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Evaluation of the influence of Orem's self-care model application on quality of life (QOL) of patients with hypothyroid goiter referred to health and therapeutic clinics in Yasouj city 2010

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ABSTRACT

Purpose

This study was conducted to evaluate the influence of Orem's self-care Model application on Quality of Life (QoL) of patients with hypothyroid goiter.

Materials and methods

In this case-control clinical trial, 70 patients including 9 males and 61 females with hypothyroid goiter referred to health and therapeutic clinics in Yasouj city were randomly divided into two groups: 35 patients in experimental group and 35 patients in control group. Data collection tools were demographic questionnaire, Orem cognition questionnaire, Short Form 36 questionnaire (SF-36) and self-care checklist. Experimental group received a self-care program consisted of eight 45 minutes training sessions according to self-care requirements. Patients' life quality was assessed at baseline and three months following the intervention by using QoL measure (SF-36). The QoL was compared between two groups. Data were analyzed by using SPSS 18.

Results

At baseline, QoL was comparable between experimental group (43.28±17.26) and control (47.19±14.26). QoL in experimental group, generally and eight domains, significantly improved following intervention (P=0.001). However, control group showed no considerable difference in QoL along study time; (P=0.73). After intervention, QoL in experimental group (79.64±11.86) was significantly higher than that in control group (46.29±17.56); (P=0.001).

Conclusion

Applying self-care according to Orem's Model could improve health-related QoL in patients with hypothyroid goiter.

Keywords: Self-care, Quality of Life, Goiter.

INTRODUCTION

Iodine deficiency and related disorders are still present in more than 130 countries. Iodine deficiency produces a variety of disorders such as goiter or hypothyroidism, brain disorders and motor problems, auditory and neurological disorders, and eventually cretinism [1].

According to the World Health Organization reports, Iodine deficiency is still a public health problem in 54 countries. A total of 36.5% (285 million) school-age children were estimated to have an insufficient iodine intake, ranging from 10.1% in the United States to 59.9% in the European Region. Globally, the total goiter prevalence in the general population is estimated to be 15.8%, varying between 4.7% in America to 28.3% in Africa [2].

About 1.5 billion people worldwide live in areas of iodine deficiency, of which more than 400 million people are already affected with goiter [3].

Hypothyroid goiter is a chronic disease that, similar to other chronic diseases, may negatively affect the quality of life (QoL) of the affected individuals. The QoL of these patients could be reduced due to frequent visits to treatment centers, daily and prolonged use of alternative hormones, the need for regular dosing and, in some cases, the need for supportive care, such as speech therapy and physiotherapy. In addition, mental and motor problems of these patients can have adverse effects on their social life [4].

Today, in measuring health status, taking into account multiple aspects of health and, in other words, QoL, has been raised more and more and its measurement as a consequence of the level of health in the field of health sciences has been widely used [5]. QoL is looking for variables beyond biomedical disease and includes physical, social and psychological factors [6]. Given that many people with hypothyroid goiter do not have enough knowledge about the disease, and lack sufficient skills in self-care activities, while they have the capability to take care of themselves, implementing a self-care plan based on the care needs of this group of patients can actively involve the patients in the process of improving their health status. Patterns of nursing are valuable guidelines for expressing the structure of professional nursing care and can provide nurses with opportunities to review, measure and evaluate nursing care [7].

Orem was the founder of the self-care theory of nursing. The Orem's self-care model is designed in three types of care systems based on patient's needs and conditions in health-deviation and the nurse's role: Wholly compensatory nursing system, partly compensatory nursing system, and supportive-educative nursing system. In wholly compensatory nursing system, the nurse compensates for the patient's total inability to perform self-care services. Partially compensatory system is where the nurse compensates for the patient partial inability to perform self-care services. In the supportive-educative nursing system, the patient has the ability to perform self-care measures but cannot be successful without the assistance of nursing. In this system the nurse assists the patient in making decisions and acquiring knowledge and skills. In this case, the nurse has an educational role and acts more as a counselor [8].

In Orem's model, it is very important to stimulate self-care abilities of patients and attract their participation in their care process.

