Quality of Life of Patients with Non-melanoma Skin Cancers and their First-degree Relatives in Shiraz, Southern Iran: A Cross-sectional Study

Nasrin Saki

Shiraz University of Medical Sciences

Maryam Mashhadi Nezhad

Shiraz University of Medical Sciences

Hengameh Kasraei

Shiraz University of Medical Sciences

Maryam Rezaee

Shiraz University of Medical Sciences

Negin Fazelzadeh Haghighi

Shiraz University of Medical Sciences

Mohammad Mahdi Parvizi (✉ mmparvizi@gmail.com)

Molecular Dermatology Research Center, Shiraz University of Medical Sciences <https://orcid.org/0000-0003-1856-945X>

Research

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Abstract

Background: Skin cancer is the most common cancer in the world. The aim of this study was to evaluate the quality of life (QoL) of both patients with non-melanoma skin cancer and their relatives.

Methods: This is an analytical cross-sectional study on patients with non-melanoma skin cancer and their first-degree relatives referred to dermatology clinic of Faghihi Hospital, Shiraz, Iran, 2018. Accordingly, patients and one of their companions were considered as the study group. Their responses to the questionnaires of Dermatology Life Quality Index and Family Dermatology Life Quality Index were analyzed using SPSS software, version 18.

Results: The QoL of the patients enrolled in this study was relatively good. The mean of the QoL score for patients with non-melanoma skin cancer was 10.5 ± 6.2 for men and 13.2 ± 7.2 for women which showed a statistically significant difference ($P = 0.027$). In the patient's companion group, the mean of their QoL scores were 9.4 ± 5.6 in men and 10.9 ± 6.0 in women with no statistically significant difference ($P = 0.149$). In addition, the QoL in both groups were not related to the type of skin cancer, sex and family relations.

Conclusion: The results of this study showed that the overall QoL of the patients and their relatives was moderate. However, a plan for improving QoLs of both groups should be considered as a part of the illness management.

1. Introduction

According to American cancer association report, skin cancer is the most common cancer in the world (1). At least 40% of all types of cancer in the world are related to the skin. Particularly among people with fair skin complexion, this type of cancer is very common, which predominantly includes melanoma, squamous cell carcinoma, and basal cell carcinoma (2). Squamous cell carcinoma and basal cell carcinoma are classified as non-melanoma skin cancers (NMSC) and account for 95% of all skin cancer cases. About 80% of non-melanoma skin cancers are basal cell carcinoma (BCC) and 20% are squamous cell carcinoma (SCC) (3).

Melanoma is the 15th most common cancer among men and women. The prevalence of both melanoma and non-melanoma has increased in the recent decades (4). In Iran, skin cancer is the most common type, and like other countries, its prevalence is increasing. The results of a study showed that between 2006 and 2010, 1448 cases of death secondary to skin cancer occurred in Iran (5). According to the latest statistics released by the World Health Organization (WHO), in 2017, deaths related to skin cancer in Iran were reported to be 405 cases (ranked 143rd in the world) (6).

In all skin malignancy cases, abnormal changes in the skin, complications of therapeutic procedures, and the risk of recurrence after treatment are amongst the factors that can affect the normal life of an individual and his/her close relatives (7).

Due to longer life span of patients with non-melanoma type of skin cancer than melanoma and its higher prevalence, the psychological effects of this disease on patients may be greater (8). Assessing the quality of life (QoL) is an important topic, when investigating chronic diseases, especially cancer. Multiple studies have evaluated various aspects of QoL of individuals with cancer (9, 10). The aim of this study was to assess the QoL of the patients with non-melanoma skin cancers and their first-degree relatives referred to Dermatology Clinic of Shahid Faghihi Hospital, Shiraz, Iran in 2018.

2. Materials & Methods

2.1 Study design, participants and sample size:

This study is a descriptive-analytic cross-sectional study. The statistical population consisted of all patients with non-melanoma skin malignancies and their first degree companions who referred to dermatology clinic of Dermatology Clinic, Faghihi Hospital, Shiraz, Iran in 2018. Diagnosis of NMSC in patients was confirmed by skin biopsy. For each patient, one of his/her first degree companion was placed in the companions' group. The patient's first degree companion was a person who referred to the clinic and had enough information about the patient, and did not have any disease. The minimum sample size was calculated 70 individuals in each group (patients and their relatives) with considering a standard deviation of 6.4, an alpha error of 0.05 and a power of 80%. At the end of the study, a total of 122 patients and 122 companions were included in this study with convenience sampling. People who did not have the ability to speak were not included, due to their inability to complete the questionnaire. Also, incomplete questionnaires were not included in the study.

