Research Article

Health Literacy and Healthcare Utilization: A Study of Bhutia and Lepcha Mothers in Pakyong and Dzongu District of Sikkim, India

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Abstract

Background & Objective: Health Literacy is an important determinant of health alongside general literacy. An individual with limited health literacy is more likely to make medication errors, and have lesser health knowledge, poor health status, high probability for hospitalizations, and higher health expenditure compared to an individual with adequate health literacy. The objectives of this study is to assess the health literacy level and to analyze how the health literacy status affects the treatment-seeking behavior and utilization of healthcare services among the two tribes (Bhutia and Lepcha) of Pakyong and Dzongu district of Sikkim by testing Rapid Estimate Adult Literacy in Medicine (REALM) technique and to compare the health literacy levels to educational status and other socio-demographic characteristics. **Materials & Methods:** The most commonly used word recognition test (REALM) was administered to assess the HL status of 54 mothers in their reproductive age (15-49 years) mainly the expecting mothers and the mothers with a year old child in Eastern and Northern Sikkim, India. The sum of correctly pronounced words was used to assign a grade-equivalent reading level. Scores 0 to 44 recorded reading skills at or below the 6th grade level, scores from 45 to 60 indicated skills at the 7th or 8th grade level, and scores above 60 depicted skills at the high-school level or higher. **Results:** The results showed that in both the Lepcha and Bhutia community the Health literacy score was low based on their level of education and age. Age also showed a significant impact on Health literacy score. It was seen that mothers between the age 26-35 years in both the community (*i.e.* Bhutia 28.60% and Lepcha 71.40%) had significantly higher health literacy score. **Conclusion:** The study aimed at concluding how the individual's level of health literacy affects the use of healthcare services. Since health literacy is of continued and increasing concern for health professionals, as it is seen as a primary factor behind health disparities. Therefore, improving health literacy is the key to any health intervention or health promotion.

Keywords: Health literacy; Healthcare utilization; Treatment-seeking behaviour; Education; REALM; Health promotion; Bhutia;Lepcha; Sikkim; India

Background

India is a land of diverse, heterogeneous groups wherein 8.6% of the total population comprises of the tribal community. North-East India has the highest concentration of tribal population in the country. The north-eastern states constitute eight states namely Nagaland, Manipur, Assam, Tripura, Mizoram, Arunachal Pradesh, Meghalaya, and Sikkim. There are 145 tribes, 78 of which are huge, each with a population of over 5000. The tribes in the north-east mainly live in the hilly terrain. The tribes in the north-east vary from the tribes in other parts of India for their historical relations with the colonial and Indian states. The states of the north-eastern region are officially recognized under the North Eastern Council (NEC) constituted in 1971 as the government authority for the development of the north-eastern states after induction of NEC, Sikkim was a part of the North Eastern Region as the eighth state in the year 2002.

Sikkim is a small landlocked state sharing its borders with Bhutan, Nepal, and Tibet and is also the least populous (610,577) state in India. [1] Gangtok is the capital of Sikkim and the only largest city. The sex ratio is 942 females for every 1,000 males (NFHS-4). The common language spoken in the state is Nepali, while Sikkimese and Lepcha are mainly spoken by the

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Lepcha and Bhutia community. The general population mostly consists of Nepali. The Bhutia are indigenous people who came from Tibet during the 14th century and lived in Sikkim, whereas the Lepcha are the original inhabitants of the area. The Lepcha, Bhutia, Sherpa are categorized as Schedule Tribes. The Bhutia includes the Sikkimese Bhutia, Bhutanese Bhutia, and Tibetan Bhutia. There are many ethnic groups in Sikkim some of them are Limboo, Tamang, Rai, Gurung, Chettri. Among these ethnic groups, the four ethnic groups are recognized as STs by the SC/ST (Sikkim) Order Act of 1978. [2] And the Limboo and Tamang communities were recognized as tribal groups by the SC/ST Orders (Amendment) Act, 2002.

The State has remained detached from the rest of the country due to its geographical location and terrain and has fallen short in securing equal benefits in the developmental process. Though the State has less industrial and economic development, it has ample forest resources. Cardamom, tea, oranges, apples, ginger, and orchids are some of the most significant resources produced. At the same time, agriculture, horticulture, and handloom continue to be the main activities of the State.