There are areas with a high prevalence of goiter in Iran. Our studies showed that in Iran and some other areas of the world where goiter is an endemic problem, no research has been done regarding the effect of using Orem's self-care model on the QoL of goiter patients. The purpose of this study was to evaluate the effect of Orem's self-care model on improving the QoL of these patients in Yasuj, a city with high prevalence of goiter in Iran.

METHOD

The present study was a randomized clinical trial that was performed on two groups: control group and experimental group. In this research, Intervention is the application of a self-care program designed for patients with hypothyroid goiter. Sample size with 95% confidence and 5% error based on Pocock's formula [9], and according to the results of similar studies [8], was estimated as 32 individuals for both the experimental and control group; for more certainty and considering the probability of attrition, 35 individuals were considered for both the experimental and control group. A total of 70 patients referred to Shahid-Mofateh Clinic of Yasouj, Iran, were selected through random assignment sampling for the experimental and control group. Informed written consent was obtained from all subjects. Both the

experimental and control groups completed the demographic and QoL questionnaires. The Orem's model, which has been used in similar studies [8], consists of three parts: the diagnostic information that was completed by the investigator based on the patient record, demographic data (age, gender, marital status, degree of education, and duration of treatment), and information about health-deviation self-care requisites according to the Orem's model, with the goal of supportive-educative needs assessment which was completed only by 35 subjects in the experimental group. Then, self-care deficits were determined using the above-mentioned model. Accordingly, nursing diagnoses were defined as self-care deficits and supportive-educative system was chosen for these patients. Then, the learning needs of patients in the experimental group were determined and the educational program in accordance with these needs was held in the form of 8 sessions of 45 minutes. In the next stage, after conducting self-care training, the SF-36 questionnaire was completed again. The time of completion of this questionnaire was 3 months after the beginning of the first training session.

Inclusion criteria were as follows

1. Age 18 years or older
2. Absence of known chronic diseases
3. Have a record in health centers of Yasouj
4. At least 3 months have passed since the onset of the disease
5. No severe vision or hearing impairment

Exclusion criteria were as follows

1. Patient's death
2. Failure to follow the planned care
3. Unwillingness to continue cooperation and participation in the research

Data Collection Tool

After studying the literature in this field, the researcher used a questionnaire to obtain the desired information. For this purpose, three questionnaires were used: demographic information questionnaire, Persian version of SF-36 QoL questionnaire, and health status assessment form based on Orem's model.

Demographic Information Questionnaire

This questionnaire was designed to include the following information: age, gender, marital status, duration of illness, educational level, taking medications, regular visits to the physician, and diet plan.

SF-36 QoL questionnaire

This questionnaire was presented by John Ware in 1992 [10] and includes 36 questions for measuring QoL in 8 domains: general health (6 items), physical functioning (10 items), physical role limitation (4 items), vitality (4 items), bodily pain (2 items), emotional role limitation (3 items), mental health (5 items), and social functioning (2 items). To score the questionnaire, you can use the SF-36 exe software, which is accessible via www.SF-36.org website. The SF-36 questionnaire has previously been validated in many countries, including Iran, and has a high reliability, such as that by Montazeri et al. [5] on a healthy population over 15 years of age in Tehran, Iran.

Descriptive statistics including mean, cumulative percentage, standard deviation and tables were used to analyze the data according to the objectives and hypotheses and the research method. Finally, the data were analyzed using independent t-test and Chi-squared and Spss 18 software.

RESULTS

Demographic findings

The results of independent t-test were not significantly different in terms of the distribution of samples in both the experimental and control groups based on age and duration of treatment. Also, the results of Chi-squared test did not show a significant difference in the distribution of samples based on gender, marital status, educational level, taking medications, regular visits to the physician, and diet plan between experimental and control groups ($p < 0.05$) (Table 1).

Table 1: Frequency distribution of samples with gender, marital status, age, educational level and treatment duration

