

Skin Diseases and Impact on Quality of Life in the Central Development Region Of Nepal: A Major Public Health Problem

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Abstract

Introduction: Skin diseases are one of the most common health problems in Nepal. The objectives of this study are to determine the prevalence of skin diseases and impact on quality of life in the rural areas of central development region of Nepal.

Methods: The study was conducted in the 10 VDCs of 4 districts – Dolakha, Kavre, Makawanpur and Chitwan – of the central development region. A house-to-house survey was carried out to obtain socio-demographic data and identify individuals with skin diseases. Then a dermatologic health camp was conducted in each VDC. During the health camp, the skin diseases diagnosed were recorded and villagers with skin diseases of more than 1 month duration were interviewed with skin disease disability index, to assess the impact on the quality of life.

Results: A total of 7348 inhabitants (male- 3651, female- 3787) were surveyed. Of 2586 individuals with skin disease attending the health camps, 1862 (male – 721 and female -1141, mean age 31.4 years, range 6 months – 90 years) were included in the study. The overall prevalence of skin diseases was 25%. The most common SD categories were eczemas, pigment disorders, fungal infections, nevi and urticaria. The mean skin disease disability index score in the central development region was 13.7, indicating very large impact on the quality of life.

Conclusions: The prevalence of skin diseases and impact on quality of life is very high in the rural areas of the central development region of Nepal. It is a major public health problem. Targeted intervention at the primary health care level should help to reduce the burden.

Key words: skin disease, prevalence, impact, quality of life

Introduction

Skin diseases (SDs) are globally a major health problem. However, there is a wide variation in prevalence and diagnostic pattern between countries, climates, seasons, professions and cultures, with the highest prevalence reported from developing countries and deprived areas¹⁻¹². Mortality due to skin diseases is low, but several studies

from western countries have shown that there is a large impact on quality of life (QoL) for those affected^{13, 14}. In Nepal, skin problems are one of the leading causes of morbidity, with approximately 2,500,000 registered visits to outpatient clinics per year corresponding to the 4th most common cause for consultation¹⁵. Nepal has 26.6 million

inhabitants, the majority living in rural areas often in isolated and difficult terrain¹⁶. There are around 100 dermatologists in the country, all of them located in hospitals or medical colleges in the cities. Primary health care workers in the countryside are not even trained to manage the most common skin problems. Hence, proper dermatologic care is not available to a majority of the population in Nepal. We conducted a pilot study in one village development community (VDC) first, where the overall prevalence of SDs was 20.1%. The most common SD categories were eczemas, followed by pigment disorders, acne, urticaria and, moles and lumps.¹⁷ Then, we have developed and validated a questionnaire to assess QoL, appropriate for the socio-cultural situation in Nepal – Skin Disease Disability Index (SDDI).¹⁸

In Nepal there are three recognized eco-climatic regions – the high mountains in the north, the large hilly area in the center and the terai, a smaller hot and moist region in the south. The living conditions varies significantly between these climate-zones as do the challenges for the inhabitants. We have now performed a large scale population-based study in all three eco-zones to get a reliable view of the health affliction due to SDs in the rural areas in the central development region of Nepal. With this knowledge, the next goal is to develop an intervention program to reduce the disability due to SDs, and to make the national health authorities aware of the need to assign resources for prevention and control.

Methods

The study was conducted in 10 rural VDCs in four districts, 2 in Dolakha in the mountain region, 3 each in Makawanpur and Kavre in the hills and 2 in the Chitwan in the terai of the central development region of Nepal. All the VDCs were poor with the characteristics of rural Nepalese villages with mainly an agriculture based economy and insufficient or lack of basic health care. Each VDC is divided into 9 areas called wards. One or two wards in each VDC were randomly selected for this study. Altogether 18 wards were screened. The total population in the studied wards comprised 11% of the total number of inhabitants in the 10 villages (7438/66975).

