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## Physical Barriers and Attitudes towards Accessing Healthcare in a Rural Muslim Population in Nepal

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### Abstract

The 2015-2020 Nepali Government's National Health Sector Strategy notes that Muslims have the lowest rates of healthcare utilization in Nepal without specifications as to factors associated with the low rate. This study assessed physical barriers and attitudes towards accessing healthcare amongst a rural Muslim population in the Nepali terai. Significant results indicated that the Muslim population was more likely to utilize distant public care than closer private care, and experienced longer travel times than their Hindu counterparts. Muslims also reported significantly lower satisfaction in healthcare accessibility. Results from this study verify this gap and indicate that transportation, satisfaction, and private vs. public care may be important factors. Future research should aim to identify and address the underlying mechanisms that lead to these large equity gaps.

**Key words:** healthcare access; healthcare attitudes; healthcare inequity; Muslim; Nepal; physical access; rural healthcare.

### Introduction

Nepal was a Hindu kingdom from its founding in the 7th century until the creation of a secular democratic republic in 2006.[1] During this time, the Muslim population was assigned a lower marginal status in the Nepali legal code and was ostracized, discriminated against, and targeted by violent attacks.[1,2] In 2015 the new Nepali Constitution recognized Muslims as an at-risk demographic group, stipulated their right to social justice, and mandated the creation of a Muslim branch of the National Inclusion Commission.<sup>3</sup> Despite these constitutional provisions, health assessment of the Muslim population has been sparse. From what data do exist, Nepali Muslims have some of the highest mortality and poorest health outcomes in the country.[4,5] The majority of Muslims live in the terai (the southern plains of Nepal), where they make up 10% of the population.[1]

Terai Muslims mostly migrated from India and are more likely to be ahlaf Muslims, which hold a lower status within South Asian Muslim hierarchical structure.[6] Furthermore, the terai Muslims are tied to lower income industries like agriculture and traditional craft making.[1,6] In the context of Nepal, these factors make Muslims in the rural terai vulnerable to discrimination on religious and economic bases and are at higher risk for marginalization.

#### Access to healthcare disparities faced by Muslims in Nepal

The World Health Organization (WHO) defines universal healthcare access by three dimensions: physical accessibility, financial affordability, and acceptability.[7] Physical accessibility is the availability of health resources at a reasonable distance, hours of operation, and any other aspects that constitute the availability of care.[7] Previous research has shown how difficulties in one's physical ability to access healthcare leads to poorer health outcomes.[8,9] Attitudes towards accessing healthcare are important because they provide an understanding of when, where, and how likely a population will access services, which then can be used to direct interventions.[10] It has been shown that the perceived difficulty of accessing a healthcare facility will affect how likely someone is to

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access care regardless of whether they live in high or low income countries.[8, 11, 12]

Previous research on Nepali Muslims' access to healthcare has focused largely on maternal health and family planning. This body of research found that Muslim women —especially those who are impoverished and lack education— had the highest infant and maternal mortality rates as well as reduced access to reversible long-acting contraceptives when compared to Hindu populations.[13,14] Previous studies and reports from the Nepali government all indicated that Muslims have poorer utilization of health resources and worse health outcomes without specifying what factors lead to these outcomes.[15] The poor utilization of resources may be one mechanism causing Muslims to experience some of the poorest health outcomes in Nepal, including high prevalence of intestinal worms and pneumonia, and overall mortality.[4, 5, 15]

Considering the physical barriers to accessing healthcare and the current disparities faced by rural Muslims in Nepal, this study aimed to answer two questions.

1) Do the current modes of transportation used to access healthcare, the locations and providers where care is accessed, and travel times to accessing healthcare differ between rural Hindu and Muslim populations on the terai plains?

2) What are the attitudes towards healthcare and its accessibility in the rural Muslim population of the terai plains?

