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Prevalence of skin diseases and impact on quality of life in hilly region of Nepal

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Abstract

Introduction: Skin diseases (SDs) are one of the most common health problems in Nepal. The objectives of this study are to determine the prevalence of SDs and impact on quality of life (QoL) in a rural community in Nepal.

Methods: A house-to-house survey was conducted in a community with 3,207 inhabitants, to obtain socio-demographic data and identify individuals with SDs. Free examination and treatment was offered at 4 health camps. Individuals with long-standing SDs were interviewed using the Dermatology Life Quality Index (DLQI).

Results: Of 735 individuals attending the health camps, 645 (mean age 24.9 years, range 0.5-90) had one or more SDs. The overall prevalence of SDs was 20.1% (males 18.1%, females 22.5% and children 28.2%). The most common SD categories were eczemas (12.2%), pigment disorders (4.1%), acne (2.7%), urticaria (2.4%) and moles and lumps (1.6%). In the Nepalese culture, the DLQI question on sexuality was too direct so only 9/10 questions were used. In the 75 patients who were interviewed, the mean DLQI score was 10.7 (range 7-19), indicating a large impact on QoL.

Conclusions: This population-based study shows that SDs were very common in a rural community in Nepal. The five most common SD categories comprise 77% of all SDs. Targeted training should enable health-care workers to prevent, accurately diagnose and manage these problems on site. An appropriate instrument to measure QoL adjusted to the socio-cultural norms of Nepal has to be developed.

Key words: Prevalence; Quality of life; Skin disease

Introduction

Nepal is a mountainous country on the southern slopes of the Himalayas and is divided into 3 eco-climatic regions – the high mountains in the north, the hills in the center covering the largest area and a small belt of low land, the terai, in the south. Nepal is densely populated, with a population of 26.6 million, the majority of whom live in rural areas often in remote and difficult terrain¹. Despite the fact that the Ministry of Health aims to provide the same basic health care to all inhabitants, Nepal currently has a precarious and unequal health-care system, with limited

access for people in rural areas.

According to the annual reports of the Ministry of Health and Population in Nepal², skin diseases (SDs) are one of the leading causes of morbidity, with approximately 2,700,000 and 2,680,000 visits to outpatient clinics in 2009 and 2010, i.e. the 4th and 5th most common reasons for consultations. Worldwide, SDs are one of the most ubiquitous health problems, affecting 1 in 5 persons in the UK³ and 1 in 3 in the US⁴, but there are large differences between countries, climates and cultures. The highest prevalence has been reported from developing countries and poor areas. In the mountainous region of northern India, the overall

prevalence is 45.3%⁵, while, in rural Sumatra, it is 28.2%⁶. In Africa, reported prevalence figures vary between 11.7% in Bamako, Mali, to 48% in rural Ethiopia^{7, 8, 9, 10}. The published prevalence figures in children are also high, 32% in Kenya¹¹, 34% in Mali¹², 31.3% in Hong Kong¹³ and 38.8% in northern India¹⁴. Figures of this kind reported from various countries are difficult to compare due to differences in study design, the seasonality of certain diseases and uncertainty in terms of census statistics.

From studies conducted primarily in western countries, it is well documented that SDs have a significant impact on patient's quality of life (QoL)^{15, 16}. In Nepal, the patient's QoL is usually evaluated by the physician during consultation and is mainly based on the severity of signs and symptoms, which do not necessarily match the patient's own opinion. Most available questionnaires assessing QoL have been developed in industrialized countries and address lifestyles in the west. The most widely used is the Dermatology Life Quality Index (DLQI)¹⁷. The suffering generated by skin problems in Nepal is not only due to the high prevalence, long duration and visibility of the disease, it also depends on discrimination, local beliefs and fears, as well as a lack of awareness and the availability of dermatological care. There are no QoL instruments that have been adapted to match the socio-cultural situation in Nepal.

The prevalence of SDs combined with QoL is a strong indicator of the influence of SDs on the health status in a population. These data are essential in order to plan interventions aimed at the prevention and management of SDs and will visualize and underline the necessity to allocate resources to control these problems.

We have performed a population-based study with the objective of determining the prevalence and impact of SDs on the QoL in a rural community in the hills of central Nepal.