Baseline household survey: During March-August 2012, two specially trained nurses in each VDC, visited all households in the 18 wards included in the study, all together 1434 families. They recorded the name of the head of the family, number and professions of the family members and number of individuals known to have skin problems, and diagnosis, conferring to a previously validated dermatology screening questionnaire. They also informed about dates and locations of the dermatologic health camps.

Dermatologic examination: Shortly after the baseline survey, a dermatologic health camp was conducted at a health center or school in each VDC. Altogether 10 health camps were performed and all community members consulting for skin problems were examined. However, only data from inhabitants from the 18 wards in the study were recorded and analysed. Every patient was examined with sufficient privacy by one of the authors, or by one of three other dermatologists participating (DC, SB & SG). The whole body, except the genital areas and breasts in females, was examined. Patients with skin problems in those regions were examined by a dermatologist of the same gender. The demographic and clinical data were documented in the patient record form. Those requiring further investigations or long term treatment were referred for a follow up at the Tribhuvan University Teaching Hospital or National Academy of Medical Sciences in Kathmandu.

Patient Interviews: Those with recurrent SDs or SDs with more than one month's duration were interviewed by the doctor using the SDDI instrument¹⁸. Verbal consent was taken. As described in detail in our previous paper the questionnaire comprises 10 simple questions (Q), which addresses 6 aspects of life, Q1: General well-being, Q2: Work/school/play, Q3: Daily activities, Qs 4, 5, 6 and 9: Psychological well-being, Qs 7 and 8: Social relations, and Q10: Treatment. The score for each question ranges from 0 to 3. For the total SDDI score, Q1 and Q2 have a weight factor of 2 as these two questions have very strong impact on the QoL. The total SDDI score ranges from 0 – 36 and after validation the score has been estimated to have the following influence on QoL: 0 no effect, 1-5 little effect, 6-12 moderate effect, 13-24 major effect, and >24 severe effect.¹⁸

Data analysis: The data were entered in the SPSS 17 program and analyzed. The prevalence and the impact on QoL were calculated. Fisher's exact test (two tailed) and T-test was used for significance testing. Based on our previous study¹⁷ a sample size of 1536 patients with SDs would be required to detect a prevalence of 20% with a precision of 2%, and a confidence of 95 %.

Results

Baseline survey: All the 1434 households with 7438 family members (male 3651, female 3787, of which 1922 were children) were surveyed in the baseline study. From this household review 1769 family members were reported to have skin problems indicating a SD prevalence of 23.8%.

Dermatologic examination: During the dermatologic health camps, a total of 2608 residents from various wards within the entire districts showed up. All were examined

and 2586 (99%) had one or more skin problems. Of these patients, 1862, i. e. a figure somewhat higher than in the base-line survey of all households (721 male and 1141 female, of which 511 were children) were from the 18 wards included in the study. All had at least one skin diagnosis and 114, required surgical management and were referred for special treatment. The mean age was 31.1 ± 0.5 years (SEM) (0.5 – 90 years). The age groups most frequently represented were 5-14 (23.9%), (Figure 1). Most were students/school children (35.7%), followed by housewives who also worked in the fields (32.3%) and farmers (17.9%).

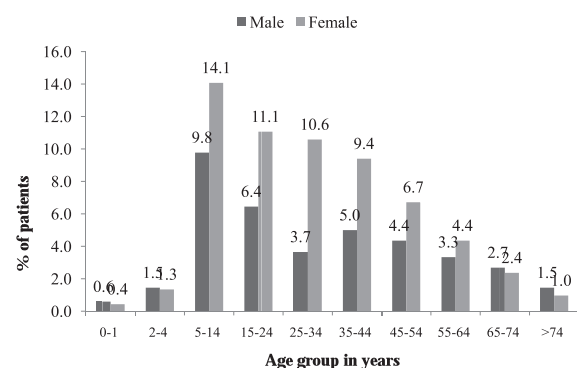


Figure 1. Age distribution of the patients from the wards visiting the health camps (n = 1862)

