



Research Article

A Comparative Study on Self-rated Oral Health Knowledge, Attitudes and Practices in a Marginalized Community From Eastern Nepal

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ABSTRACT

Background: Oral health knowledge, attitude and practices are essential components of general human health, and its assessment can serve to identify risk factors and design appropriate behavior modification strategies. However, studies on poor and marginalized people who have a higher proportion of oral health problems are relatively scarce. This study aimed to assess the differences in level of knowledge, attitudes and practices between the under-privileged and the privileged population of a rural location in eastern Nepal.

Methods: The under-privileged and privileged population were compared based on the classification of Nepal Government and one respondent from each household was assessed for oral health knowledge, attitude and practices. Chi-square test with odds ratio (OR) were computed for inferential statistics with the probability of significance set at 95%

of Confidence Interval (CI).

Results: Of the total participants (1145), almost 50% had poor knowledge on oral health hygiene. Based on their ethnicity, 46.2% fell in the under-privileged category. The privileged groups had more odds (OR) of cleaning their oral cavity [OR=3.5], using tooth brush [OR=2.04], brushing more than once per day [OR=2.3] and visiting dentist for dental problems [OR=2.1] which was statistically significant.

Conclusion: The study population had poor knowledge ($\approx 50\%$) on dental health hygiene. Privileged groups were more likely to clean their oral cavity, use tooth brush, visit dentist for dental problems and brush more than once per day which was statistically significant. This calls for behavior change communication activities on oral hygiene practices.

Keywords: Dental caries, Marginalized community, Oral hygiene.

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INTRODUCTION

Oral health is an essential component of general human health with socioeconomic status as one of its determinants.¹⁻³ The preventive and promotive measures essential at individual and population level are important to improve the oral health status with an overall benefit in the quality of life.⁴ Knowledge on dental hygiene gained from regular visits to dental clinics contributes to increased use of oral hygiene aids.⁵ Proper oral health hygiene including regular tooth-brushing, use of oral hygiene aids and regular dental check-ups have been associated with reduced periodontal diseases.⁶ Poor oral health is associated with weight loss, malnutrition, systemic diseases and focal infections increasing morbidity and mortality as observed in different studies.¹ These negative impacts contribute to challenges in the overall health of the population in general.

Few studies have focused on association of socioeconomic status, occupation and educational status to the oral health hygiene.^{3,7,8} Thus, exploration of oral health knowledge, attitude and practices can serve to identify the risk factors and thereby help to design behavior modification strategies.⁹ Many studies pertaining to oral health status that have been carried out in Nepal mainly target the school-aged children, elderly or pregnant women.¹⁰⁻¹⁴

Poor and marginalized people in Nepal have higher proportion of oral health problems.¹⁵

A large-scale study suggested that only 10% of Nepalese adults brush twice daily and only about 4% reported visiting dentists within the last six months.¹⁶ Socioeconomic determinants differ in the marginalized community in contrast to privileged population. Since cultural norms, values and lifestyle impact oral health behavior, it becomes important to investigate these cultural aspects in different ethnic groups or population. Cross-cultural comparative study aim to seek broader sociocultural model of oral health.¹⁷ Although some studies has been carried out in backward communities like the Chepangs in Nepal¹⁰ comparative studies between the differences in privileged and under-privileged population is still lacking. Within a population residing in the same geographical area and sharing similar facilities in the Eastern Terai region of Nepal, this study aimed to assess the differences in level of knowledge, attitudes and practices between under-privileged and the privileged population of the same location. To the best of our knowledge, this is the first comparative assessment of the oral health service utilization pattern and oral hygiene practice in marginalized community in Nepal.