### Materials and Methods

This paper presents a secondary analysis of an existing dataset. The analysis presented in this paper is focused on understanding rural Muslim populations' perspectives and access to healthcare. The overall study used a descriptive, cross-sectional approach to evaluate physical access to healthcare and attitudes towards accessing care for a geographically defined, rural population in the Nepali terai with the initial analysis focused on the overall population without an emphasis of analysis associated with ethnicity or religious ethos.[16] The study area is located in southeast Lumbini and was defined in the last major census as the Madhuwani Village Development Committee (VDC). In partnership with Lumbini Social Service Foundation, a local non-government organization (NGO), a sample of 585 participants was surveyed from an approximate population of 7,002.[17]

### Sample and Target Population

The selected study area is the former Madhuwani VDC, which is now a part of the Lumbini Cultural Municipality. This site was selected for the following reasons: 1) It is considered a rural, undeveloped

area[17]; 2) it has a defined Muslim population that has been previously described as marginalized[18] 3) it is served by the partner NGO, Lumbini Social Service Foundation (LSSF). According to the 2011 census, 7,002 rural residents, of which 746 are Muslims, live in the study area.[17] A total of 535 participants were needed to achieve a representative sample with a two-sided 5% significance level. Spatial controls were instituted to ensure that respondents were not surveyed twice and that the geographical study area was covered equitably.

### Survey Development and Ethical Considerations

Two previously validated surveys were used to ensure efficacy and comparability. Questions from World Health Organization Quality of Life Short Form (WHOQOL\_BREF) focused on demographics, quality of life, and general attitudes.[19] The Transportation, Distance, and Health Care Utilization Survey (TDHCU) focused on assessing physical barriers to transportation and used a Likert scale to assess attitudes towards the physical barriers in accessing care.[20] The framework of these two surveys was tested in Western and Nepali pilot populations to assess completeness and internal validity. The piloting process from 15 Nepali participants led to the optimization of three sections: ethnicity, education level, and site where health care is sought. Ethnicity was left open ended to allow for self-identification. Educational options were adapted to the Nepali education system. The location where care was sought included public sources (defined as family/friends; government funded health post; or government funded hospital) and private sources (including the local private clinics).

The section on attitudes towards accessing care had two ordinal sub-sections, one looking at satisfaction and the other measuring perceived difficulty in accessing a health service. The satisfaction was ranked on a scale ranging from 1) "Very Dissatisfied," to 5) "Very Satisfied." The second sub-section asked participants to rank how difficult they perceive it is to access the local private clinic and the public health post. The scale used for this question ranged from 1) "Not Difficult, to 4) "Very Difficult."

All questionnaires were administered by fourteen trained volunteers from LSSF. Volunteers who could speak English, Nepali and Awadhi (the most common language spoken by terai Muslims), had knowledge of the local area, and were deemed credible by LSSF were chosen to administer the questionnaire.[1] The questionnaire was administered specifically after the end of the monsoon season, towards the end of August and the beginning of September to match the period of rest after seasonal planting. Participation in this study

was entirely voluntary, and consent was obtained orally after introduction. All responses were kept confidential, and no questionnaire contained self-identifying questions. All participants were reminded that the survey was voluntary and that no compensation was being offered for participation, financial or otherwise. Due to ethical considerations, people under 18 years old were not sampled. This study was approved for ethical exemption by the UCD Human Research Ethics Committee at University College Dublin at the request of Lumbini Social Service Foundation. Upon receipt of ethical exemption from UCD, permission was granted by the Lumbini Social Service Foundation Executive Board to access the population.

#### Data analysis

IBM SPSS Version 24 was used for all analyses. Pearson Chi-square and Fisher's Exact were used for comparing mode of transport across demographic groups. Since the reported times in accessing health centres were not normally distributed, a non-parametric Mann-Whitney U Test was used. Attitudes towards accessing care were assessed using the Mann-Whitney U Test. All p-values were based on two-sided tests and values of  $p < 0.05$  were considered significant. Values between  $p = 0.05$  and  $p < 0.10$  were considered near significant and are reported within the text and tables.

#### Results

This study is comprised of 585 survey responses from a population of 7,002 in a rural area southeast of Lumbini, Nepal[17]. From the sample, 7.5% (44/585) reported to be Muslim, which is lower than the 10% that make up the study population.[17] Aside from this difference, the sample population and the local population were similar to census data across sex (Female: Sample 50.6% vs Population 48.5%), age (Below 40: Sample 55.0% vs Population 62.5%), and percentage of population accessing a health centre within 30 minutes (Sample 52.6% vs Population 49.0%).[17] There were also no significant education, age, or gender differences between the Muslim and Hindu populations surveyed. There were significant differences between the villages where Muslims and Hindus lived ( $p < 0.001$ ). The Muslim-predominant villages were significantly farther away from both private ( $P < 0.001$ ) and public health services ( $p < 0.001$ ) with public health services on average being 7km farther than private.

