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Study of Quality of Life using Dermatology Life Quality Index in Leprosy Patients attending the Dermatology Outpatient Department in A Tertiary Care Centre of Central India

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Keywords:

Quality, Life, Dermatology, Index & Leprosy.

Study Design:

Descriptive cross-sectional study.

Abstract:

Background & Methods: The aim of the study is to Study of Quality of Life using Dermatology Life Quality Index in Leprosy Patients. Personal history and history pertaining to disease was obtained and noted. Further, all the patients were subjected to physical and systemic examination and findings were documented.
Results: Mode of detection had significant impact on quality of life of patients with leprosy ($p<0.05$). Mode of detection was while consultation for other disease in significantly higher proportions of cases with very large effect on quality of life whereas detection by health care worker was associated with moderate effect (37.5%) on quality of life ($p<0.05$).
Conclusion: Leprosy was once thought to be a social ailment. Still, there remained a dearth of information about the real impact of leprosy on quality of life. This study showed that even after leprosy was declared officially eliminated in India, the disease still has a negative impact on people's quality of life. Demographics have little impact on quality of life, despite the fact that it is seen as a social disease. Instead, significant clinical factors including deformity have a significant influence on patients' quality of life. Duration of leprosy was less than 2 years in 100% cases with no effect and very large effect on quality of life, 94.1% cases with small effect and 75% cases with moderate effect. Our study documented no significant association of quality of life with that of duration of leprosy ($p>0.05$).

Introduction

Leprosy, also called as Hansen's disease is characterized by chronic granulomatous infection, which is caused by acid fast bacilli of Mycobacterium leprae complex comprising of Mycobacterium Leprae and Mycobacterium lepromatosis.[1] The term "Leprosy" have been derived from a Greek word, meaning scales and this condition primarily affects skin and peripheral nerves.[1,2] Mycobacterium leprae are slow growing obligate intracellular bacteria that preferably replicate in endothelial cells, macrophages and Schwann cells but do not grow in artificial culture media.[3] Leprosy is considered as a millennial disease. It is one of the social issues of global concern and public health issue.[4] In the year 2000, World Health Organizations (WHO) identified complete eradication of leprosy. However, in between 1985 - 2011, the number of cases reported decreased from 5.4 million to about 219000. With the exception of Europe, the prevalence rate fell from around 21.1 to 0.37 per 10,000 persons by 2011. The cases are still reported from at least 122 countries across the Globe.[1,4] The prevalence of leprosy was more than 5 million cases in the year 1980, which has reduced considerably to 129,192 in the 2020 as a result of leprosy control programs.[5] According to WHO, the top 5 countries contributing to highest prevalence of leprosy in the year 2020 are India, followed by Brazil, Indonesia, Democratic Republic of the Congo and Bangladesh.[6]

Leprosy still remains one of the most common diseases associated with social stigma due to resultant skin and physical deformity. The physical deformities are associated with delay in seeking treatment or not seeking treatment. These deformities may not only result in psychological and social disabilities but also leads to isolation of patients or affected individuals from society.[7] Though multidrug therapy is effective in reducing the morbidity associated with leprosy, but the effect of disease may persist mainly in the form of residual permanent impairments. Considerable efforts have been done at national and global level to reduce the development of disabilities in patients with leprosy, but still the rate of residual deformities in these patients is a significant social issue, even when the infection is cured.

The quality of life is an important aspect as it is a determinant of impact of disease on the living condition of the population and health care practices. The quality of life can be assessed with general or specific instruments. The general instruments often covers different clinical conditions and allow the analysis and impact of disease on life of patient. However, the specific methodology or scale are specific for given disease.[8] Analysis of quality of life with the help of specific and validated instruments allow assessing the impact of the condition on daily life. The Dermatology Life Quality Index (DLQI) is a specific indicator of quality of life for patients with dermatological conditions.[9]

Material and Methods

The present study entitled "Study of quality of life using Dermatology Life Quality Index in leprosy patients attending the dermatology outpatient department in a tertiary care Centre of central India" was conducted as a cross-sectional study on patients with Leprosy (old cases or newly diagnosed) attending out-patient department of Dermatology, People's College of Medical Sciences and Research Centre, Bhopal.
After obtaining ethical clearance from institute's Ethical Committee, all the patients with leprosy fulfilling the inclusion criteria were enrolled in our study. Detailed data regarding sociodemographic variables such as name, age, sex, occupation, marital status, address etc. was obtained using proforma. Socioeconomic status was assessed using modified BG Prasad classification updated for 2022.

Inclusion criteria:
All patients diagnosed with leprosy,
- above 18 years of age
- willing to give an informed consent.

Exclusion criteria:
Patients with leprosy with
- any other debilitating disease,
- psychiatric problem, and
- other medical conditions

Results

Table 1- *Quality of life in patients with leprosy*

Impact on quality of life	Frequency (n=52)	Percentage
No effect at all	5	9.6
Small effect	17	32.7

Moderate effect	24	46.2
Very large effect	6	11.5
Extremely large effect	0	0

Quality of life in our study population was assessed using DLQI. Mean DLQI score in 52 patients with leprosy was 6±3.47 (ranging from 0 to 15). Leprosy had moderate effect on patient's life in majority of cases (46.2%), whereas in 32.7% cases, leprosy had small effect on quality of life of patient. Very large effect on qualityof life was observed in 11.5% cases with Leprosy, however, no effect on quality of life was observed in 9.6% cases.