MATERIALS AND METHODS

Study design

This cross-sectional study is a component of an overall evaluation of the health profile of Baniyani village development committee (VDC) in eastern Nepal, conducted by the authors that included health determinants like general health, maternal and child care, dental health, harmful habits, immunization and sanitation among others. Among the 50 VDC of Jhapa District, Baniyani VDC was selected randomly and a census was conducted. The study population was categorized into two groups on the basis of their ethnicity as 'privileged' population

and ‘under-privileged’ population based on previous reports.^{18,19} Underprivileged groups comprised of Muslims, Rajbanshis, Santhals and other minorities of the southern plains of eastern Nepal.¹⁹

Jhapa is one of the seventy-seven political districts located in the south-eastern corner of Nepal. Baniyani VDC is a rural location in Jhapa district with a population of 6280.²⁰ A total of 1217 households were surveyed based on a list provided by the VDC office in December 2016 over a duration of 15 days, where detailed interviews were conducted.

Nepal is a land-locked country in South Asia with population of 26,494,504 and diverse ethnic groups. According to latest census 1,164,255 (4.4%) of population are Muslims, 115,242 (0.004%) are Rajbanshi’s, 51735 (0.002%) Santhals and 26,298 (0.001%) Dhimal.²⁰ The ethnic and religious minorities studied in this survey are considered as marginalized or under-privileged population in Nepal.²⁰ The majority of these people reside in southern plains of Nepal. With their distinct culture and customs, the Rajbanshis are a unique ethnic group residing in the eastern plains of Nepal.²¹ For the purpose of this study the ‘privileged’ and ‘under-privileged’ terms were used based on the Nepalese socio-political classification.¹⁸⁻²⁰

Ethical approval was obtained from Institutional Review Committee, BPKIHS (Ref. no. Acd.1106/073/074). Aims, purposes and methodology of the study were explained in detail to the participants, before obtaining the consent and conducting the interview. All

participants were assured of confidentiality and anonymity of the information they provided.

Data collection

A semi structured pre-tested and validated questionnaire was used. The enumerators were trained for the interview prior to the study. Socio-demographic information of the study population was collected and one respondent (≥ 18 years age) from each household was assessed for self-rated oral health knowledge, attitude and practices by conducting door to door visits.

Statistical analysis

Data were entered into Microsoft excel 2010, checked for consistency, cleansed and analyzed using SPSS software version 11.5. Chi-square tests were used for categorical variables and Odds Ratio (OR) with confidence limits were calculated for inferential statistics with the probability of significance set at 95% of Confidence Interval (CI).

RESULTS

A total of 1145 responses (616 respondents from privileged group and 529 respondents from underprivileged group) were collected and analyzed. The underprivileged group consisted mainly of Rajbanshi (72.6%), Muslim (22.1%) and Santhal (0.9%). More than one third (35.2%) of the population were aged 60 years or more with 5.8% below 30 years of age. The majority of participants were males (81.1%), 50% had formal education while 43.9% were illiterate. Around 51.1% were farmers by occupation and 10.1% unemployed. Details are included in Table 1.

Table 1: Socio-demographic characteristics of the study subjects (n=1145)

| | | All n= 1145 | Privileged n= 616 (53.8) | Underprivileged n= 529 (46.2) |
|------------|--------------|----------------|-----------------------------|----------------------------------|
| Age group | < 30 yrs | 66 (5.8) | 30 (4.9) | 36 (6.8) |
| | 30 - 39 yrs | 187 (16.3) | 82 (13.3) | 105 (19.8) |
| | 40 - 49 yrs | 259 (22.6) | 131 (21.3) | 128 (24.2) |
| | 50 - 59 yrs | 230 (20.1) | 124 (20.1) | 106 (20.0) |
| | ≥ 60 yrs | 403 (35.2) | 249 (40.4) | 154 (29.1) |
| Gender | Male | 929 (81.1) | 498 (80.8) | 431 (81.5) |
| | Female | 216 (18.9) | 118 (19.2) | 98 (18.5) |
| Education | Illiterate | 503 (43.9) | 240 (39.0) | 263 (49.7) |
| | Informal | 68 (5.9) | 51 (8.3) | 17 (3.2) |
| | Formal | 574 (50.1) | 325 (52.8) | 249 (47.1) |
| Occupation | Agricultural | 585 (51.1) | 329 (53.4) | 256 (48.4) |
| | Unskilled | 147 (12.8) | 60 (9.7) | 87 (16.4) |
| | Skilled | 210 (18.3) | 94 (15.3) | 116 (21.9) |
| | None | 116 (10.1) | 79 (12.8) | 37 (7.0) |
| | Business | 87 (7.6) | 54 (8.8) | 33 (6.2) |