#### Physical dimensions to accessibility

Table 1 provides information on the reported modes of transportation and associations between the groups. Roughly equal proportions of Muslims and Hindus used the various modes of transport. When these modes of transportation were clustered to determine potential

variation between walking versus all other modes of transportation, and motorized (motorcycle, bus, car, ambulance) versus non-motorized (bicycle and walking), no statistically significant differences were observed in either comparison. Table 2 provides results indicating the proportion of services accessed by Hindus and Muslims, as well as a comparison of locations for accessing care between Muslims and Hindus. Results showed that Muslims are more likely to access public care compared to private care.

Since the data for time to accessing care were not normally distributed, Mann-Whitney U Tests were used to identify significant differences between demographic groups and the time they took to access care at the private clinic or the government health post. Muslims reported a longer average time for accessing the private clinic (32 min.) compared to Hindus' travel times (24.7 min.); this difference was not statistically significant. There was a significant difference ( $p = 0.0011$ ) between the average time Muslims reported taking to access the public health post (55.8 min.) compared to the average time Hindus reported (35 min.).

#### Attitudes regarding accessing healthcare

For access to healthcare, Muslims reported a lower median rating of "Dissatisfied" compared to their Hindu counterparts, who reported a median of "Neither Satisfied nor Dissatisfied" ( $p = 0.0111$ ). Muslims and Hindus reported the same median score of "Dissatisfied" for transportation to healthcare, but there was a statistically significant difference between these two groups ( $p = 0.0011$ ). Further analysis of the data indicated that more Muslims reported to be "Very Dissatisfied" and more Hindus to be "Neither Satisfied nor Dissatisfied," as seen in Figure 1. Muslims reported a higher median difficulty of "Somewhat Difficult" compared to Hindus who reported accessing the public health post to be "Not Very Difficult" ( $p = 0.0181$ ). Muslims and Hindus reported the same median difficulty of "Somewhat Difficult" to accessing the private clinic. The responses between groups were reported to be statistically significant ( $p = 0.0180$ ).

#### Discussion

The Nepali Government 2015-2020 National Health Sector Strategy notes that Muslims have the lowest rates of healthcare utilization and the poorest health outcomes, but does not note what particular healthcare challenges are faced by this community.[15] There is currently a lack of research identifying what factors are driving the Muslim population equity gap, with previous research focusing on a lack of access to maternal services.[13,14] This study further develops the understanding of the physical factors influencing Muslims healthcare utilization. Overall, Muslims

reported utilizing public healthcare that is farther away despite having lower satisfaction, and higher difficulty in accessing public healthcare resources. These reported differences may be due to a number of factors related to the three dimensions of access to health care. The physical dimension assessed by this study indicates that Muslims in this region are travelling longer distances and take more time to reach the public healthcare. These results raise concern about Muslims' physical distance from healthcare, which previous research has indicated is connected to poorer health outcomes.[8,9] This physical barrier is a universal barrier faced by other populations and should be addressed by local and national governments as they develop health sector reform. While mode of transportation was not significant in the Muslim group studied, it could be an important factor in other areas of the terai and should still be considered. The other two dimensions of health utilization, financial affordability and acceptability, are important factors that need to be analysed.[7] Acceptability may be due to a number of more complex factors including discrimination and cultural bias. Together, cultural appropriateness, financial burden, quality of care, health literacy and social exclusion may be important factors in utilization and satisfaction.[21] Possible short-term solutions to distance, affordability, and acceptability could include training Muslims as community health workers (CHW) to better integrate Muslim populations into Nepal's current expansive and effective CHW network. This could help reduce physical barriers and increase cultural appropriateness of care.[15] As local governments develop new health structures, special attention should be paid to assuring that future public healthcare resources are proximate and acceptable to the local Muslim population. Expanding opportunities for Muslims to access healthcare should be a priority for the upcoming 2020-2025 Nepal Health Sector Strategy. Strengths of this study include its focus on access to healthcare, sample size, and its assessment of healthcare accessibility issues and associated attitudes. Previous studies in this population have not focused on general population attitudes and have tended to have smaller sample sizes; Suwal 2008.[4,5, 13, 14] Limitations of this study include the convenience

