Predictors of Health Related Quality of Life of Thyroid Cancer Patients

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ABSTRACT

Background : Having the normal life expectancy of thyroid cancer patients, there are great concerns about any impairment in health-related quality of life (HRQOL) during the follow-up period. The aim of this study is to determine the potential predicting factors of health related quality of life (HRQOL) of thyroid cancer patients.

Methods : Total 246 thyroid cancer patients in two tertiary level hospitals in Dhaka city were involved in this cross sectional study from 01 July 2018 to 30 June 2019. Data were collected purposively by face-to-face interview with semi-structured questionnaire andchecklist. Data were analyzed by the statistical package for the social science (SPSS) version 23.

Results : Study revealed that mean (±SD) age of the respondent was 37.85(±12.20) years (range 14-70 years).Majority 74.4% of respondents was female, married (72%), housewife (61.4%),primary education (69%) and mean (±SD) monthly family income was Tk. 17681(±10602).Approximately 82.9% of patients had papillary cancer and 17.1% had follicular cancer. Of the patients, 91.5% had neck swelling, 41.9% had swollen lymph node, 57.3% had dysphonia and 35.4% had dysphagia.The mean overall HRQOL in thyroid cancer patients was 73.7(±8.39). HRQOL score of students and higher educated persons were better among the respective groups (p <.001).Multivariate regression analysis revealed that education (β=-0.888, p<.05), family income (β=0.05, p<.05) and marital status (β=-0.1.384, p<.05) and clinical condition (β=-0.522, p<.05) were potential predictors of HRQOLof thyroid cancer patients.

Conclusion : The overall HRQOL score was considerably good in this study. Family income, marital status, education and clinical condition had emerged as strong predictors in HRQOL of thyroid cancer patients. Proper diagnosis, motivation and attending clinical condition may significantly improve the HRQOL of thyroid cancer patients.

Key words : Predictors, Health Related Quality Of Life, Thyroid Cancer Patients

Introduction

Thyroid cancer accounts 92% of all endocrine malignancies.[1] Very good prognosis withlong term survival is higher than 90% with variations in subsets of patients.[2] Thyroid cancer will be double in incidence by the year 2019 and it will be the third most common cancer of all ages in women in USA.[3] Treatment efficacy measured as overall survival in evaluating treatment of malignant tumors till now. With improved early detection and treatment, large numbers of cancer patients are now surviving many years and heightened the interest in studying long-term effects of cancer on HRQOL.[4]

Based on tumor control,survival is the main outcome measure in oncology patients but diagnosis and management of cancer patients has been recognized increasingly a major effect on every aspect of the HRQOL of a patient.[5] The aims of cancer treatment became not only to increase survival but also to preserve HRQOL and measuring these changes has been considered to be of paramount importance.[5]

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With the consequences of treatment and follow-up, majority of patients with thyroid cancer will live for many years and their long-term quality of life becomes of great importance. Most patients will receive long-term treatment with thyroid hormones to decrease the risk of recurrence and to replace the hormone production of the thyroid gland after surgery. Therefore, side-effects from thyroid hormones might affect HRQOL.[6] Health related quality of life refers to a multidimensional concept that encompasses perception of negative and positive aspects of physical, emotional, social, and cognitive functions, which could be affected by the disease or its treatment.[7] Over the past two decades, many studies have measured QOL as an end point for the evaluation of the disease and its treatment of the patient.[8] However, there have been relatively few HR-QOL studies looking specifically at patients with thyroid cancer.[5] The identification and assessment of predictive factors of HRQOL in thyroid cancer survivors provide insights into their experiences of the disease and might support the choice and design of appropriate interventions and survivorship care plans to those with poor HRQOL. In Bangladesh no significant study was done to determine the predicting factors about HRQOL of thyroid cancer patients. This study was conducted for contributing profound academic and policy implications in detection of the magnitude of problem and to take necessary steps to provide economic and infrastructural support to reduce the burden of the disease.

MATERIALS AND METHODS:

Thiscross sectional study was done purposively selected 246 patients who were diagnosedas thyroid cancer by expert Oncologist after thyroidectomy in Institute of Nuclear Medicine and Allied Science of Bangabandhu Sheikh Mujib Medical University (BSMMU) andDhaka Medical College Hospital (DMCH) from 01 July 2018 to 30 June 2019. FACT-G (version 4),927-item compilation of general questions was used to determine HRQOL of thyroid cancer patients in which the scored items employed a Likert-type format (0 to 4 "not at all to very much"). FACT-G scored was calculated by summing the individual scale scores and the total score was 0-108, with higher scores indicating better quality of life. For assessing the clinical attributes, there were 07 items clinical presentations of thyroid cancer patients and this assessment was done by employing a Likert-type format (not at all, a little, quite a bit, very much).To identify predicting factors of HRQOL at diagnosis which were measured with FACT-G by socio-demographic and clinical condition of thyroid cancer patients. After pretesting, the questionnaire was finalized and used for data collection. Informed written consent of each respondent was obtained before data collection. After explaining the purpose of the study, data were collected by face to face interview using a semi-structured questionnaire and checklist through reviewing medical records of the respective participants. Collected Data was analyzed with the help of SPSS (version 23).