The authors took this scenario as an excellent opportunity to find an association between the DISC personality index and Academic performance (GPA) of dental students in a private Saudi Dental School.

Introduction

Health is the most significant and uncompromising element for any individual. In 1948 the World Health Organization defined health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity". [3] While the human life-cycle revolves around the wellbeing and healthy lifestyle, however the key factors associated with wellbeing of health mentally and physically both are associated with one's literacy level in health to avail the services at its best rather than practicing a lifestyle at the sole deference and conjecture of the medical practitioner. Over the years, health literacy has gained momentum as it is considered as one of the most important social determinants of health which influences an individual's health behaviors and health outcomes. Health literacy is defined by the WHO as a "the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand, and use information in ways which promote and maintain good health". [4] Various studies have repeatedly disclosed that people with limited health literacy may not be able to appropriately comprehend and utilize health information in a way that conserves and enhance their health; they thus have poor health status and poor adherence to medical treatment. [5-7] Several studies have reported that limited health literacy is associated to over and underutilization of health-care services. [7-12] Studies have acknowledged that limited health literacy is linked to increased hospitalizationand emergency room visits. [7,13-15] Low or Limited health literacy is quite prevailing and unrecognized even in developed countries.

Health literacy, along with general literacy, is a significant determinant of health. People with adequate literacy skills might find comprehending health information a challenge. They may not understand the scientific name or medical jargon and the basic concepts in health and medicine.[16,17] Subsequently, the urban-rural divide in terms of accessibility to services or Information Communication Technology (ICT) and the other social barriers like caste, tribe, gender, the language which further aggravates health crisis, emphasizes the need and importance of 'health-literacy'; While 'health' has been a 'tabletop runway' situation, therefore precision in this regard is the matter of fact and this precision is affirmed with 'health-literacy', with the improved patient engagement and reciprocal flow of knowledge between the provider and the beneficiary. Therefore 'Health Literacy' plays a pivotal role and is the most significant determinant of health. A minimal amount of literacy in the domain of medicine and medical services surmounts the probabilities of the health complexities and the reciprocity of knowledge enables the individual for effective utilization of the services. 'Good-Health' is not only an asset to an individual but also immensely contribute directly towards growth & development. Health is now seen as an important contributor to development rather than an end product of the development. [18] Thus the improvisation and up gradations in the status of health are directly determined by the 'Health Literacy' and not literacy in general. An individual's educational status may not always reveal his/her reading ability; they usually hide their incompetency out of shame. [17] To overcome such issues many tests have been conducted to measure health literacy level. One such test is the Rapid Estimate of Adult Literacy in Medicine (REALM). [19] REALM tests the individual's ability to pronounce 66 common medical words and lay terms for body parts and illnesses and can be administered in less than two minutes. [17,20]

Although low health literacy is a major global problem requiring utmost attention, the issue needs to be addressed immediately in India as ours is the world's second–largest (1.3 billion) populated country. Poor health literacy poses a great danger for our economy as healthcare expenditure is increasing exorbitantly along with an increasing population growth. In a country like India where overpopulation, socioeconomic inequalities across states, unequal distribution of resources across states and within the states, differences in social status; access to quality health care and accurate health information can be difficult to obtain. The marked social status gap acts as a barrier to health literacy. Although, incremental changes are being made in India in addressing issues related to inequality in social status, what can be observed is that in maintaining gender equality and non-discrimination, it still far behind the rest of the world.

Women's health has always been a matter of grave concern and is an important area for any country's development in terms of increasing equality and poverty reduction. The Maternal Mortality Ratio is one of the key indicators to measure the country's quality of health care services. The use of healthcare services is the key indicator of healthcare quality. It provides us with ample amount of information that is important which in turn is also seen as an indicator for policymaking in health.

The present study conducted in the eastern (Pakyong) and northern (Dzongu) districts of Sikkim focuses on the Lepcha and Bhutia community and aims to assess the level of health

literacy among the women's of the tribe and analyze how the health literacy affects the utilization pattern of services. As the rate of anemia being higher in the state especially among women (35%) and children (44%) (NFHS-4), therefore women belonging to the reproductive age-group of 15-49 are the units of study with the prime focus on the educational background and the socio-economic factors as important determinants of Health Literacy.

