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Quality of Life in Patients with Skin Diseases Attending a Public Healthcare Institute of Quetta City, Pakistan

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Abstract

Background: The current study is aimed to document the Dermatology Life Quality Index (DLQI) of patients with skin disorders attending a public healthcare institute in Quetta city, Pakistan. **Methods:** A questionnaire based, cross-sectional study was planned for this research. The study was conducted at Bolan Medical Complex Hospital, Quetta. A response based, double design sampling method was used to identify the sample required for the study. Patients were asked to answer the Dermatology Life Quality Index (DLQI) for the assessment of QoL. SPSS v. 20 was used for data analysis. The Chi Square test was used for cross tabulation analysis and $p < 0.05$ was considered statistically significant. **Results:** Eight hundred and forty six patients responded to the survey. Mean DLQI score for the current cohort was 16.76 ± 2.54 indicating a very large effect of skin diseases on patient's QoL. Symptoms and feelings reported mean score of 4.21 ± 0.9 out of 6 followed by daily activities and leisure (3.9 ± 1.1 and 3.8 ± 0.9 respectively). Educational level and income were significantly associated with various components of DLQI ($P < 0.05$). **Conclusion:** A large impact on QoL was observed among patients with skin disorders. Findings of the study suggest that serious efforts are needed to reduce the effect of educational and economic factors in order to improve the QoL of patients with skin disorders in Quetta city, Pakistan.

Key words: Quality of life, Skin diseases, Public healthcare institute, Quetta city, Pakistan.

INTRODUCTION

The concept of Quality of life (QoL) is frequently used in healthcare research and has become an important outcome variable.[1] Conventionally, where therapeutic regimens are focused on symptoms relief and eradication, QoL tends to highlight factors that are important in affecting the overall wellbeing of the patients.[2] Therefore, QoL is rated as a significant predictor of treatment success and is seen as of prognostic importance during the course of care.[3] Within this context, an increased prevalence of chronic disorders is reported in recent years that adversely affected patients' QoL.[4,5,6] However, in clinical and non-clinical research, the focus is always on traditional chronic conditions like Hypertension, Diabetes etc and the impact of skin diseases on QoL is often undervalued in the literature.[7] Perhaps the low mortality rates associated with skin disorders is associated with this undervaluation; the adverse effect of skin disorders on patients' QoL is well documented in literature.[8] Furthermore, trials have also reported that disability-adjusted life years associated with skin diseases are also very much similar to that of other chronic medical conditions.[9]

It is now known that 20-90% of the population suffers from some type of skin disease and approximately 24% of primary care visits around the globe are because of skin disorders.[10] The economic impact of skin disorders is also huge. In US alone, approximately 35.9 billion US $ was spent in treating skin infections including $1.6 billion (6.0%) of indirect cost that was attributed to lost-to-workdays.[10] Even though skin diseases in developing countries are almost identically prevalent when compared with the developed nations, the burden of skin diseases is still hard to measure in developing countries.[11] The prevalence of skin diseases in India was 45.3%[12] and 28.2% in rural Sumatra.[13] In Africa, reported prevalence of skin diseases ranged from 10-50%.[14] However, it is to remember that Figures reported from various countries are not easy to compare and interpret because of differences of study design and the seasonality of diseases. Inline to what is reported; also there is an acute shortage of skin care specialists (dermatologists) in developing countries.[10] The primary care units do not have the capability of treating skin diseases; and patients may spend up to 50-100% of their earnings on treatment for skin problems, which is unproductive nearly 75% of the time.[10] Hence, the cost of treating skin diseases is much higher in developing countries when compared with the developed ones thus producing a negative effect on overall QoL of patients.

Shifting our concerns to skin disorders in Pakistan, the conditions are very much similar to what is reported by other developing countries. Skin diseases involve every age strata of the Pakistani population but are most commonly seen in younger age group, women, and people who do not practice hygiene.[15] Moreover, few studies have discussed QoL issues in skin diseases[16,17] however; such studies are either reported from developed areas or are focused on a single skin disorder. In general, there is not a single study that addresses QoL issues and highlights the predictors that independently effect patients suffering from skin disorders in Pakistan. Keeping the paucity of information in mind, the present study is aimed to document the Dermatology Life Quality Index (DLQI) of patients with skin disorders attending a public healthcare institute in Quetta city, Pakistan.

METHODS

A questionnaire based, cross-sectional study was planned for this research. The study was conducted at Bolan Medical Complex Hospital (BMCH), Quetta. The BMCH was established in 2001 and is one of the principal tertiary care teaching hospitals in Quetta city. Equipped with modern equipment's, the hospital has all basic departments. As the department of Dermatology is well established at the BMCH, the hospital was chosen as a potential site for data collection. The study was conducted from January 2017 to April 2017.

