

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 of patients with goiter. This study was conducted to evaluate the health-related quality of life (HRQoL) in patients with simple goiter. This article is a part of a semi-experimental study in which 70 patients with simple goiter referring to a medical center affiliated with Yasuj University of Medical Science were participated in 2012. Iranian version of SF36 questionnaire was used to collecting data and its validity and reliability was approved by preceding studies. The collected data were analyzed by SPSS software version 17 using descriptive and inferential statistics such as t-test and correlation test. A $P < 0.05$ was defined for statistically significant differences. The mean score of HRQoL in patients with goiter was 45.2 ± 15.8 . Average scores of the eight dimensions of HRQoL were less than 50 except for physical functioning. A statistical significant correlation was found between age and physical functioning domain ($p=0.006$), however, no significant relationship was found by other domains. Also statistical significant differences were observed by gender, education level, marital status and income with some domains of HRQoL ($p < 0.05$). According to the mean scores of eight dimensions of HRQoL, the majority of patients with goiter had not satisfactory level of HRQoL. Perceived HRQoL is significantly impaired in people with goiter and its evaluation is a key component for appraisal of the impact of a disease and its treatment on the patient's life and health status.

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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 of blood. Increased secretion of thyroid stimulating hormone as a compensatory function maximizes uptake of available iodine. This can result in thyroid hypertrophy especially if it is associated with chronic ID(1). ID is the most common cause of goiter worldwide(2). Low dietary supply of iodine is the main etiologic factor for endemic Goiter(3), but selenium, copper, zinc, vitamin A and iron deficiency (4-7), goitrogens in food and drinking water(8-9) and autoimmune disease(10) 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(11-12). 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(13). Although the Islamic Republic of Iran was among in areas with ID

two decades ago, however, Iran has achieved great success in the control of IDD following the national salt iodization program initiated in 1989(14-15).

In spite of oral iodization supplement, goiter continues to be a major public health problem worldwide(16). 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 of population living in regions with low iodine soil. Several studies have shown the effects of thyroid disease on health-related quality of life (HRQoL) (17-18), 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(19-22). Also a study by Razvi et al. had reported lower health status of patients with subclinical hypothyroidism compared with the normative population (23).

HRQoL comprises aspects of physical, mental and social well-being and function. It has been described as patient's experience of the disease and its impacts on the life. Although goiter as a benign thyroid disease is rarely life threatening, however, patient's HRQoL depends on its successful treatment. The

assessment of HRQoL in patients with goiter may help to evaluation of the effects of goiter as a thyroid disease and its treatment on all aspects of patient's life(24) as well as its assessment could guides health professional staffs in determining patient educational requirements. The present study was conducted to examine the HRQoL of patients with simple goiter since most parts of the province of Kohgiluyeh and Boyerahmad such as Yasuj city is mountainous regions with high prevalence of endemic goiter.

2. Material and Methods

This article is a part of a larger study, semi-experimental study in which 70 goiteric patients referred to a medical clinic affiliated with Yasuj University of Medical Science were participated in 2012. The population of the study was known cases of simple goiter according to medical diagnosis which made by endocrinologist in their medical files. A convenience sampling method was used but allocation of samples between test and control groups was randomly performed for larger study. The inclusion criteria were age of more than 18 years, suffering from goiter at least for three months, being under treatment and having medical file records. The exclusion criteria were suffering from other chronic disease, immigration so that the patient was not accessible, unwillingness to participation in the research. Sampling began after full explanation to the samples about the objective of study, taking informed consent from them and also getting permission of the relevant authorities. Confidentiality of the collected data and freely exit in any stage of the research was emphasized.

A Persian version of HRQoL questionnaire was used to collecting data. Its validity and reliability was approved (25-26). The questionnaire includes 36 questions measuring HRQoL in eight dimensions known as social functioning, mental health, vitality, general health, bodily pain, role emotional, role physical and physical functioning. The scores of HRQoL vary in the range of 0-100 and they were classified based on the above mentioned questionnaire. The scores between 0-50 was classified as undesirable HRQoL, scores of 51-74 as moderate HRQoL and the scores ≥ 75 were grouped as good HRQoL. The collected data were analyzed by SPSS software, version 17, using descriptive and inferential statistics such as t test and correlation test. A $P < 0.05$ was defined for statistical significant differences. Parametric tests were used for statistical analysis since the distributions of HRQoL scores were normal.