Table 2: Oral health knowledge and attitude by ethnic groups (n=1145)

| | Ethnic group | | p - value |
|----------------------------------|--------------|-----------------|-----------|
| | Privileged | Underprivileged | |
| Decay is a dental problem | | | |
| Yes (n= 827) | 439 (53.1) | 388 (46.9) | 0.433 |
| No (n= 318) | 177 (55.7) | 141 (44.3) | |
| Gum disease is a dental problem | | | |
| Yes (n= 511) | 271 (53) | 240 (47) | 0.641 |
| No (n= 634) | 345 (54.4) | 289 (45.6) | |
| Bad breath is a dental problem | | | |
| Yes (n= 534) | 285 (53.4) | 249 (46.6) | 0.786 |
| No (n= 611) | 331 (54.2) | 280 (45.8) | |
| No brushing causes dental caries | | | |
| Yes (n= 647) | 374 (57.8) | 273 (42.2) | 0.002 |
| No (n= 498) | 242 (48.6) | 256 (51.4) | |
| Sweet food causes dental caries | | | |
| Yes (n= 607) | 342 (56.3) | 265 (43.7) | 0.067 |
| No (n= 538) | 274 (50.9) | 264 (49.1) | |

Table 2 depicts the responses of participants to questions on oral health knowledge.

Only around 50% of participants of both groups (57.8 % privileged and 42.2 % underprivileged) had knowledge that brushing teeth prevents dental caries while sweet food was not attributed to the causation of dental caries by almost half of the study subjects in both groups. In general, the privileged group had slightly better knowledge than

non-privileged groups to all the questions regarding knowledge. In addition, some participants admitted using bamboo twigs/sticks, cow dung, coconut water, ashes, and many other herbal items to either clean their teeth or to relieve pain. Subjects from the privileged group had better practices relating to good oral health hygiene (Table 3).

Table 3: Oral health practices of the study population by ethnic groups (n=1145)

| | Ethnic group | | OR | 95% CI for OR | | p - value |
|---|--------------|-----------------|-------|---------------|--------|-----------|
| | Privileged | Underprivileged | | Lower | Upper | |
| Do you clean your oral cavity? | | | | | | |
| Yes (n= 1129) | 612 (54.2) | 517 (45.8) | 3.551 | 1.138 | 11.078 | 0.02 |
| No (n= 16) | 4 (25) | 12 (75) | | | | |
| Do you brush your teeth? | | | | | | |
| Yes (n= 1130) | 611 (54.1) | 519 (45.9) | 2.355 | 0.8 | 6.932 | 0.11 |
| No (n= 15) | 5 (33.3) | 10 (66.7) | | | | |
| Brushing frequency | | | | | | |
| < twice a day (n= 849) | 418 (49.2) | 431 (50.8) | 2.261 | 1.699 | 3.009 | <0.001 |
| ≥ twice a day (n= 281) | 193 (68.7) | 88 (31.3) | | | | |
| What do you use for cleaning teeth? | | | | | | |
| Others (82) | 31 (37.8) | 51 (62.2) | 2.039 | 1.284 | 3.238 | 0.002 |
| Tooth brush (1048) | 580 (55.3) | 468 (44.7) | | | | |
| Type of toothpaste | | | | | | |
| Fluoridated (n= 833) | 471 (56.5) | 362 (43.5) | 1.265 | 0.937 | 1.709 | 0.124 |
| Non-fluoridated (n= 215) | 109 (50.7) | 106 (49.3) | | | | |
| Do you visit a dentist for dental problems? | | | | | | |
| Yes (n= 217) | 148 (68.2) | 69 (31.8) | 2.108 | 1.541 | 2.884 | <0.001 |
| No (n= 928) | 468 (50.4) | 460 (49.6) | | | | |

The privileged population were 3 times more likely to clean their oral cavity [OR=3.5; 95%CI (1.14-11.0), p=0.02] and twice more likely to brush their teeth more than once per day [OR=2.3; 95%CI (1.7-3.0), p=<0.001]. Similarly the privileged categories were twice

more likely to use tooth brush [OR=2.04; 95%CI (1.3-3.2), p=0.002] and to visit dentist for dental problems [OR=2.1; 95%CI (1.5-2.9, p=<0.001)] than underprivileged population which was statistically significant.