Methods

The study was conducted in Talku-Dudhechaur, a rural village development community (VDC) 25 km south of Kathmandu. This community has a population of 3,207 (1,728 of male and 1,479 of female gender, of which 838 were children, ≤ 14 years of age) and a total of 477 households. This is a poor community with all the characteristics of a rural Nepalese community in the hills, with a mainly agriculture-based economy.

Baseline household survey

Two nurses visited all 477 households in the village, during the period March-April 2009. These nurses were trained to use a dermatology screening questionnaire, a list

with the Nepalese names of the ten most commonly seen SDs: scabies, eczema and/or fungal infections, bacterial infections, pruritus, warts, loss of skin color (vitiligo/pityriasis versicolor), urticaria, moles and birthmarks, nodules and/or cysts and acne. During the house visits, the nurses provided information on the ongoing survey and documented the name of the head of the family, main profession of the family members, number of men, women and children, individuals in the family known to have skin problems, as well as the type of skin disorders, according to the list in the dermatology screening questionnaire. The skin problems which did not correspond to the list of SDs were recorded as "other skin conditions". All these data were recorded and household members were informed about the dates and locations of dermatologic health camps, where free examination and treatment were offered.

Dermatologic examination and interviews

To increase accessibility to the health camps, 4 dermatologic health camps were run at separate locations, during a period of 2 months. All community members consulting for skin problems at the health camps were examined by one of the authors, or by one of two other dermatologists (FM & MH) in closed rooms with sufficient privacy. All individuals had their whole body, apart from the genital areas and breasts in females, examined. Patients with skin problems in those regions were examined by a dermatologist of the same gender. The majority of diagnoses were based on the patient's history and clinical signs, but 54 patients requiring biopsies to verify the diagnosis were referred to the Tribhuvan University Teaching Hospital, Kathmandu, for treatment. After examination, we tested the applicability of the DLQI15 to measure the impact of SDs on QoL in this Nepalese community. Those with recurrent or long-lasting SDs were interviewed about symptoms, feelings, daily activities, wearing clothes, social/leisure activities, sport, work/school, personal relationships, sexual activity and treatment in accordance with the DLQI questionnaire. As most villagers were barely literate, an interview method had to be used and the DLQI questions were translated into Nepalese by the dermatologists participating in the health camps. The demographic and clinical data were documented on patient record forms prepared for the study.

Data analysis

The data were entered in the SPSS 13 program and analyzed. The prevalence and the impact on QoL were calculated. Fisher's exact test (two tailed) was used for significance testing.

Ethical considerations

The study was performed according to the ethical principles

of the Helsinki Declaration and approved by the Ethical Review Board of the Nepal Health Research Council. For the Household survey and the interviews, verbal consent was obtained. All patients were provided with free consultations and medicines.

Results

Baseline survey

The head of the families reported a total of 411 family members known to suffer from a skin problem. The baseline survey thus indicated a very low prevalence of SDs in the community, 12.8%.

Dermatologic examination and interviews

In all, 735 villagers (23% of all the inhabitants in the community) attended the health camps and they were all examined. Of them, 645 (312 of male and 333 of female gender, of which 236 were children) had one or more skin problems diagnosed. The mean age was 24.9 years (0.5-90 years). The age groups most frequently represented were 5-14 (31%), 15-24 (26%) and 25-34 years (15-3%), (Figure 1).

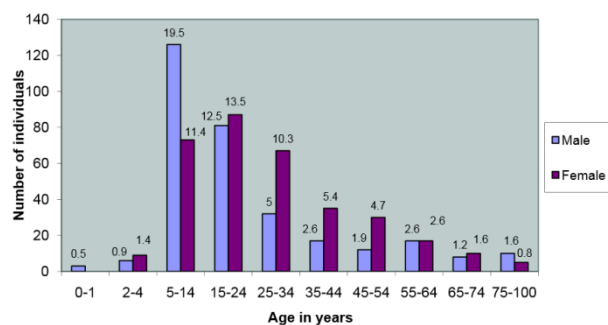


Fig 1: Age distribution of the community members with skin problem: % at the top of the columns.

Most were students/school children, followed by housewives working in the fields and farmers (Table 1).