Patients presenting with any type of skin problem and attending the Dermatology Out Patient Department of the Bolan Medical Complex Hospital (BMCH), Quetta were targeted for data collection. Determination of the sample size was carried out to ensure the minimum number of the respondents needed to be a representative sample of the whole population of Quetta city. A response based method via a double design measure was applied to calculate the minimum sample required for the study. The sample was based on 95% confidence interval, 5% margin of error and 50% of response distribution. Later, a 10% of dropout was added and by applying a double design effect, the final sample size was 846.[18]

Adults aging 18 years and above, with confirmed diagnosis of any skin disease and having ability to communicate in Urdu (Language Franca) were targeted for the study. Patients with mental disorders, needing assistance during care, immigrants and not willing to participate were excluded from the study.

Along with a demographic information sheet, patients were asked to respond and complete the Dermatology Life Quality Index (DLQI) for the assessment of QoL.[19] The DLQI is an easy to administer, dermatology specific questionnaire that assess the impact of skin diseases on QoL in patients. The DLQI covers six domains (symptoms, feelings, routine daily activities, sports activities, work and school, personal relationships, and treatment) during the preceding one week. The tool is scored based on 5 answer categories and the overall score is calculated by summing the results from each question, which yield a result between 0 and 30, with higher scores representing a greater impact on QoL and vice versa.[19]

The validated Urdu (Language Franca) version was provided by Department of Dermatology, Cardiff University, Cardiff, Wales, UK.[20] However, a pilot test was conducted before starting the official survey to ensure validity, logical sequence of questions, understanding and to establish a suitable time frame for the interview. The questionnaire was tested on 20 skin patients and data were not included in the final analysis. The tool was declared reliable with alpha value of 0.85 and time taken for completion was 3-5 min.

In addition to DLQI, a structured questionnaire was used to get basic information about the respondents, including socio-demographic parameters and other relevant information. All respondents were interviewed in a private area. The responses were coded and analysed by using IBM Statistical Package for Social Sciences (SPSS) v. 20.0. The Kolmogorov–Smirnov (KS) test was used for normality assessment. Descriptive analysis was conducted whereby frequencies and percentages were used to describe demographic characteristics. The DLQI was scored by using recommended methods of the developers. The Chi Square test was used to determine the association among study variables. For all analyses, $P<0.05$ was considered statistically significant.

Institutional Ethical Committee, Faculty of Pharmacy and Health Sciences, University of Balochistan approved the study. Permission from the respective medical superintendent was also taken into consideration. Additionally, written consent from the participants was also taken whereby participants were informed about their rights of participation in the study. They were also told that a refusal would not affect their subsequent care.

Table 1: Demographic characteristics of study respondents.

Characteristics	Frequency	Percentage
Gender		
Male	538	63.6
Female	308	36.4
Age (years)		
18-27	238	28.1
28-37	336	39.7
38-47	200	23.6
> 47	72	8.5
Marital status		
Single	340	40.2
Married	478	56.5
Divorced	16	1.9
Widow	12	1.4
Educational level		
Primary	128	15.1
Secondary	167	19.7
Higher Secondary	308	36.4
Graduate	243	28.7
Occupation		
Government job	226	26.7
Private job	172	20.3
Businessman	183	21.6
Unemployed	265	31.3
Locality		
Urban	573	67.7
Rural	273	32.3
Monthly income*		
< 10,000	325	38.5
10,000 – 20,000	284	33.5
> 20,000	237	28.0
Diagnosis		
Leishmaniasis	120	14.1
Contact dermatitis	167	19.7
Tinea capitis	54	6.3
Acne	213	25.1
Psoriasis	78	9.2
Chronic urticaria	23	2.7
Scabies	41	4.8
Folliculitis	12	1.4
Chronic eczema	56	6.6
Others	82	9.6

*Pakistan rupees (1Pakistan Rupee = 0.0095 US $)

RESULTS

Demographic characteristics of the study respondents

Eight hundred and forty six patients responded to the survey. The cohort was dominated by males 538 (63.6%) whereby majority of the patients (336, 39.7%) were in the age group of 28-37 years. Almost 60% of the respondents were married and belonged to urban residencies. Acne was the most commonly reported skin disorder (213, 25.1%) followed by contact dermatitis and leishmaniasis (19.7 and 14.1% respectively) as shown in Table 1.

Dermatology Life Quality Index profile of the study respondents

The DLQI profile of the study respondents is shown in Table 2. Mean DLQI score for the current cohort was 16.76 ± 2.54 indicating a very large effect of skin diseases on patient's QoL. Majority of the patients either reported 'very much' or 'a lot' while responding to the DLQI.