3. Results

Participants were 61(87.1%) female and 9(12.9%) male with the mean age of 34.6 ± 10.7 (range of 22 to 58 years). The mean of age by sex were 35.2 ± 11.8 and 33 ± 10.9 for women and men respectively. 22.9%

of patients were single and 77.1% married. In terms of educational level, eight patients(11.4%) were illiterate, twenty-four patients (34.3%) primary school and guidance school, twelve patients (17.1%) high school and diploma, six people (8.6) with associate degree (AD) and twenty (28.6%) with Bachelor sciences(BS) and higher. In view of job, majority of patients (55.7%) were house wives. Thirty-two patients (45.7%) were under treatment for less than one year, sixteen patients (22.9%) between 1-3 years, thirteen (18.6%) between 4-6 years and other were greater than six years of treatment. Thirty-five patients (50%) have referred to their physician alone and thirty-six (51.4%) said that they have not referred to physician regularly. fifty patients (71.4%) have not taken their medications as prescribed by the physician, and fifty-three (75.7%) told that they have not followed prescribed diet. The most common patients' chief complaints were fatigue (42.9%) and feeling of dyspnea (21.9%).

The mean scores of total HRQoL were 45.2 ± 15.8 . Table 1 shows the mean scores of eight domains of HRQoL. Also the study shows that the scores of total HRQoL and other its 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, no significant correlation was observed between age and total HRQoL and domains of HRQoL ($P > 0.05$) except for physical functioning ($P = 0.01$). Independent t test shows no a statistical significant difference in the mean scores of HRQoL ($p = 0.06$) by age group. Although the mean scores of most domains in the patients with age ≤ 30 yrs was higher than patients with age > 30 yrs but independent t test shows no significant differences in the mean scores of domains of HRQoL between the patients with age ≤ 30 yrs and patients with age > 30 yrs ($P > 0.05$) excepting a significant statistical difference was found for the mean scores of domain of physical functioning ($P = 0.009$) in this regard.

Men's mean scores of domains of HRQoL were higher than women. Independent t test, but, shows no significant differences by domains of HRQoL only for domain of social functioning between two genders. The findings of this study shows significant differences in the mean scores of total HRQoL and domains of social functioning, mental health, vitality and physical functioning between single and married patients ($P < 0.05$). Also patients with education level of $>$ diploma had a higher mean scores of total HRQoL and other its domains except domain of bodily pain. In other words, patients with education level of \leq diploma had more complained from bodily pains than patients with education level of $>$ diploma (Table 3). A significant correlation was found between level of income and scores of total HRQoL ($p = 0.001$, $r = 0.7$)

and domain of mental health ($p=0.001$, $r=0.4$) but it was not found any significant correlations in other dimensions. No significant statistical differences were observed in the means scores of total HRQoL and its dimensions by other demographic variable.

4. Discussions

This research was conducted to examine the HRQoL in goiteric patients. The results showed that the patients with goiter had no a desirable HRQoL. Comparing the mean scores of HRQoL domains in the present study with the reported mean scores of HRQoL domains by Rohani et al.(27) show that goiteric patients have lower scores in all domains of HRQoL compared with healthy samples. In this study, also, the mean scores of HRQoL domains except for vitality domain (42.9 ± 18.5 in our study versus 37.15 ± 23.18 in their study) have been lower than hypothyroidism patients in the study by Razvi et al. Their study showed lower scores for all domains of HRQoL in subjects with sub-clinical hypothyroidism than normative population(23). In addition to the differences for socioeconomic status of people in different countries, other factors like course of disease, type of medical services and method of patient education could affect the HRQoL in patients with thyroid diseases. It must be considered that goiter disease similar to other thyroid disorders could result in many psychosocial consequences that eventually will be accompanied by diminished HRQoL.