RESULTS

Among 246 thyroid cancer patients, the mean ($\pm$SD) age was 37.85 ± 12.20 years and 30-49 years old (50.4%). Majority of the participants was female (74.4%), married (72%) and house wife (61.4%), male female ratio was 1:3. Around 28% had primary education, illiterate (20.7%) and had middle mean monthly family income was Tk. 17681 ± 10602 (Table 1). Approximately (82.9%) of patients had papillary carcinoma followed by follicular carcinoma (17.1%) (Figure 1). Study participants presented with visible neck swelling (91.5%), swollen lymph node (41.9%), pain (36.6%), difficulties in swallowing (35.4%), hoarseness of voice (57.3%), cough along with swelling (19.1%) and difficulties in breathing (5.3%) (Table 2). Among the respondents, mean $\pm$ SD of total HRQOL score was (73.7 ± 8.39). Among domains, mean $\pm$ SD score was highest in physical well-being (PWB) (22.07 ± 3.87) and lowest in functional well-being (FWB) (18.65 ± 4.17) (Table 3). Mean $\pm$ SD of the HRQOL score of students (77.86 ± 8.484) and graduates personals (76.90 ± 8.300) which were highest among the respective groups and statistically significant (p <.001) (Table 4).The most significant factors influencing the health related quality of life of thyroid cancer patients were family income (β=0.05, p<.05),marital status (β=-0.1.384, p<.05) and education (β=-0.888, p<.05) (Table 5).

Table 1: Distribution of thyroid cancer patients by socio-demographic character

Attributes	Category	Frequency (%)
Sex	Male	63(25.6)
	Female	183(74.4)
Age(Years)	14-19	13(5.3)
	20-29	54(22.0)
	30-49	124(50.4)
	50-70	55(22.4)
Education	Primary	69(28.0)
	Secondary	27(11.0)
	SSC	38(15.4)
	HSC	25(10.2)
	Graduate	21(8.5)
	Masters	15(6.1)
	Illiterate	51(20.7)
Occupation	Student	14(5.7)
	Service Holder	35(14.2)
	Retired	4(1.6)
	Business	19(7.7)
	Farming	7(2.8)
	Housewife	151(61.4)
	Unemployed	11(4.5)
	Day labor	5(2.0)
Marital Status	Married	177(72.0)
	Unmarried	32(13.0)
	Widow	27(11.0)

Figure I: Distribution of patients by type of thyroid cancer (n=246)
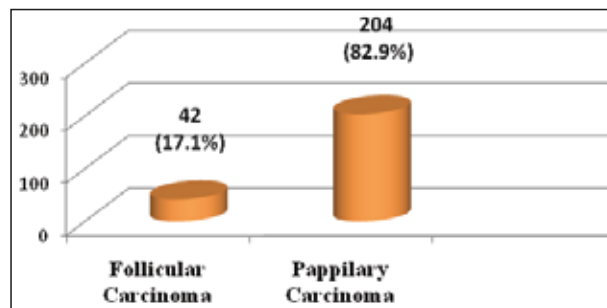

Table 2: Distribution of thyroid cancer patients by clinical attributes (n=246)

Attributes	Not at all f(%)	A little f(%)	Quitea bit f(%)	Very much f(%)	Total f(%)
Visible lump in neck	21(8.5%)	146(59.3)	68(27.6)	11(4.5)	100
Swollen lymph node	143(58.1)	98(39.8)	5(2.0)	0(00)	100
Pain due to lump	156(63.4)	82(33.3)	8(3.3)	0(00)	100
Difficulties in swallowing	159(64.6)	77(31.3)	10(4.1)	0(00)	100
Hoarseness of voice	105(42.7)	98(39.8)	43(17.5)	0(00)	100
Cough along with swelling	199(80.9)	47(19.1)	0(00)	0(00)	100
Breathlessness due to lump	233(94.7)	13(5.3)	0(00)	0(00)	100

Table 3: Distribution of patients by mean score of HRQOL and domain (n=246)

Attributes	Maximum Score	Mean±SD	Median	Range
Physical Well-Being (PWB)	28	22.07 ± 3.87	22	12-28
Social Well-Being (SWB)	28	19.26 ± 3.62	20	10-28
Emotional Well-Being (EWB)	24	26.5 ± 2.97	19	10-24
Functional Well-Being (FWB)	28	18.65 ± 4.17	14	5-28
Total HRQOL	108	73.7 ± 8.39	74	49-102