The detailed analysis of the DLQI profile is presented in Table 3. Symptoms and feelings reported mean score of 4.21 ± 0.9 out of 6 indicating heavy effect

Table 2: Patients' response to Dermatology Life Quality Index.			
S. No	**Items in questionnaire**	**Frequency**	**Percentage**
1	***Over the last week, how itchy, sore, painful or stinging has your skin been?***		
	Very much	409	48.3
	A lot	254	30.0
	A little	125	14.8
	Not at all	58	6.9
2	***Over the last week, how embarrassed or self-conscious have you been because of your skin?***		
	Very much	324	38.3
	A lot	359	42.4
	A little	14	16.5
	Not at all	23	2.7
3	***Over the last week, how much has your skin interfered with you going shopping or looking after your home or garden?***		
	Very much		
	A lot	213	25.2
	A little	281	33.2
	Not at all	265	31.3
	Not relevant	87	10.3
		0	0
4	***Over the last week, how much has your skin influenced the clothes you wear?***		
	Very much	177	20.9
	A lot	254	30.0
	A little	292	34.5
	Not at all	123	14.5
	Not relevant	0	0
5	***Over the last week, how much has your skin affected any social or leisure activities?***		
	Very much	180	21.3
	A lot	228	27.0
	A little	338	40.0
	Not at all	100	11.8
	Not relevant	0	0
6	***Over the last week, how much has your skin made it difficult for you to do any sport?***		
	Very much	167	19.7
	A lot	196	23.2
	A little	333	39.4
	Not at all	147	17.4
	Not relevant	3	0.4
7	***Over the last week, has your skin prevented you from working or studying?***		
	Yes	810	95.7
	No	36	4.2
	Not relevant	0	0
7a	***If "No", over the last week how much has your skin been a problem at work or studying?***		
	A lot	10	27.7
	A little	25	69.4
	Not at all	1	2.7
8	***Over the last week, how much has your skin created problems with your partner or any of your close friends or relatives?***		
	Very much		
	A lot	123	14.5
	A little	259	30.6
	Not at all	347	41.
	Not relevant	113	13.4
		4	0.5
9	***Over the last week, how much has your skin caused any sexual difficulties?***		
	Very much	83	9.8
	A lot	92	10.9
	A little	201	23.8
	Not at all	157	18.6
	Not relevant	313	37.0
10	***Over the last week, how much of a problem has the treatment for your skin been, for example by making your home messy, or by taking up time?***		
	Very much	320	37.8
	A lot	288	34.0
	A little	174	20.6
	Not at all	63	7.4
	Not relevant	1	0.1

The DLQI is calculated by summing the score of each question resulting in a maximum of 30 and a minimum of 0. The higher the score, the more quality of life is impaired. Mean score for the current cohort was 16.76±2.54 indicating very large effect of skin diseases on patient's QoL [Finlay and Khan 1994; Hongbo et al 2005].

Table 3: Detailed analysis of the Dermatology Life Quality Index.

Q. No	Section	Mean Score	P-Value*							
			Age	Gender	*Marital status*	*Education*	*Occupation*	*Locality*	*Diagnosis*	Income
1-2	Symptoms and Feelings	4.21±0.9	0.095	0.988	0.114	0.045	0.077	0.021	0.044	0.455
			N/A	N/A	N/A	φc = 0.200	N/A	φc = 0.276	φc = 0.219	N/A
3-4	Daily activities	3.9±1.1	0.894	0.667	0.630	0.855	0.442	0.455	0.926	0.338
			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5-6	Leisure	3.8±0.9	0.677	0.433	0.098	0.001	0.895	0.533	0.630	0.440
			N/A	N/A	N/A	φc = 0.189	N/A	N/A	N/A	N/A
7	Work and School	1.1±0.3	0.075	0.391	0.370	0.433	0.900	0.066	0.001	0.113
			N/A	N/A	N/A	N/A	N/A	N/A	φc = 0.188	N/A
8-9	Treatment	2.8±0.8	0.895	0.290	0.409	0.912	0.560	0.775	0.755	0.001
			N/A	N/A	N/A	N/A	N/A	N/A	N/A	φc = 0.277
10	Personal relationships	1.8±0.4	0.077	0.067	0.675	0.099	0.347	0.400	0.661	0.887
			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Chi square test

φc = Phi/Cremer V (where appropriate; interpreted by Cohen Jacob 1988; Statistical power and analysis for the behavioral sciences (2nd ed.), Hillsdale, N.J., Lawrence Erlbaum Associates, Inc

of skin diseases on QoL followed by daily activities and leisure (3.9 ± 1.1 and 3.8 ± 0.9 respectively). Work and school was the least affected component with mean value of 1.1±0.3 out of 3. The Chi Square test was used to identify possible relationship among DLQI profile and demographic variables. Significant associations ($P < 0.05$) were reported among educational level and diagnosis with symptoms and feelings and leisure component of DLQI. Moreover, locality was associated with symptoms and feelings while income was significantly associated with the treatment domains of DLQI. Although significant associations were observed (Table 3), the effect size for all significant associations was small.[21] No association however was reported among other DLQI domains and remaining study variables.

