by promotion of QOL in diabetic patients type 2, and diminished QOL in diabetic patients type 1(30).

In the present study, males had higher mean scores in different dimensions of HRQOL than females. Although this finding has been consistency with the result of a similar study on normal population(31) and Women with coronary artery disease (32), however, because of small number of male participant in comparison to females, generalization of the results needs more accuracy. In fact, as a limitation of this study, further research is suggested in order to compare HRQOL in the two genders. Moreover, based on existing evidences, factors such as eco-socioeconomic status (33), lower income of women in comparison to men(34) and exaggeration of medical problems by women (32) may result in the difference of HRQOL between men and women. Also based on the findings of this research single individuals have higher scores in the dimensions of social functioning, mental health, liveliness, physical functioning in comparison to married patients. As an explanation to this finding, this may be due to lower mean age of single patients participating in the present study. Also based on the results of similar studies, sexual disorders individuals

suffering from thyroid-related disease (21, 35) could affect HRQOL of married patients.

The finding of the present study showed that there is a correlation between levels of education, income, with some dimensions of HRQOL. In confirming this finding, the result of a study by Robert et al., showed that in the age-group of 35-44 years individuals with low income had poor HRQOL (36). Also in another study, individuals in the range of 45-64 years, with low income have reported their QOL as undesirable, in comparison to individuals of the same age-group with high income (30). Although level of education and income are among the factors which may affect treatment and management of disease(37), QOL especially in middle-aged, also depends on to other factors apart from the financial factors. We studied HRQOL of patients with goiter by SF-36 questionnaire which was also used in similar studies for ill and healthy individuals. With respected to the aforesaid limitation of the present study further studies such as longitudinal or comparative studies, and using higher specific questionnaires of HRQOL for patients with goiter is suggested.

#### Conclusion

In this study, with respect to the fact that the scores of majority of cases of the research were less than fifty in the eight dimensions of HRQOL, the patients with goiter did not have desirable HRQOL.

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