Materials and Methods

Among several tests for assessment of health literacy, REALM is one of the earliest and most widely used health literacy tests. The said test is used to determine the individual's ability to read words related to health and disease. It assesses an individual's health literacy status so that an appropriate language could be used for instruction and educates the individual's. The sum of correctly pronounced words is used to assign a grade-equivalent Scores were categorized into two groups:

0-44=Low health literacy

45-66=High health literacy

The study was conducted in rural area of Sikkim (Dzongu in the North and Pakyong in the East) since it has the largest number of Bhutia and Lepcha inhabitants. The area was divided into blocks and further each block was randomly divided into two blocks. The sample was collected through the Primary Health Sub-centre (PHSC) and Primary Health Centre (PHC) of the two randomly divided blocks. The Bhutia and Lepcha women in their reproductive age group 15-49 years were the unit of analysis for the study. Only expecting mothers and mothers with a year old child were included in the study. Approval was taken from the Health Department prior to the initiation of the study. The responses and information were collected after taking the written informed consent; the form was signed from each of the study participant. Once the written consent form was received, socio-demographic characteristic were documented. The respondents were given a copy of the REALM word list. They were then given following instructions-"I would like you all to go through the word list and read out loud all the words that's in the list, beginning here (pointing to first word with finger). If you come across a word which you don't know or can't read out you can skip the word and proceed further". If the mothers took more than five seconds on a word, they were asked to "Try the next word". If the mothers began to miss every word, they were asked to "Look at the rest of the words in the list and read out any words they are familiar with". The words with were not attempted or mispronounced was counted as zero. The comprehension of the word was not required. Even though the mothers claimed that they knew or understood the meaning of the word but could not pronounce, no scores were given. The accent of the words was not taken into account. The mothers were not allowed to make any changes in the word list, e.g. "Alcoholism" should not be pronounced as "Alcohol" or "Dose" as "Dosage" or "Eye" as "Eyes".

Raw scores were categorized and grade range equivalent was evaluated for each mothers and compared to their education level.

Statistical analysis

This was done using SPSS version 22 and Microsoft Office Excel. Descriptive summary statistics were presented across study variables as in the absolute numbers as well as percentages. The scores were assessed based on comparable grades and also based on literacy levels and different demographic characteristics. The value less than 0.05 were considered as statistically significant [Table 1].

Results

Demographic profile

54 lactating and pregnant women belonging to Lepcha and Bhutia community were administered by REALM word list. Details of demographic profile and educational status of study subjects are shown in Table 2.

Health literacy score

Table 1: Scores and grade equivalent for the REALM questionnaire.

Raw score	Grade Range
0-18	Third grade and below; will not be able to read most low-literacy materials; will need repeated oral instructions
19-44	Fourth to sixth grade; will need low-literacy materials, may not be able to read prescription labels
45-60	Seventh to eighth grade; will struggle with most patient education materials; will not be offended by low-literacy materials
61-66	High school; will be able to read most patient education materials

Table 2: Socio-demographic profile and literacy levels of the study participants.

	Literacy scores	
S. Demo.	Low Literacy % scores (0-44)	Higher literacy % scores (45-66)
Age		
15-25	1 (6.2)	15 (93.8)
26-35	10 (28.6)	25 (71.4)
36-49	12 (66.6)	1 (33.3)
Education		
Primary	1 (7.1)	13 (92.9)
Secondary	8 (36.4)	14 (63.6)
H. Secondary	1 (12.5)	7 (87.5)

College	3 (30)	7 (70)
Family size		
Nuclear	5 (38.4)	18 (43.9)
Small	6 (46.1)	16 (39)
Large	2 (15.3)	7 (17)
Occupation		
Govt. employee	6 (46.1)	12 (29.2)
Private	1 (7.6)	1 (2.4)
Others	6 (46.1)	28 (68.2)
Household		
Maternal	1 (7.6)	2 (4.8)
Paternal	8 (61.5)	16 (39.0)
Own	4 (30.7)	21 (51.2)
Rented	0	2 (4.8)
Scheme awareness		
Yes	11 (84)	37 (90.2)
No	1 (7.6)	4 (9.7)
Avail facilities		
Yes	9 (69.2)	31 (75.6)
No	4 (30.7)	10 (24.3)

*S. demo refers to the socio-demographic characteristics. *n=54, *p=.04

A mean Health literacy score of 26.7 was obtained among the respondents (Standard Deviation (SD)=9.89) minimum score=6 and maximum score=66) details are shown in Table 3; the REALM test states that those rated below 61 cannot read or understand the topic of health literacy matter; for the analysis, the scores of two groups were used-one with a score from 0 to 44 and the other with a score from 45 to 66. Out of 54 respondents, only 7 (70%) Lepcha respondents and 3 (30%) Bhutia respondents got the highest rank in literacy while the majority of the sample population falls under low literacy rank, Lepcha 17(65.4%) and Bhutia 9(34.6%) Table 3.