The overall prevalence of SDs in the villages studied in the three eco zones in central Nepal was 25%, CI: 24.1 – 25.9, significantly higher in females (30.1%) than in males (19.7%) ($p < 0.0001$). There was no significant difference between children (26.6%) and adults (24.5%), ($p = 0.07$). As expected the prevalence was highest in the terai district Chitwan, 39.9%, CI: 37.3 – 42.4, compared to the other districts Kavre, 25.5%, Makawanpur, 19.9%, and Dolakha, 17.5%. A significant difference in the prevalence of skin infections was also noted between the hot and humid district Chitwan (32.3%) and the other three districts (10-15%), ($p < 0.0001$). Among all the infections, the fungal infections were the most common (10.4%) in Chitwan district.

A total of 3349 SDs were diagnosed and a significant number, 926, of the study population had two skin diagnoses, 369 had three, and 192 had more than 3 SDs. The 10 most prevalent SD categories within the population surveyed were eczemas, pigment disorders, fungal infections, nevi, urticaria, acne, pruritus, lumps, viral infections and pyodermas (Table 1).

Table 1. Prevalence of SD categories and single SD (the most common, >100 cases) in the central development region. Total number of SDs diagnosed – 3349 in 1862 individuals examined at the health camps. Total number of inhabitants - 7438

Diagnoses	No.of Patients	Prevalence
Eczemas	1018	13.7
Chronic foot eczema	247	3.3
Chronic solar damage	168	2.3
Allergic contact dermatitis	132	1.8
Pityriasis alba	117	1.6
Polymorphic light eruption	117	1.6
Pigmentary disorders	506	6.8
Melasma	287	3.9
Freckle	100	1.3
Fungal infections	362	4.9
Pityriasis capitis	111	1.5
Nevi	278	3.7
Melanocytic nevi	240	3.2
Urticaria	215	2.9
Chronic urticaria	177	2.4
Acne	182	2.5
Pruritus	118	1.6
Lumps	109	1.5
Viral infections	94	1.3
Pyodermas	88	1.2
Other skin diseases	379	5.1

The five most common SD categories comprise 71% and the ten most common categories comprise 88.7% of all SDs diagnosed. Among the ten most common SDs, 81.7% were non-infectious and 18.3% of infectious nature.

Patient interviews: Of 1008 villagers invited 982 (mean age 35.1 ± 0.6 (SEM), 1 – 90 years, 14.8% children and 85.2% adults) gave consent and were interviewed with the SDDI questionnaire. The total mean SDDI score was 13.9 ± 0.1 . The mean SDDI score for the districts were as follows – Chitwan 14.6 ± 0.2 , Kavre 14.2 ± 0.2 , Makawanpur 13.5 ± 0.3 and Dolakha 12.4 ± 0.2 . The difference was highly significant between Chitwan and Makawanpur ($P < 0.0001$), Chitwan and Dolakha ($P < 0.0001$) and, Kavre and Dolakha ($P < 0.0001$). The highest score for single questions was obtained for general well-being, followed by the questions on beliefs and treatment, (Figure 2). The life aspect most affected was also general well-being followed by psychological well-being, (Figure 3). The 5 most common SD categories had a large impact on QoL with a total mean SDDI score between 13.5 and 14.5 (Figure 4).

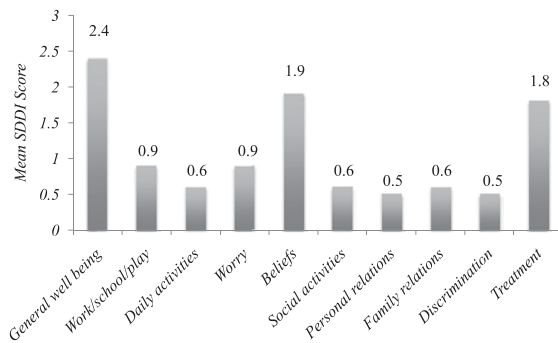


Figure 2. Average QoL measured by SDDI. Mean scores of the single questions in 982 patients interviewed during the health camps in central development region, Nepal.