In the present study variables such as age, sex, marital status, education level and level of income have significant correlation with one or several dimensions of HRQoL in the present study. There are inconsistent findings in available studies. In confirmation to this finding, for example, a stronger positive relationship between advancing age and HRQL was reported for type 2 diabetic patients compared with type 1 diabetic patients (28).

In the present study, male patients have higher mean scores in different dimensions of HRQoL than females. This finding is consistence with the results of a similar studies on normal population(29) and Women with coronary artery disease (30), however, the generalization of this result needs to be more careful due to small number of male participant compared with females in this study. In fact as a limitation of this study, further research suggest to comparing HRQoL by gender. Moreover, based on existing evidences, factors like socioeconomic status (31), lower women's income than men(32) and exaggeration of medical problems by women (30) may result in the difference of HRQoL between two genders. The findings of this study showed unmarried

patients have higher scores in the dimensions of social functioning, mental health, vitality and physical functioning compared with married patients. As an explanation for this finding, it may be due to lower mean age of single patients participating in the present study compared with married patients or to be common sexual disorders in individuals suffering from thyroid diseases (22, 33) could affect HRQoL of married patients.

The finding of the present study showed a statistical correlation between levels of education and income with some dimensions of HRQoL. The result of a study by Robert et al. showed individuals in the lowest income and education groups in the 35-44 age cohort have worse HRQoL than those in higher socioeconomic status groups in the 65+ age cohort (34). Although level of education and income are including factors which may affect treatment and management of disease(35) but HRQoL especially in middle-aged also depends on to other factors apart from the financial ones.

We studied HRQoL of patients with goiter by SF-36 questionnaire which was also used in similar studies for ill and healthy individuals. In addition to the aforesaid limitation, we suggest further studies like longitudinal or comparative studies which use validated thyroid-specific HRQoL questionnaire for patients with thyroid disease.

Table 1. Mean scores of domains of HRQoL

Domains of HRQoL	Mean	Standard deviation
HRQoL (total)	45.2	15.8
Social functioning	48.6	24.6
Mental health	47.3	18.2
Vitality	42.9	18.5
General health	35.8	18
Bodily pain	47.5	26.4
Role Emotional	21.4	17.2
Role Physical	16.1	9.4
Physical functioning	63.8	18

5. Conclusion

With respect to the fact that the mean scores of the majority of HRQoL domains were less than fifty, the majority of patients with goiter did not have favorable HRQoL. Perceived HRQoL is significantly impaired in people with goiter and its evaluation is a key component for appraisal of the impact of a disease and its treatment on the patient's life and health status. A combination of two main types of HRQoL measures: disease-specific and generic provides complementary information about the perceived health status of people with thyroid disease including goiteric patients.

Table 2. Status of HRQOL in the patients with goiter

Dimensions of HRQoL	Level	Unfavorable		Moderate		Favorable	
		frequency	percent	frequency	percent	frequency	percent
HRQoL (total)		48	68.6	17	24.3	5	7.1
Physical functioning		19	27.1	31	44.3	20	28.6
Role Physical		63	90	-	-	7	10
Role Emotional		55	78.6	5	7.1	10	14.3
Bodily pain		38	54.3	14	20	18	25.7
General health		55	78.6	14	20	1	1.4
Vitality		50	71.4	15	21.5	5	7.2
Mental health		38	54.3	27	38.6	5	7.1
Social functioning		37	52.8	15	21.5	18	25.7

Table 3. The mean scores of dimensions of HRQoL in terms of demographic data

Variables	HRQOL	HRQoL (Total) Mean±SD	Social Functioning Mean±SD	Mental Health Mean±SD	Vitality Mean±SD	General Health Mean±SD	Bodily Pain Mean±SD	Role Emotional Mean±SD	Role Physical Mean±SD	Physical Functioning Mean±SD
Age groups	Age≤31 yrs	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*
	Age>31 yrs	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
Gender	Female	43.8±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
	Male	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
Marital status	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 level	≤Diploma	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*
	> 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

*P-value based on independent samples t test: significant at the P < 0.05

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Conflict of interest

No conflict of interest

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