2.2. Data collection and questionnaires:

Age, sex, type of NMSC (BCC or SCC), and the familial relation of the patients with their companion were documented. In order to assess the patients' QoL, we used Dermatology Life Quality Index (DLQI) questionnaire. This questionnaire was used to evaluate the patient's companion. These two questionnaires consist of 10 questions each, which are scored in a Likert 4-point scale (0 means at all, 1 = low, 2 = high and 3 = very high). Finally, the overall score of the questionnaire was measured between 0 (normal life) and 30 (severe impairment in life). Higher scores indicate a lower QoL. The questions in these questionnaires cover six domains of emotion, daily activity, leisure, work and education, personal communication, and treatment.

In many previous studies in other countries including Iran, validity and reliability of these questionnaires have been proven. Cronbach's alpha coefficient for the DLQI questionnaire was 0.79 in Aghaei et al.'s study (9) and 0.87 for the FDLQI in Safizadeh et al.'s study (11). The quality of life index score was measured statistically by age, sex, type of cancer (BCC or SCC), and type of family relationship with their companion in both groups.

2.3 Statistical analysis:

Data were analyzed using descriptive statistics (frequency distribution, mean and standard deviation) and inferential statistics (independent t-test and ANOVA) by using SPSS software version 18.

2.4 Ethical statements:

This research was approved by Ethics Committee of Shiraz University of Medical Sciences (Ethics code: 1397.360). The patients were aware about the protocol of the study. Accordingly, the patients' information was recorded anonymous.

3. Results

Demographic data of the participants are shown in Table 1. One hundred and nine (89.3%) patients had BCC and 13 (10.7%) had SCC. The familial relation of the companion with the patient was as follows: patient's spouse, the patient's child and the sibling of the patient; 45 (36.9%), 67 (54.9%) and 10 (8.2%) individual were allocated to the three groups, respectively.

The patients and their companions' responses to the questionnaires of quality of life were analyzed. The frequency and percentage of the patients' rated scores to 10 questions of the DLQI questionnaire is shown in Table 2. The frequency and percentage of the patient's companion scores given to the 10 questions of the FDLQI questionnaire is shown in Table 3.

The mean and standard deviation of the quality of life score for patients with non-melanoma skin cancer were 10.5 ± 6.2 in males and 13.2 ± 7.2 in females. The results of t-test showed that the mean loss of QoL in female patients was significantly higher than the male ones ($P = 0.027$). In the patient's companions group, the mean and standard deviation of their QoL scores were 9.4 ± 5.6 in males and 10.9 ± 6.0 in females. Independent t-test was used to compare the QoL in both groups, but there was no statistically significant difference ($P = 0.149$).

Pearson correlation test showed a positive significant relationship between QoL mean score and patients' age ($r=0.492$, $P < 0.001$). On the other hand, there was no significant relationship between mean score of QoL and mean age of the patients' companions using Pearson correlation test ($P = 0.256$).

Comparison of the mean scores of QoL in patients by Mann Whitney test showed that non-melanoma type of cancer (BCC or SCC) had no significant relationship with the QoL score ($P = 0.165$). Comparison of mean scores of QoL of patients' companions using Mann-Whitney test showed that non-melanoma type of cancer (BCC or SCC) had no statistically significant relationship with their QoL ($P = 0.878$).

Table 4 shows the QoL of patient's companion and the type of relationship with the patient. In order to do this, we used analysis of variance. The results showed that the relationship between these two variables was not significant and the QoL in the three subgroups was almost the same ($P = 0.455$).