Table 4: Comparison of mean score of HRQOL by selected socio-demographic

Attributes	n=246	Mean±SD of HRQOL	Significance
Occupation			
Student	14	77.86±8.484	
Service	35	72.11±9.508	(Test Value=.023)
Retired	4	69.00±4.243	F=2.370
Business	19	77.68±7.754	df=7
Farming	7	68.29±5.908	P < .05
Housewife	151	73.65±8.358	
Unemployed	11	75.18±4.708	
Day labor	5	67.80±4.025	
Education			
Illiterate	51	70.69±6.386	
Primary	69	73.25±8.806	(Test Value=.027
Secondary	27	74.81±8.298	F=2.418
SSC(pass)	38	73.66±9.356	df=6
HSC (Pass)	25	76.88±8.217	P < .05
Graduate	21	76.90±8.300	
Masters	15	74.40±8.096	

Table 5: Multivariate regression analysis of predictors of HRQOL in thyroid cancer Patients

Predictor	β	SE	r	R	R^2	Significance
Family Income	.000	.000	.149	.018	1.8%	Test results=.019 p < .05
Marital Status	-1.384	.629	-.140	.015	1.5%	Test results=.029 p < .05
Education	.888	.286	.195	.038	3.8%	Test results=.002 p < .05
Clinical Condition	-.522	.209	-.158	.021	2.1%	Test results=.013 p < .05

DISCUSSION

This cross-sectional study was conducted among 246 thyroid cancer patients. The mean±SD age of the participants was 37.85±12.20 years and the highest frequency 124(50.4%) was in between 30-49 years which is similar to other studies (Table 1). [10,11] Male were 63(25.6%) and female were 183(74.4%) and male female ratio was 1:3 (Table 1). A study conducted by Haque GHMS[12] revealed the similar results with the present study may be due to same geographical location. Out of all respondents, illiterate (20.7%) and had low educational attainment (28%). Present data supports the national statistics where literacy rate was shown as 72.8%.[13] In respect of occupation, respondents were mostly house wife (61.4%), married (72% were) (Table 1). Tagay et al[14] showed the similar results with this study. According to the Bangladesh demographic and health service data, the usual age at marriage for male is 25.1 years and female is 18.5 years.[15] Majority i.e. 44.3% had monthly family income Tk. 10001-20000 and mean middle monthly family income Tk. 17681 ±10602 (Table 1). Household income per month is 15,945.00 BDT which was reported to CEIC- a global data base organization by Bangladesh Bureau of Statistic.[16] Most of the respondents had papillary carcinoma (82.9%) and follicular carcinoma (17.1%) (Figure 1). The similar result was found in Merchant[17] where papillary carcinoma was 80% and follicular carcinoma was 10%.

Regarding presenting complaints, visible lump in the neck were (92%) which showed the similar result in Pramod.[18] This similarity was probably due to the food habit, socio- economic and environmental condition of this sub continent. Lymph node swelling of the respondent was (41.8%) which revealed the similar results in kannan[19].Majority (63.4%) of the respondents did not complain of pain due to lump which was not similar in Haque.[12] Maximum (64.6%) of the respondents had complained of difficulties in swallowing due to lump that did not correlate with the study Merchant[17] probably due to dissimilarity of study design. Most of the respondents (57.3%) complained of hoarseness of voice which disagreed with Merchant[17]. Respondents (5.3%) did not complain of difficulties in breathing which were similar to Chidambaram[20] and this similarity was probably due to the same characteristics in geographical location of this sub continent (Table-2).

Among the respondents, mean ± SD of total HRQOL score was (73.7 ± 8.39). Among domains, mean ± SD score was highest in Physical Well-Being (PWB) (22.07 ± 3.87) and lowest in Functional Well-Being (FWB) 18.65 ± 4.17(Table 3). Mean score of PWB and SWB were higher among the other domain which may be the fact that people got much information about the disease process and its consequences and took the medical support to cure them and to maintain a healthy life.

In the present study, student and graduate personal had higher HRQOL scores which depicted the similar result by Rukshani[21] due to higher awareness of disease conditions, side effects of drugs and treatments (Table 4).

Selected variables income, marital status and education and clinical condition emerged as potential predictors for determinants of HRQOL in multiple regression analysis (Table 5). All had negative influence on HRQOL except education which was positive influence on HRQOL. In a study, Lee[22] observed marital status, education; financial status had impact on HRQOL.

Although this study was performed with small sample size in two tertiary level hospitals but still it provides base line information for the future study with large sample size involving wider area representing demographics of the country.

CONCLUSION

In this study, it is indicated that income, marital status, education and clinical condition were predicting factors of HRQOL of thyroid cancer patients after thyroidectomy. Future studies are needed to investigate these factors by regular motivation, educational awareness and proper allocating health resources to improve the quality of life of thyroid cancer patients.

RECOMMENDATIONS

For early diagnosis, specific protection and proper treatment at primary and secondary level of health system regular screening is required forthyroid cancer patients. Awareness program by promoting health education for healthy life style and health promotion using mass media and social network are essential. Comprehensive wide scale research work should be carried out to focus on pragmatic scenario of thyroid cancer and to undertake effectual ascendency accordingly.

LIMITATIONS

Due to resource constraints and availability of eligible patients, the study was conducted in two specialized hospital with limited sample size. If it could be conducted in more hospitals it would have been more valid. It was challenging to motivate the attendance of the patients to collect required information.

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