HL score and age

Amongst those 25 years of age or below, 15 (93.80%) among Lepcha respondent could score 45 to 66, whereas 25 (71.40%) Lepcha and 10 (28.60%) among Bhutia in 26-35 year age group, and 1 (33.30%) among Lepcha and 2 (66.70%) among Bhutia aged 36 or more, could score 45 to 66. Though higher percentage of (71%) Lepcha women in age group 26-35 has a higher literacy score of (45-66 grade) as compared to Bhutia women (28%). The difference was found to be statistically significant.

HL and educational status

Table 3 shows the educational status of the study sample and the HL score. Those with undergraduate degree qualifications showed higher health literacy levels of 70% among Lepcha and 30% among Bhutia respectively. A large number of respondents 65.40% among Lepcha and 34.60% among Bhutia managed to record only 19-44. Those with low educational qualifications had poor literacy for health. The garden of the respondents with undergraduate qualification was correlated with those of the other respondents in Health literacy. Amidst those with undergraduate qualifications, 70% among Lepcha and 30% among Bhutia could score high (score 45-66) as against those with primary (92.90%) Lepcha and (7.10%) Bhutia respondents.

HL and treatment seeking pattern

Table 3 shows the HL and treatment seeking pattern of the study subjects. Among those who availed facilities (32/41) among Lepcha respondents 4 (66.70%) scored 45-66 and (9/13) among Bhutia respondents 2 (33.30%) scored 45-66 whereas only 75% (9/41) Lepcha and 25% (3/13) Bhutia respondents who did not avail of any facilities or seek treatment during the time of illness or absence of illness scored 45-66.

HL and utilization pattern

Table 4 shows that 4/41 Lepcha and 2/13 Bhutia respondents scored 45-66 stating that the facilities were utilized when required whereas 91.70% Lepcha and 8.30% Bhutia belonging to third grade and below (0-18) frequently utilized the health care services.

Discussion

Among the 54 study participants health literacy was low, with a low literacy rank among Lepcha 17(65.4%) and Bhutia 9(34.6%). The majority of the study population fall under the REALM score grade of 0-44; a score grade of 0-44 signifies lower health literacy and 45-66 signifies higher health literacy. The educational levels among the respondents were categorized to primary, secondary, higher secondary and graduate to encompass a holistic approach. The respondents acquiring access to basic formal education in general and not 'literacy in health' in particular, constrains and undermines the effectiveness of utilization pattern; as a matter of fact an individual's general understanding about health practices and minimal exposure to the technicalities in such, restricts from creating an unambiguous patient engagement and does not affirm 'good-health' or improved 'health status'. A minimal level of 'literacy in health' is required to erode the ambiguity in the process and facilitate a transparent and unambiguous communication between the patient and the medical practitioner for better health outcomes.[21-23] The REALM Test taken to understand the 'health-literacy'

Table 3: Health literacy score grades and education level of study participants.

Grade Score	Lepcha	Bhutia	Total
HL#			
3rd grade (0-18)	17 (94.4%)	1 (5.6%)	18
4th–6th grade (19-44)	17 (65.4%)	9 (34.6%)	26
7th-8th grade (45-66)	7 (70%)	3 (30%)	10
Total	41	13	54
Education level			
Primary	13 (92.9%)	1 (7.1%)	14
Secondary	14 (63.6%)	8 (36.4%)	22
Higher secondary	7 (87.5%)	1 (12.5%)	8
College	7 (70%)	3 (30%)	10
Total	41	13	54
Treatment#			
Yes	32 (77.5%)	9 (22.50%)	41
No	9 (75%)	4 (25%)	13
Total	41	13	54

*n=54, #HL: Health Literacy score, grade equivalent, #: Treatment seeking behaviour.

Table 4: Health Literacy and utilization pattern among the respondents.