Characteristic		Experimental group	Control group	P-value
Gender	female	32 (91.4)	29 (82.9)	0.29
n (%)	male	3 (8.6)	6 (17.1)	
Marital status	single	5 (14.3)	12 (31.4)	0.12
n (%)	married	30 (85.7)	23 (65.7)	
Age		31.34 ± 7.88	34 ± 13.07	0.3
(mean ± standard deviation)				
Educational level	illiterate	1 (2.9)	6 (17.1)	0.19
n (%)	primary school	8 (22.9)	7 (20)	
	guidance school	7 (20)	2 (5.7)	
	high school	5 (14.3)	7 (20)	
	associate diploma	2 (5.7)	4 (11.4)	
	bachelor' degree	7 (20)	7 (20)	
	higher than bachelor's degree	5 (14.3)	2 (5.7)	
Duration of treatment (year)	<1	20 (57.1)	18 (51.4)	0.7
n (%)	1-3	7 (20)	9 (25.7)	
	4-6	8 (22.9)	6 (17.1)	
Taking medications	regular	9	10	0.85
	irregular	26	25	
Visits to the physician	regular	19	15	0.34
	irregular	16	20	
Diet plan	yes	10	7	
	no	25	28	

Descriptive findings related to levels of QoL

As shown in Table 2, the mean total score of QoL in the experimental group increased before and after the implementation of the model after three months, and these two differences are significant at the level of 0.001. But the mean total score of QoL in the control group before and after the implementation of the model and after three months did not show a significant difference. Standard deviation ± mean total score of QoL after the implementation self-care model in the experimental and control groups was 79.84 ± 11.86 and 46.29 ± 17.56, respectively, which was significantly higher in the experimental group compared to the control group (P = 0.001). The mean scores of the eight domains of QoL in the experimental group were significantly increased after the implementation of the self-care model (Table 3). In the control group, the mean scores of the eight domains of QoL after three months did not show significant differences (Table 4).

To compare the QoL of goiter patients in the experimental and control groups before and after the Orem's self-care model, an intergroup comparison (between the two groups before and after the intervention) was performed using independent t-test. The findings of the study showed that before the intervention, the total score of QoL in the experimental group and control group was 43.28 ± 17.26 and 47.19 ± 14.30, respectively, and there was no significant difference between them. In addition, there was no difference between the two groups in all eight domains (P > 0.05). At the end of the study and after the implementation of the model, the total score of QoL in the experimental group (79.64 ± 11.86) was significantly higher than that of the control group (46.29 ± 17.56). Also, the higher scores of the experimental group compared to the control group were observed in eight domains.

Table 2: range (mean, standard deviation) of overall QoL scores

Group	Variable	Min-Max	Mean	Standard deviation	P-value
Experimental	QoL before the intrrvention	18.47-88.75	43.28	17.26	0.001
	QoL after the intrrvention	49.72-97.50	79.64	11.86	
Control	QoL before the intrrvention	27.92-78.75	47.19	14.30	0.87
	QoL after the intrrvention	16.25-91.11	46.29	17.56	

Table 3: Comparison of mean and standard deviation of eight dimensions of QoL in the experimental group before and after the intervention

Variable	Mean values before intervention	Mean values after intervention	P-value
Social functioning	46.79 ± 27.85	75.36 ± 19.76	0.001
General health	33.72 ± 17.49	74.05 ± 13.10	0.014
Mental health	48.34 ± 20.08	72.8 ± 15.73	0.002
Vitality	71.71 ± 17.36	41 ± 19.81	0.001
Bodily pain	64.04 ± 29.51	85.64 ± 17.7	0.01
Physical functioning	60.84 ± 18.29	89.34 ± 12.88	0.023
Role emotional	37.14 ± 20.09	74.84 ± 34.29	0.01
Role physical	27.14 ± 14.28	84.14 ± 20.19	0.000

Table 4: Comparison of mean and standard deviation of eight dimensions of QoL in the control group before and after the intervention

Variable	Mean values before intervention	Mean values after intervention	P-value
Social functioning	56.07 ± 20.07	55.36 ± 26.48	0.87
General health	37.91 ± 18.69	38.81 ± 22.07	0.77
Mental health	43.43 ± 21.96	46.04 ± 16.38	0.31
Vitality	44.86 ± 17.26	45.43 ± 21.61	0.86
Bodily pain	71 ± 23.26	64.1 ± 26.24	0.2
Physical functioning	66.26 ± 17.34	65.06 ± 21.1	0.73
Role emotional	37.31 ± 21.18	37.76 ± 22.26	0.91
Role physical	31.86 ± 17.26	30.06 ± 17.86	0.8

DISCUSSION

Hypothyroid goiter as a chronic disease can have adverse effects on the QoL of the affected individuals. The QoL of these patients could be reduced due to frequent visits to treatment centers, daily and prolonged use of alternative hormones, the need for regular dosing and, in some cases, the need for supportive care, such as speech therapy and physiotherapy. In addition, mental and motor problems of these patients can have adverse effects on their social life [4].