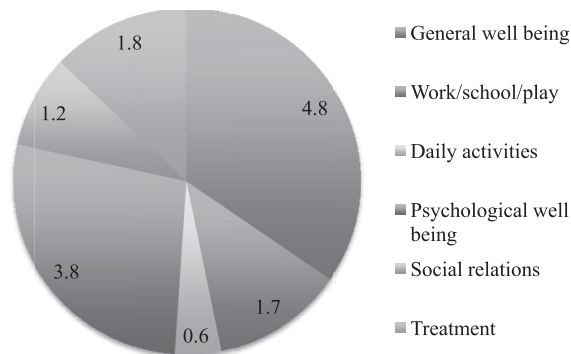


Figure 3. Six life aspects of QoL measured by SDDI. Mean scores of 982 patients interviewed during the health camps.

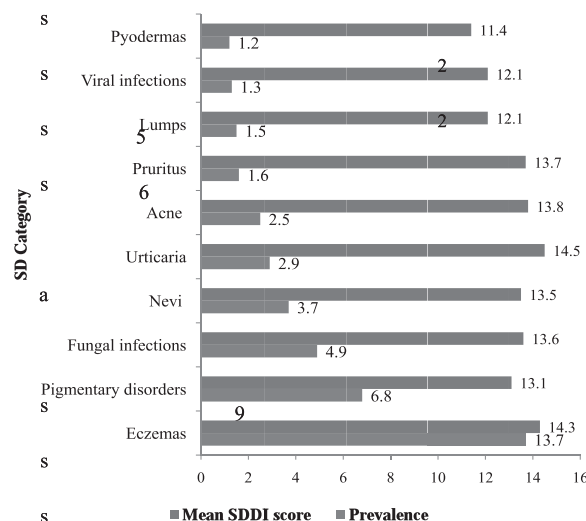


Figure 4. SD category, prevalence and mean total SDDI score for the ten most common SD categories.

Discussion

Skin diseases are one of the most common causes of medical consultation in Nepal¹⁵ and have significant influence on QoL, particularly in rural communities where the naked skin is exposed to constant trauma during daily work. In 2009 we conducted the first population based prevalence study in Nepal in Talku-Dudhechaur, a village in the hills¹⁷. To reach a better coverage of the population, we tested with success a two-step process in that study. The first step was a nurse conducted survey identifying all affected individuals in all household, in the second step specialist conducted health camps with large participation. Based on the experiences from this study we have now performed a large scale, population based study in 18 wards of 10 villages, in the 3 eco-zones in the central development region of the country. This is the first investigation, which has determined both the prevalence and impact of SDs on QoL, using a questionnaire relevant for the life style and traditions in Nepal.

The overall prevalence of SDs in this study was 25%, slightly higher than in our previous study (20.1%)¹⁷. Considering that the Chitwan district was somewhat under sampled in our study, a population adjusted mean will give a somewhat higher prevalence (28%). One fourth to one third of the population affected is a high prevalence, but lower than what has been reported from other developing countries in Asia and Africa.³⁻⁷ However, data from different studies are not easily compared due to variations in study design and dissimilarities in confounding factors. Moreover, the climate has a major impact on the incidence of SDs, which in this study is reflected by a significantly higher prevalence (40%), in the hot and humid Chitwan district compared to the hilly districts Kavre (25.5%) and Makawanpur (19.9%) and to the cold mountain area, Dolakha (17.5%) which had the lowest prevalence of all the districts included. In a study from the terai Walker et al reported that 546/878 (62.2%) individuals who showed up at the camps were diagnosed with SD.¹⁹ Health camp prevalence studies of this kind suffers from too many error of estimates and does not give an adequate perception of the true situation in the population. In the current investigation it is reassuring that 100% (1434) of the households in the studied wards participated in the base-line survey and 1769 family members were reported to have SDs representing a prevalence of 23.8%. That 1862 individuals from these households attended the camps reinforces the high coverage of the population, even if a perfect overlap of these two groups of patients could not be ensured due to the lack of registration in these remote areas. A comparable prevalence recorded from the house to house visits and the health camps (23.8 and 25% respectively) together with

large participation strengthen our results. Still the point-prevalence of 25% is to be regarded a minimum prevalence as less mobile and poor residents might not have shown up and community members usually do not consult for minor skin problems. Further, the major part of the patients was examined during spring time, and infectious SDs are most common during the summer.