Table 1: Occupation of the villagers with skin diseases diagnosed at the camps. n: number of individuals

Occupation	n (%)
Farmer and Housewife	188 (29.1)
Farmer	72 (11.2)
Student/school children	329 (51)
Teacher	8 (1.2)
Mason	3 (0.5)
Carpenter	2 (0.3)
Other professions	43 (6.7)
Total	645 (100.0)

The overall prevalence of SDs among the villagers of Talku-Dundhechaur was 20.1% (645/3207). The prevalence was significantly higher in children (28.2%) than adults (17.3%, $p < 0.0001$). There was also a significant difference between genders with females having a higher prevalence (22.5%) than those of male sex (18.1%, $p = 0.002$).

Of the 645 patients with diagnosed SDs, 242 had two diagnoses and 73 had three. A total of 960 SDs were therefore recorded. The most common SD categories were eczemas (12.2%, 392/3207, followed by pigment disorders (4.1%), acne (2.7%), urticarial (2.4%) and moles and lumps (1.6%). These 5 most common categories of SDs constituted 77.2% (741/960) of all SDs diagnosed. Regarding single SDs, the most common was pityriasis alba (4%), followed by chronic hand and foot eczema (3.1%), melisma (2.9%), acne vulgaris (2.4%) and polymorphic light eruption (1.3%), (Table 2).

Table 2: Skin diseases and prevalence. n: number of individuals with skin problem, total population: 3207

Diagnoses	n	Prevalence
Eczemas	392	12.2
P.Alba	131	4.1
Chronic hand & foot eczema	101	3.1
Polymorphic light eruption	42	1.3
Irritant contact dermatitis	23	0.7
Other Eczemas	95	3
Pigment disorders	133	4.1
Melasma	92	2.9
Vitiligo	9	0.3
Other pigment disorders	32	1
Acne	85	2.7
Acne grade 1	41	1.3
Acne grade 2	22	0.7
Acne grade 3	12	0.4
Other acnes	10	0.3
Urticaria	79	2.5
Papularurticaria	40	1.2
Urticaria	39	1.2
Moles and lumps	52	1.6
Melanocytic nevi	26	0.8
Skin tags	13	0.4
Other moles and lumps	13	0.4
Pruritus	47	1.5
Generalized pruritus	39	1.2

Localized pruritus	8	0.2
Viral infections	45	1.4
Verruca vulgaris	24	0.7
Varicella	9	0.3
Other viral infections	12	0.4
Bacterial infections	37	1.2
Secondary Pyoderma	16	0.5
Impetigo	6	0.2
Other bacterial infections	15	0.5
Fungal infections	32	1
P.versicolor	10	0.3
Other fungal infections	22	0.7
Infestations- scabies	22	0.7
Others	36	1.1

A total of 95 patients were interviewed to test the applicability of the DLQI questionnaire for estimating QoL. The question on sexual activity was found to be too direct for the socio-cultural norms of Nepal and only 9 of the 10 DLQI questions could therefore be used. There were other difficulties during the interviews with some patients and a total of only 75 questionnaires in which these 9 questions had been answered could be evaluated. The mean DLQI score was 10.7 ± 3.2 (range 7-19), indicative of a very large impact on QoL. The highest score was obtained by the question on symptoms (mean score 2), followed by the question on feelings (mean score 1.7). Despite the difficulties with the DLQI questionnaire, it was clear that the SD categories with the greatest impact on QoL were eczemas, pigment disorders, acne, urticaria and pruritus.

Discussion

SDs are known to have a significant impact on QoL. In Nepal, skin problems are one of the most common causes of medical consultations². To the best of our knowledge, this is the first population-based study which has determined the prevalence and impact of SDs in a rural community in Nepal. The overall prevalence of SD in this study was 20.1%. As in many other studies from developing countries, children and females were more vulnerable than males (28%, 22.5% and 18% respectively)¹¹⁻¹⁴. One fifth of the inhabitants affected is a fairly high prevalence for SDs, but it is considerably lower than what has been reported from other developing countries in Asia and Africa^{5, 6, 8, 9, 10}. This difference might be due to the fact that our study was conducted during a relatively cool season and it is well known that there are large seasonal variations in the incidence of SDs, especially infectious SD, which are more

common in tropical and subtropical climate zones. The number of infections and infestations were surprisingly low in the studied community, accounting for only 14.5%, as compared to what has been reported from other areas. In northern India, infections and infestations accounted for 33%⁵, in Sumatra 49.5%⁶ and in Ethiopia 79%¹⁰. Further, the inhabitants of Talku-Dudhechaur have ample access to water and their hygiene is therefore acceptable. These may all be factors that markedly affect both the number of infectious diseases and the overall prevalence of SDs. To clarify these issues, a similar study needs to be conducted for a longer period, a year or more.