According to a study by Romijn et al., [11], even in some patients with levothyroxine-treated hypothyroidism, despite having a favorable hormonal condition, there have been many problems such as musculoskeletal disorders, malaise and depression. However, few studies have been conducted on the QoL in this group of patients. In addition, we did not find any study on the effect of nursing intervention based on Orem's self-care model in patients with hypothyroid goiter. Because of the endemic presence of this disease in some regions of Iran, the effect of this model on the QoL of hypothyroid goiter patients is considered as a research necessity in Iran (as well as in other areas with high prevalence in the world). Decreased QoL in patients with thyroid hormone deficiency has been reported in several studies.

Van der Sluijs Veer and colleagues [4] studied and compared QoL, developmental milestones, sociodemographic status and self-esteem of patients with congenital hypothyroidism with the general population. A total of 69 patients completed HRQoL (Health-related quality of life), CoL

(developmental milestones and sociodemographic status) questionnaires, and a self-esteem questionnaire. Findings of this study showed that patients' QoL was significantly lower in the domains of cognitive functioning, sleeping, pain, daily activities, vitality, aggressiveness and depression compared to the normal population. Patients also showed significantly lower self-esteem and had a delayed social development.

In 2005, Razavi and colleagues [12] evaluated the health status of subclinical hypothyroid patients and compared them with normal populations. The QoL of 71 patients with mean age of 48.7 ± 9.67 years was determined by SF-36v2 (updated version of SF-36) questionnaire. After matching the samples in terms of age and gender, patients' QoL was significantly lower than the normal population. The greatest differences were observed in the domains of vitality and role-physical, respectively.

In the United States, Samuels et al. [13] examined the QoLof 19 women aged 20-75 years with primary hypothyroidism using the SF-36 questionnaire. The QoL for this population were reported 92.1 ± 2.8 (social functioning) to 59.7 ± 7.3 (vitality). Mental health and general health scores were 81.2 ± 2.4 and 78.8 ± 3.8, respectively. In their study, QoL scores in all domains was higher than our scores.

In the United Kingdom, Razavi et al., [12] studied patients with subclinical hypothyroidism, and reported QoL scores in all domains from a maximum 76 ± 24.9 (physical function) to a minimum of 37.1 ± 23.8 (vitality). Mental health and general health scores were 63.3 ± 18.8 and 60 ± 22.2, respectively. The QoL scores in all domains, except for the vitality, was higher than our scores.

In Australia, Walsh et al. [14] examined the QoL of patients with hypothyroidism based on the SF-36 questionnaire. The scores of their QoL in the following criteria were: social functioning, 84.2 ± 19.1, mental health 60.6 ± 5.8, vitality 57.1 ± 21.3, and general health 58.8 ± 5.9 which were more than the scores of our study in all cases.

The lower QoL of patients in the present study compared to patients in other parts of the world can be attributed principally to the difference in the QoL of Iranian patients compared to that of the patients in other countries. These differences may also be due to the age difference, the duration of the disease, or the etiology of the disease.

Comparison of the results of this study with the study of Tavafian et al. [15], Mohmmadpour and Yusefi (16), and Razavi et al. [12] shows that hypothyroid goiter patients have lower life quality than the normal population, and confirms the negative effect of hypothyroid goiter on the QoL of this group of patients. Comparison of QoL in different aspects showed that hypothyroid goiter patients had lower life quality in all eight domains, indicating the extensive impact of this disease in different aspects of their lives. Hypothyroid goiter, in addition to physical problems, can negatively affect the patient's mental status and social functioning, which will ultimately lead to a reduction in the overall quality of QoL as well as a reduction in the quality of all aspects of life.

The present study showed that the QoL of patients after intervention in the experimental group was significantly increased in all eight domains. For example, the mean vitality increased from 41 ± 19.81 to 71.71 17.36 and the general health increased from 33.72 ± 17.49 to 74.05 ± 13.11.