Table 1
Distribution of sex and age of the patients with non-melanoma skin cancer and their companion

Group	Sex	Frequency	Percentage	Age mean $\pm$ SD (year)
Patients	Male	73	59.8	65.9 $\pm$ 10.3
	Female	49	40.2	
Patients' companion	Male	109	89.3	46.5 $\pm$ 11.4
	Female	13	10.7	

Table 2
Distribution of answers to quality of life questions in patients with non-melanoma skin cancer

NO	Questions	Score							
		0 (At all)		1(Low)		2 (High)		3(Very high)	
		frequency	Percentage	frequency	percentage	frequency	percentage	frequency	percentage
1	The inconvenience and pain of the patient during last week	17	13.9	39	32.0	37	30.3	29	23.8
2	Embarrassment or nervousness	20	16.4	40	32.8	31	25.4	31	25.4
3	Indoor or outdoor daily works	26	21.3	44	36.1	33	27.0	19	15.6
4	Type of cloths	27	22.1	44	36.1	31	25.4	20	16.4
5	Social and recreational activity	42	34.4	41	33.6	27	22.1	12	9.8
6	Preventing exercise	56	45.9	45	36.9	14	11.5	7	5.7
7	Working and studying	54	44.3	33	27.0	23	18.9	12	9.8
8	Interpersonal communication	40	32.8	48	39.3	24	19.7	10	8.2
9	Sexual problems	54	44.3	28	23.0	25	20.5	15	12.3
10	Treatment problems	55	45.1	41	33.6	20	16.4	6	4.9

Table 3
Distribution of responses to quality of life questions in non-melanoma skin cancer patients' companion

NO	Questions	Score							
		0 (At all)		1(Low)		2 (High)		3(Very high)	
		frequency	percentage	frequency	percentage	frequency	percentage	frequency	percentage
1	Psychological pressure	49	40.2	38	31.1	14	11.5	21	17.2
2	Physical well-being	31	25.4	53	43.4	29	23.8	9	7.4
3	Personal and interpersonal relationships	45	36.9	41	33.6	31	25.4	5	4.1
4	Reaction of others	40	32.8	51	41.8	24	19.7	7	5.7
5	Social life	40	32.8	40	32.8	37	30.3	5	4.1
6	Recreation	41	32.6	50	41.0	30	24.6	1	0.8
7	Spend time on caring the patient	39	32.0	38	31.1	39	32.0	6	4.9
8	Additional work at home	40	32.8	56	45.9	23	18.9	3	2.5
9	Job and study	47	38.5	40	32.8	31	25.4	4	3.3
10	Costs	32	26.2	41	33.6	46	37.7	3	2.5

Table 4
Comparison of familial relation of patient's companion with quality of life of non-melanoma skin cancer patient's companion

Familial relation	Quality of life score of patient's companion		P-Value
	Mean	Standard deviation	
Spouse	11.06	6.69	0.078
Child	9.83	5.35	
Sibling	9.10	5.24	

4. Discussion

Chronic illnesses can make some changes in daily life of the patients and their caregivers that may affect QOL of them in different aspects, such as the psychological health, social life, working or studying, and expenses (12). According to our study on patients' QOL, embarrassment or nervousness had a higher score among the questions that influenced the patients' QOL in contrast to inconvenience and pain that had lower scores. The most and least affected aspect of QOL in the patients' companion group were psychological pressure and physical wellbeing, respectively.

In the study of Abedini *et al.* on 1500 patients with NMSC, 77.9% were mens and 22.1% were womens. The mean and standard deviation of the participants' age were 64.6 ± 12.5 and the percentage of BCC and SCC in their study was 75% and 15%, respectively; also, 5% of the patients had both SCC and BCC. The studied population of Abedini *et al.* in terms of sex distribution and age was similar to our study, but the percentage of BCC and SCC types was different, which could be due to the differences in the place of study and exposure to environmental factors (13).

According to the result of our study, there was no significant difference in the QoL of patients based on familial relations. This could indicate that the incidence of non-melanoma skin cancer affects the QoL of different family members at the same level. However, in other

studies, the QoL of patients' family using NMSC was not compared with the type of relationship with the patient. Handjani *et al.* showed that among the relatives of patients with Pemphigus Vulgaris, the spouses had a significant decrease in FDLQI scores in comparison with the children's and siblings'(14).