DISCUSSION

Previous studies conducted in Nepal have focused on disease prevalence and oral health status in school children,¹³ pregnant women,¹⁴ or people affected by natural disaster.²² This study is focused on comparing the socio-economically backward ethnic population with their relatively affluent counterparts. Although the oral health knowledge among participants from both groups was found to be poor, the privileged populations were better in their practices relating to cleaning teeth and oral cavity. A good number among them utilized toothbrushes for cleaning teeth. The habit of brushing at least twice daily was two times more common in the privileged compared to under privileged group which is different from the scenario in other communities from developed countries^{23,24} and other studies.²⁵ Studies in other parts of Nepal report that the proportion of people who brush their teeth at least twice daily is as low as 12.4%²² and frequency of tooth-brushing was reported to be associated with age and educational status.⁴

Perception of dental decay, gum disease and bad breath as common dental problems was observed in both the groups in this study. Bad breath or halitosis was stated as dental problem by 46.64% of this total sample while another study in a similar location found that 57.74% had this problem.¹² In this study, “no brushing cause’s dental caries” was reported by significantly more individuals from the privileged group which was reflected on their habit of using toothbrushes. This finding is comparable to a study on school-aged children from China.⁹

Very low proportion (19%) from both groups visit dentists when they encounter dental problems. Majority rely on traditional healers, home remedies or untrained person for their

problems. The low utilization of dental service maybe attributed to the educational status, purchasing power of person and mostly the availability of the services in their location. Similar finding have been reported in other population around the world²⁵ and in Nepal.^{16,22,26} Oral health knowledge, accessibility and availability of health care resources, and individual attitudes play a significant role in acquiring professional dental care. Participants also admitted using bamboo twigs/sticks, cow dung, coconut water, ashes, and many other herbal items to either clean their teeth or relieve pain. Such kind of practices is still prevalent in many rural areas of Nepal.²⁷

Among the limited studies pertaining to marginalized communities in Nepal, a published article reported lower rate of brushing twice daily (24%) in Chepang ethnicity children.¹⁰ An interesting finding in our study was that the underprivileged population reported brushing teeth in a proportion close to that reported by privileged population. The possible explanation for this would be the existing cultural beliefs in some communities which entails regular cleaning. In Chepang children, the sugar consumption (50%) and not brushing teeth (23%) were reported as perceived causative factors for dental problems.¹⁰ This also holds true for marginalized group in the current study.

Use of fluoridated toothpaste is reported by 73% of respondents from both groups which is in agreement with another broader study in Nepal.¹⁶ Although there were more number of people aged 40 years or above in the study, the promotion of oral health should start early in life to yield sustainable improvement in oral health status. It is difficult to change the habits formed in early life of a person.²⁷



LIMITATIONS

A major limitation is the subjective nature of the study as the study relied on the information provided by the respondents, who may hide or exaggerate some information when influenced by social acceptability. The visual and tactile examination of oral cavity would have opened the door for studying interrelationship of oral hygiene practices and oral health status. Despite these shortcomings, one strength of the study is its sample size and representation of minorities.

CONCLUSION

Findings of this study show that the oral hygiene practice of marginalized people from Eastern Nepal is far from satisfactory. The study population had poor knowledge ($\approx 50\%$) on dental health hygiene. The privileged population of the study area had more odds (OR) of cleaning their oral cavity, using tooth brush, brushing more than once per day and visiting dentist for dental problems than the underprivileged groups (Rajbanshi, Muslim, Santhal and Terai minorities) which was statistically significant.

Dental health awareness along with availability & access to oral health services are important aspects of improving oral health status of the population. Professionally-administered oral health knowledge targeted specifically to the underprivileged and provisions of oral health care services in rural settings would help to strengthen the oral health status of our communities.

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