In the study of Crilly et al. [17], the effect of an educational course on the correct use of medication on the QoL of 497 patients with hypothyroidism was investigated. Patient evaluation using the SF-36 questionnaire showed that this method only increased the vitality from 46.3 ± 21.9 to 49.4 ± 23 and the general health from 57.0 ± 23.2 to 60.0 ± 22.6. This increase was not statistically significant, and no improvement was observed in other aspects of QoL.

In a study by Baraz et al. [18], the overall QoL score of elderly people after the implementation of the self-care model was 58.9 ± 17.5, which was lower than the total QoL score of hypothyroid goiter patients after intervention in the present study (79.64 ± 11.86). Baraz et al. [18], obtained the following mean scores after the intervention: social functioning 68.5 ± 54.1, mental health 61.9 ± 40.6, vitality 57.7 ± 11.5, general health 43.1 ± 17.9, bodily pain 47.4 ± 21.8, role emotional 62.2 ± 16.6, role physical 66.3 ± 40.4, and physical functioning 57.4 ± 31.4, which were lower the scores after the implementation of the self-care pattern in our study. These differences can be attributed to age and type of disease. The subjects in our study had a lower mean age than the subjects in the study of Baraz et al. [18], and it seems that self-care education can have a greater impact on the

QoL in younger people. In the present study and the study of Baraz et al. [18], there was a significant increase in QoL after the implementation of the Orem model and this increase confirms the significant effect of this nursing model on improving the health status of elderly and hypothyroid goiter patients.

Zandi et al. [19] designed a self-care education program to assess the needs of patients with cirrhosis. After the implementation of the program, the QoL of the patients under training increased significantly compared to the control group. Patients in the test group reported fewer abdominal, systemic, emotional, and fatigue problems and their activity improved.

Keshtkaran et al. [20] using a self-care education program reported a significant increase in the QoL of 79 individuals with osteoarthritis in short and medium periods (6 weeks to 12 months).

Golchin et al. [21] investigated the effect of the self-care program on the QoL of 70 patients with acute leukemia under chemotherapy and found that the implementation of this program significantly improved the QoL in physical, psychological, social and spiritual domains in the test group compared to the control group.

Sahebozamani et al. [22] investigated the effect of self-care education on the QoL of multiple sclerosis patients. The model used in this study for self-care education significantly improved the QoL scores of patients under intervention, which was evaluated using the MSQOL-54 questionnaire, in terms of physical health, pain, fatigue, perceived health, changes in health and sexual function, and overall quality.

In a study by Naji et al. [23], the QoL of 35 hemodialysis patients was assessed by SF-36 questionnaire. The mean overall QoL before using the Orem's self-care model was 46.9 ± 4.36 and after the use of the Orem's model, a significant increase was achieved to 56.65 ± 4.98. Comparing the findings of our study with the results of the study of Naji et al. [23], it can be seen that the Oerm's self-care model is more effective in improving the QoL of hypothyroid goiter patients compared to hemodialysis patients. This difference may be attributed to the characteristics of these two types of disease.

In our study, the experimental group showed a significant increase in QoL (minimum: 71.71 ± 17.36, maximum: 89 ± 12.88) after the implementation of the Orem's self-care model. These values are in the range of the results of the study of Tavafian et al. [15] in the normal population (minimum: 68.1 ± 19.8, maximum: 92.8 ± 22.1). In our study, after educating self-care skills based on the Orem's model, the mean scores in all domains of QoL increased and reached the level of quality of normal population. However, there was no change in the QoL between the beginning and the end of the study in the control group, which was similar to the experimental group regarding the type of disease and the underlying variables and differed only in the implementation of the intervention. These findings suggest that the Orem's model can have extensive effects on various aspects of health status of hypothyroid goiter patients and it can be effective in improving their QoL.

CONCLUSION

Regarding the findings of the above studies and the results of the present study, nursing interventions in the framework of Orem's self-care programs empower patients in their self-care skills and make it easier to deal with the complications of chronic diseases, such as hypothyroid goiter. Since the prevalence of hypothyroid goiter is often associated with inadequate oral intake of iodine or goitrogenic diets, self-care program education, such as the Orem's model, which is designed according to the needs of these patients, can have positive outcomes in reducing the problems associated with the disease by changing the lifestyle of this group of patients. In addition, self-care programs are simple, safe, secure, and cost-effective, compared to conventional therapies, and so their acceptance by patients is simply possible.

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