According to Ghaderi *et al.* study on Alopecia Areata, the mean scores in mental health, social function, and general health in patients were lower than controls which were in line with the results of our study(15). The study of Nourpisheh *et al.* on skin leishmaniasis patients showed that the highest mean score of SF-36 questionnaire was in the domain of general health and the lowest was in social function of the patients. In addition, the mean score of DLQI in patients in their study was 13.7 units (16), which was in-line with the results showed in our study. This difference could be related to differences in the enrolled patients in both studies. The study of Mardani *et al.* on cancer patients revealed that the QoL of patients with cancer was related to their mental health, and cancer had affected various aspects of patients' life, which were strongly in line with the results of our assessment. According to their study, several domains of QoL had a significant correlation with mental health in patients with cancer. In this regard, the domain of physical performance had a significant correlation with anxiety, social dysfunction and depression. Moreover, they showed that the mental health domain of QoL had a significant correlation with Quasi-physical symptoms of mental health domain. Finally, they showed that there was a significant correlation with social functioning disorder of mental health (17), which was in line with the results of our assessment.

The study of Zeyghami *et al.* on the QoL of patients with cancer undergoing chemotherapy showed that there were significant differences between the mean score of dimensions of physical performance, role, and emotional status in before and after three times chemotherapy. But, there was no statistically significant difference between the mean of cognitive and social dimensions (18).

Soghi *et al.* demonstrated that Iranian patients with type 1 neurofibromatosis had a moderate QoL and low quality of emotion and performance (19). These findings can be used to provide better healthcare for these patients in order to improve their QoL, which was consistent with the results of our assessment.

Goldstein *et al.* revealed that women undergoing adjuvant treatment for the early stages of breast cancer reported 36% significant levels of depression or anxiety. In this study, disability had the highest score in the retired patients. Moreover, Women with fatigue, with or without accompanying mood disorders, expressed different patterns of functional state. In particular, 40% of patients with high fatigue reported significant problem in climbing the stairs. Furthermore, the results of their study showed a significant correlation between progressive fatigue after cancer with mood and psychological disorders (20).

In our study, the mean score of QoL in women was significantly higher than men. The study of Soghi *et al.* showed the QoL of Iranian patients with Type I neurofibromatosis was not statistically correlated with age and sex, but the association between the range of symptoms with age was statistically significant (16). But, this association was not in line with our study that these results could be related to the differences of demographic characteristics of participants in both studies. Ansarin *et al.*'s study revealed that the QoL in patients with skin disorders and QoL in individual without skin disorders had positive correlation with age and income (21), which was not consistent with the results of our study, and this difference could be due to the differences in the methods and participants in both studies. Nourpisheh *et al.* demonstrated that the total score of QoL in patients with cutaneous leishmaniasis had a negative correlation age (13), which was consistent with the result of our study.

According to our study, there was no statistically significant differences between the QoL of patients' companion with the sex of patients. Moreover, our study showed that there was no statistically significant relationship between QoL of patients and the types of non-melanoma cancer (BCC vs. SCC). This result was similar for relationship between QoL of patients' companions and types of skin cancer, too.

This study was performed on patients in only one dermatology clinic that it could be the most important limitation of our study was. So, it is suggested that future studies be carried out on patients as multicenter projects in more factors that they may related to QoL.

5. Conclusion

The results of this study showed that although the overall QoL of the patients with non-melanoma skin cancer was moderate, this index in the patients and their companion was not related to types of cancer, sex and family relations. Therefore, according to reduced overall quality of specific aspects of life in each person, improving quality of life of the patients and their caregivers should be considered as a part of the illness management.

Declarations

Ethics approval and consent to participate

This research was approved by Ethics Committee of Shiraz University of Medical Sciences (Ethics code: 1397.360). The patients were aware about the protocol of the study. Accordingly, the patients' information was recorded anonymous.

Consent to publish

Not applicable.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that there was no conflict of interest.

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Authors' Contributions

Study concept and design: NS, MR, MMP; acquisition of data: NS, MMN, HK, MR, MMP; data analyses: NS, MMP; drafting of the manuscript: MMN, HK, MR,; critical revision of the manuscript for important intellectual content: NS, MMP; study supervision: NS, MMP; final approval of the version to be submitted: NS, MMN, HK, MR, MMP

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