Narrative	3rd grade and below (0-18)		4th-6th grade (19-44)		7th and grade above (45-66)	
	Lepcha	Bhutia	Lepcha	Bhutia	Lepcha	Bhutia
Facilities/services availed	11 (91.70%)	1 (8.30%)	16 (72.70%)	6 (27.30%)	4 (66.70%)	2 (33.30%)
Facilities/services not availed	5 (100.00%)	0 (0.00%)	1 (33.30%)	2 (66.70%)	3 (75%)	1 (25%)

in respect to the jargons used in the health services; the tribal women belonging to both the communities (Lepcha and Bhutia) recorded a response rate falling under the category "0-44" ("0-44"denoting No 'health-literacy', "44-66"- average 'health-literacy'), which implies difficulty encountered in understanding basic technical requirements such as filling forms, reading health materials. Encountering such basic difficulties forbids them to understand other healthcare services and gradually contributes to lower utilization pattern and practices, leading to poor health status.

Besides the precision in 'health literacy' in particular, the other factor which is the determinant of the health status is the 'age-group' of the tribal women. Age showed a significant impact on the HL score; HL status was low in both the Bhutia and Lepcha communities. However, it was significantly higher among mothers who were between 26-35 years in both the communities 71.40% (Lepcha) and 28.60% (Bhutia). While the Health Literacy was significantly low among the women's in both the communities, on contrary women falling under the age group of 26-35 years of age have recorded a comparatively higher Health Literacy rate, as the ratio of communication consistency with the health practitioners (Accredited Social Health Activist (ASHA) workers) is more evident among the lactating and pregnant women belonging to this age category. Thus the consistency in the communication pattern with the ASHA and Anganwadi health practitioners and exposure to Primary Health Sub-Centres (PHSC) and Primary-Health Centre (PHC) not only creates awareness and promotes knowledge dissemination, but also act as a mobile update portal for the women. Further the activities such as life-skill training and informal education on health under Self-Help Groups (SHG) complements it.

The consistent difference in the level of education among both the Lepcha and Bhutia community showed a significant impact on the HL score, their treatment-seeking behaviour, and their utilization pattern. Irrespective of the tribe and age, the HL score is low in the study group with 65.4% Lepcha tribe and 34.6% Bhutia tribe.

The socio economic factor further has always been a barrier to development both in terms of health and education; poor financial status directly regulates an individual's ability to access to basic amenities and services; 28(68.2%) Lepcha and 6(46.1%) Bhutia women study subjects are not engaged in occupation with fixed monthly earning.

Thus the accessibility-affordability discourse restrains the treatment behaviour, utilization pattern and the HL in particular; poor economic status limits the access to education, further limiting the knowledge and exposure to health services; also poor economic status limits and negates the liberty to make choices but gradually summon to compromise in availing the basic amenities. However in the context of the study, any form of comprises made whether in terms of education or health services due to the monetary crisis, directly affects the health status of the individual. Poor education leads to poor health practices and poor health practices further risks the chances of life. Also the out-of-pocket expenditure was certainly an impediment to seek health care services. The amount spend on medicine can not only be taken into account but also travelling incurred for the treatment turns out to be burdensome due to the geographical location of the place, resulting in lessening the choices and treatment seeking behaviour.

The study has drawbacks; as the sample for the study was restricted to mothers with a one-year-old child and expecting mother, therefore, it was difficult to find mothers with the required criteria. There were times when the participants were

not available whenever the researcher visited the place of study; however, the study has provided an insight on the utilization pattern and treatment-seeking behaviour and their level of health literacy. The study sample was limited to lactating mothers and pregnant women only belonging to the Lepcha and the Bhutiacommunity and hence the findings have a limited generalizability. [24]Additionally, knowledge and awareness pertaining to the health related technical terms and jargons with regard to the geographical distribution of the study participants need to be explored.

Conclusion

In the present study in the general population of the women belonging to the tribal community of Lepcha and Bhutia, it was found that the health literacy score observed among the population was poor. The health literacy was related to the utilization pattern, availing of services, treatment-seeking behaviour and socio economic condition; the patients have a very vague knowledge and understanding about the health care services due to poor literacy. We identified that the health literacy was not significantly attained in the context of the studied population. In consideration of the literacy score in general, improvisation requires to be made in the method of instruction in order to ensure effective communication between the patient and the medical practitioner; likewise the design for knowledge dissemination and awareness pertaining to healthcare services must be strategized and incorporate a convenient and elementary form of communication method.

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