Community members in rural areas do not consult for minor skin problems. To facilitate attendance at the medical camps, 4 camps in separate regions of the community were run in a two-month period. In spite of this, we cannot overlook the possibility that less mobile and poor residents were unable to show up. Further, it was not possible to identify and follow each individual by name and address in this rural area and the degree of overlap between the population with SD reported during the baseline survey and those showing up at the health camp could not be analyzed. The actual prevalence of 20.1% must therefore be regarded as a minimum prevalence.

A house-to-house dermatologic examination and interviews might have yielded a higher prevalence. On the other hand, 100% of the households participated in this study and 23% (735/3207) of the total population were examined. Further, 79% more individuals than those reported to have skin problems by the head of the families were examined at the health camps and 57% more residents than reported were diagnosed with SDs at the camp. These figures imply that the coverage of the population in this community is very high for a field survey in a rural area.

Walker et al. reported a "health-camp point prevalence" of SDs of 62.2% in the terai area, a hot and humid climate zone in Nepal. This prevalence was based on examinations of 878 individuals from 5 villages who showed up at the camps, 546 of whom were diagnosed with SDs. The corresponding camp prevalence in our study is 87.8%. One reason for this difference is probably that we had already identified and invited the residents with skin problems to the camps during the baseline survey. In the study by Walker et al., there are many ambiguities that make their results difficult to interpret. They claim to have examined 39% of the population of the 5 villages, reaching a point prevalence of 24.3% (546/2249), (community prevalence). This must be a severe underestimation of the total population in the five villages. The terai is a densely populated region and, according to the 2001 census¹⁹, the village in Bara

district, Nepal, with the lowest population had around 2,600 inhabitants. A minimum of the population in the five villages would then be at least around 13,000. This would considerably reduce the percentage of the population examined, as well as the reliability of the prevalence figures reported.

Eczemas, including photodermatitis, were the most common SDs in our study (40.8 %). In other studies, despite being a common skin problem, the proportion of these diagnoses was lower, 32% in northern India⁵, 14.5% in Sumatra⁶ and 7% in Ethiopia¹⁰. In addition to variations in skin pigmentation and sun sensitivity between these populations, the high frequency in this study might be explained by the fact that most inhabitants were either farmers or housewives who also worked in the fields. They all walked barefoot and worked with bare hands and used no sun protection during outdoor work. The majority of them suffered from chronic irritant contact dermatitis, hand and foot eczemas, or chronic solar damage.

We experienced several difficulties when using the DLQI instrument to measure QoL in rural Nepal. Due to the high frequency of illiteracy in these areas, the DLQI had to be used as an interview instrument and questions on leisure activities, sport and clothing were found to be less relevant, while the question on sexual activity could not be applied. Further, for the Nepalese situation, it would have been more relevant if the questionnaire had covered a period longer than one week, as stipulated for the DLQI. Despite the apparent lack of conformity between the Nepalese situation and the DLQI design, we believe that we were able to obtain a reasonable impression of the very large impact SDs have on QoL in this rural community.

This study shows that SDs are common in the rural communities in the hills of Nepal and children are more affected than adults. The five most common groups of diagnosis constituted 77% of all SDs and they were also the diagnoses with the highest impact on QoL. With the limited resources available and the lack of dermatologists in rural areas, we are convinced that information and training for health-care workers will be a cost-effective way to prevent, diagnose, treat or refer these most common skin problems on site.

Since living conditions have a significant impact on the prevalence of and suffering from SDs, we are now investigating a larger number of communities in different eco-zones in Nepal. Further, there is an urgent need to develop a questionnaire adjusted to match the Nepalese situation to measure the suffering from SDs, to estimate QoL impairment over time and to evaluate disease course and treatment outcome.

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