Table 2- *Association of quality of life with occupation*

Occupation	**No effect at all (n=5)**		**Small effect (n=17)**		**Moderate effect (n=24)**		**Very large effect (n=6)**	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Unemployed	2	40	4	23.5	13	54.2	4	66.7
Unskilled	3	60	10	58.8	9	37.5	0	0
Skilled	0	0	3	17.6	2	8.3	2	33.3
χ^2	10.14							
P value	0.119							

As observed from the above table, about 60% cases with no effect on quality of life and 58.8% cases with small effect on quality of life were employed in unskilled work whereas majority of cases with moderate and very large effect (54.2% and 66.7% respectively) were unemployed. The observed association of quality of life with occupation was found to be statistically insignificant (p>0.05).

Table 3- *Association of quality of life with socioeconomic class*

Socioeconomic class	**No effect at all (n=5)**		**Small effect (n=17)**		**Moderate effect (n=24)**		**Very large effect (n=6)**	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Class I	1	20	1	5.9	3	12.5	1	16.7
Class II	1	20	5	29.4	8	33.3	3	50
Class III	2	40	5	29.4	5	20.8	2	33.3
Class IV	1	20	5	29.4	8	33.3	0	0
Class V	0	0	1	5.9	0	0	0	0
χ^2	6.74							
P value	0.874							

In present study, 40% cases with no effect belonged to class III socioeconomic status whereas 29.4% cases each with small effect belonged to class II, III and IV. Similarly, 33.3% cases with moderate effect belonged to class II and class IV each. Approximately half (50%) of the cases with very large effect belonged to class II socioeconomic status. We found no significant association of quality of life with socioeconomic status (p>0.05).

Table 4- *Association of quality of life with mode of detection of leprosy*

Mode of detection	**No effect at all (n=5)**	**Small effect (n=17)**	**Moderate effect (n=24)**	**Very large effect (n=6)**

	n	%	n	%	n	%	n	%
Consultation for other disease	0	0	1	5.9	2	8.3	2	33.3
Health care worker	0	0	1	5.9	9	37.5	0	0
Self-reporting	5	100	15	88.2	13	54.2	4	66.7
χ^2	14.41							
P value	0.025							

Mode of detection had significant impact on quality of life of patients with leprosy (p<0.05). Mode of detection was while consultation for other disease in significantly higher proportions of cases with very large effect on quality of life whereas detection by health care worker was associated with moderate effect (37.5%) on quality of life (p<0.05).

Discussion

We used Dermatology Life Quality Index to assess quality of life of patients with leprosy enrolled in our study. It is a specific tool to measure quality of life in patients with dermatological conditions. The DLQI is a valid and reliable tool which have been used in more than 80 countries and have been translated into more than 110 languages.[10]

In present study, mean DLQI scores were 6±3.47 and based upon the scores of DLQI, we reported leprosy to have moderate effect on quality of life in majority of patients (46.2%)., followed by small effect (32.7%) and very large effect (11.5%). No effect at all was found in 9.6% cases in our study. None of our patients had extremely large impact on quality of life.

The findings of present study were concordant with the findings of Das NK et al (2020), in which the authors documented mean DLQI scores as 8.48±5.48. Majority of patients had very large (34.2%) and moderate (32.5%) impact on quality of life whereas 20.2% cases had mild impact on quality of life. None of the cases in this study had extremely large impact on quality of life.[11] However, mean DLQI was 10.58 ±2.57 in patients with leprosy in a study of Solanki AD et al (2019), which was much higher as compared to present study and more than half (54.02%) cases had very large effect whereas 39.08%, 5.74% and 1.1% cases had moderate, small and extremely large effect respectively.

Similarly, mean DLQI score in a study of Sinha R et al (2023) was 9.1±4.7, and leprosy in the majority of patients (36.6%) had moderate impact on quality of life. Very large, small, and extremely large effects were recorded in 24.1%, 20.5%, and 10.7% of cases, respectively.[12]

In a study of Chaudhary RG et al (2021), the authors found extremely large impact of leprosy in 43% cases, whereas 37.3% cases had very large effect and 14.1% cases had moderate effect on quality of life.[13] Hunt WM et al (2018) in their study compared the DLQI scores in three group of patients, group A (receiving leprosy treatment), group B (cured of leprosy) and controls (Group C) and found quality of life to be significantly lower in Groups A & B as compared to Group C.[14]

In present study, we observed that patients who were diagnosed as leprosy while consulting for other illness had significantly worse quality of life i.e. 33.3% cases with very large effect on quality of life were diagnosed while consulting for other disease. Maximum cases with no and mild effect were self-reported cases. The observed association of the mode of detection with quality of life was significant (p<0.05). We found no significant association of duration of leprosy and quality of life in patients with leprosy as majority of our study population had duration of illness of 2 years or less. Govindharai P et al (2018) reported duration of Leprosy to have significant impact on quality of life, i.e. prolonged duration of disease has adverse effect on quality of life (p>0.05).[15]

Conclusion

Leprosy was once thought to be a social ailment. Still, there remained a dearth of information about the real impact of leprosy on quality of life. This study showed that even after leprosy was declared officially eliminated in India, the disease still has a negative impact on people's quality of life. Demographics have little impact on quality of life, despite the fact that it is seen as a social disease. Instead, significant clinical factors including deformity have a significant influence on patients' quality of life. Duration of leprosy was less than 2 years in 100% cases with no effect and very large effect on quality of life, 94.1% cases with small effect and 75% cases with moderate effect. Our study documented no significant association of quality of life with that of duration of leprosy (p>0.05).

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