The prevalence was higher in females (30%) involved in both household and field work than in men (20%) who worked only in the field. Women also seem to come more eagerly for consultation to the camps.

Similar to our previous study from a village in the hills¹⁷ most of the SDs in the districts were of non-infectious nature (81.7%) and skin infections and infestations were few (18.3%). These are low prevalence figures compared to from Northern India (33%)³, from Sumatra (49.5%)⁴ and from Ethiopia (79%)⁸. This difference might partly be due to the fact that most of our health camps were not conducted during the hot and wet summer season and only during a six month period of time. However, skin infections in the villages of the hot and humid Chitwan district were in the same order of magnitude (32.3%) as in Northern India and much lower in the cooler districts (10 to 15%).

Among the SD categories various types of eczemas (33.1%) were the most common diagnoses. The majority was chronic irritant contact dermatitis and hand and foot eczemas. This is consistent with what has been reported from northern India³(32%). Contributing factors are probably that most these inhabitants were either farmers or housewives exposed to continuous hand and foot trauma in daily work. Pigment disorders, mainly melasma, freckles and lentigo, accounted for the second most common skin problem (15.1%). This is much higher in comparison to northern India³ (1%), Sumatra⁴ (8.5%) and Ethiopia⁸(0.2%). The next common SD category, fungal infections (10.8%), were less common than northern India (13.1%) and Sumatra (43.5%) but more than Ethiopia (3.7%). The fourth common skin problem were nevi (8.3%). It seems that the other studies have not documented nevi among the skin problems. Urticarias (6.4%) were the fifth most common SDs, far less common in northern India³ (1.5%) and Ethiopia⁸ (0.2%).

We have developed and previously validated the SDDI questionnaire, which takes into account the socio-cultural norms of Nepal. The impact of SDs on QoL in the rural areas in this investigation was significant with an overall mean SDDI score of 13.9, indicating a major impact on QoL. There was significant difference in the mean SDDI score between the districts studied. Regarding the six life aspects the general well-being gave the highest score (4.8,

maximum 3x2). This was expected as SDs generally is highly symptomatic with redness, scaling, itchiness and burning. In Nepal there are local beliefs that SDs are always contagious, due to bad blood, snake, curse, previous sins etcetera. This causes discrimination from relatives and community members, with consequent psychological stress. This explains why psychological well-being gave the second highest score (3.8, maximum 3x4) of the six life aspects as well as a high score on single Qs. It was no surprise that the Q on treatment (1.8, maximum 3) gave a high score as treatment in the villages is usually not available, difficult and always expensive. Interestingly, the most common SD categories also had large impact on QoL, eczemas (14.3), pigment disorders (13.1), fungal infections (13.6), nevi (13.5) and urticaria (14.5).

This study shows that SDs are very common in the rural villages in Nepal and has a large impact on the QoL. The five most common groups of diagnoses constituted as much as 71% of all SDs, and moreover were the diagnoses with a significant impact on QoL. Present data describe the national situation regarding prevalence and impact of SDs in the rural areas in Nepal, and can form the basis for planning interventions to reduce the suffering of SDs at the national level.

It is unlikely that these rural areas in Nepal in a near future will have access to dermatologists. However, most common SDs are preventable and can be treatable in a cost effective way at the community level. We are currently developing an intervention program to train primary health care workers to prevent and treat the most common SDs at the community and primary health care level.

Conflict of interest: None declared

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