DISCUSSION

The present study was aimed to document the DLQI of patients with skin disorders attending a public healthcare institute in Quetta city, Pakistan. Quality of Life was heavily impaired in our study respondents and the findings are similar to what is reported in literature. A study conducted at the Combined Military Hospital, Pano Aqil, Pakistan reported heavily impaired QoL among skin patients with mean DLQI score of 10.02+4.09.[22] Similarly, Shrestha and colleagues reported a mean DLQI score of 10.7 (range 7-19) among their study respondents, indicating a large impact on QoL.[23] Quality of life in skin disorders was also heavily impaired in studies reported from Saudi Arabia[24], Brazil[25], India[26] and other parts of the world.[27] It is mention that against to our study criteria, the above mentioned studies were conducted on a disease specific population. Additionally, there was a difference in the measurement of QoL. We opted to use the DLQI because the tool has been validated into the local language (Urdu), is easy to administer and has been comprehensively used in multiple languages and in numerous skin conditions.[20] The objective of assessing QoL is to provide patient orientated and appropriate outcome measures in the assessment of new therapies and in comparing different ways of delivering optimum healthcare. The DLQI has been used for all such purposes and therefore was the tool of choice for the current study.[28] Moreover, irrespective of disease intensity or complications, the stigma of skin diseases itself causes a considerable decline in QoL and that is evident from literature.[29] For this reason, our results are equally comparable to what is reported in the literature as mentioned above.

The current study managed to identify significant associations among the demographic variables and the QoL domains (Table 3). The relationship of educational status and QoL in other diseases is well documented in literature.[30,31] Positive effects of education is evident whereby better educated people in any society characteristically have improved health status and are closely and positively attached to the societal circle. Additionally, improved educational status brings a range of both monetary and nonmonetary values that benefits the community.[32] Shifting our concerns to the educational system of Pakistan, even though the country is committed to promote education and literacy, little change is observed in Pakistan's schools since 2010. Poor quality of education, lack of infrastructure and inequalities are still prevalent in the educational system which is evident from the latest UN report which revealed that Pakistan is 50+ years behind in its primary and 60+ years behind in its secondary educational targets.[33] Lack of proper planning, social constraints, gender gap, high cost of education, law and order situation and budgetary constraints are major variables that contribute to less enrolments in schools in Pakistan.[34] Therefore, with millions of children out of school, the overall literacy rate remain poorer that is inversely proportionate to hygiene practices, knowhow of minor ailments and self-management. The positive economic and social outcomes that improved education brings for individuals and for societies is evident in literature and is also supported from the study findings.[34] Therefore, improved education is a key variable in improving QoL and must be considered on priority bases by the policymakers and other stakeholders involved in the healthcare system of Pakistan.

In addition to education, higher income was also positively associated with QoL. The increase in per capita income indicates better socio-economic status. In agreement to our study findings, Nilsson *et al*. reported that poor economic status was a significant determinant of deprived QoL among their study population.[35] Within this context, although poverty levels in Pakistan have fallen dramatically in recent years, major issues still exist in the smooth delivery of healthcare. Improved QoL requires the direct and optimistic intervention of the State officials, policymakers and other related stakeholders. Such entities are liable to provide patient education, diagnosis, treatment and medical services to the patients in order to improve the QoL. On the other hand, low-income patients face huge stress related to the healthcare expenses and are worried about the impact of the disease and

the consequential development of co-morbidities. The State has to make sure that relevant subsidies must be offered to the low-income population requiring healthcare consultations.

Limitation

Our study is limited to the population of Quetta city and the results cannot be generalized.

CONCLUSION

This study adds well supported scientific data of the burden of skin diseases in Quetta city, Pakistan. A large impact on QOL was observed among patients with skin disorders. These findings suggest that serious efforts are needed to reduce the effect of educational and economical factor in order to improve the QoL of patients with skin disorders.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

ABBREVIATIONS USED

DLQI: Dermatology Life Quality Index; **QoL:** Quality of Life; **BMCH:** Bolan Medical Complex Hospital; **IBM:** International Brand Machines; **SPSS:** Statistical Package for Social Sciences; **KS:** Kolmogorov-Smirnov.

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