sampling strategy, which slightly underpowered the Muslim population. The local NGO partnership, use of trained local volunteers, and the study period (during a natural lull in the work season) were considered to be the most appropriate strategies to increase participation and reduce volunteer bias. The study further elaborates on what equity gaps may exist, but does not aim to explain them. The equity gaps identified might include confounding factors not adjusted for in the survey such as income. Future research should identify and address the underlying mechanisms that lead to lower healthcare utilization among Muslims living in Nepal. These mechanisms could include other factors behind long travel times to healthcare facilities, as well as exploring what leads to poorer perceptions and/or acceptability of these resources for Muslim populations. Future research should also consider how current narratives on Islam and Muslims in South Asia are shaping health outcomes and access to healthcare.

### Conclusion and Recommendations

Muslims in Nepal have historically been marginalized and continue to be a minority that experiences poorer health outcomes. One factor influencing the health of rural Muslim populations may be the physical barriers they experience to accessing care, especially more affordable public healthcare. As the Nepali government develops its next National Health Sector Strategy for 2020-2025, the physical, social, economic, and cultural barriers experienced by Muslims and the other minorities should be investigated and addressed.

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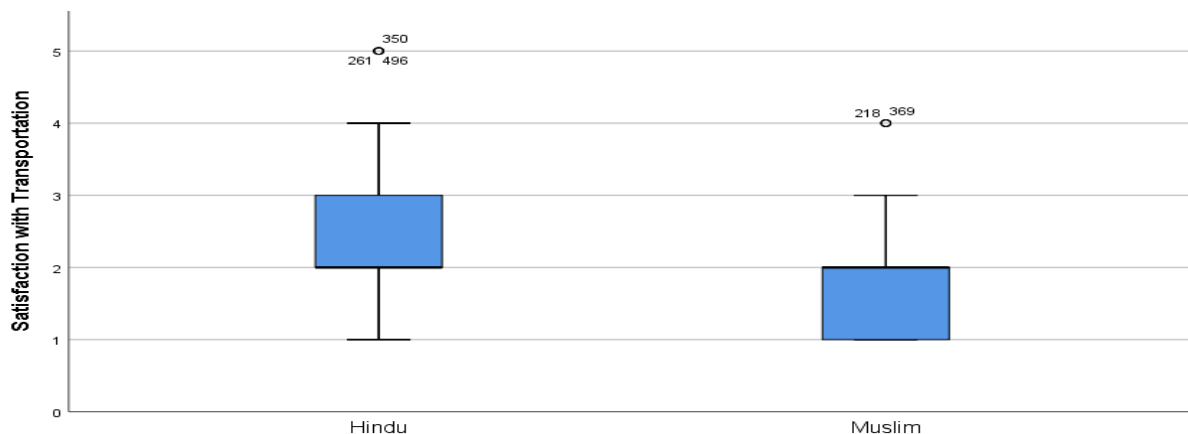
**Table 1: Modes of Transportation to Healthcare between Muslims and Hindus**

Demographic	n	Walking	Bicycle	Motorbike	Bus	Car	Ambulance
Sample Size = 585	482	189 (39.2%)	215 (44.6%)	60 (12.4%)	14 (2.9%)	3 (0.6%)	1 (0.2%)
Hindu							
Muslim	36	14 (38.9%)	15 (41.7%)	3 (8.3%)	4 (11.1%)	0	0
		Walking	All other	p-value1			
Hindu	539	189 (93.1%)	350 (92.1%)	ns			

Muslim	44	14 (6.9%)	30 (7.9%)				
		Non-Motorized	Motorized	p-value <sup>2</sup>			
Hindu	467	404 (93.3%)	63 (95.5%)	ns			
Muslim	32	29 (6.7%)	3 (4.5%)				
Not Significant= ns Chi-Squared= 1 Fishers Exact= 2							

**Table 2: Sample Population Sources of Healthcare and Travel Times between Muslims and Hindus**

Demographic	n	No Care	Family/Friend	Clinic	Health Post	Hospital	Traditional
Hindu	448	2 (0.4%)	8 (1.8%)	332 (74.1%)	76 (17.0%)	24 (5.4%)	6 (1.3%)
Muslim	35	0	1 (2.9%)	20 (57.1%)	3 (8.6%)	10 (28.6%)	1 (2.9%)
		Private	Public	p-value <sup>1</sup>			
Hindu	440	332 (94.3%)	108 (88.5%)	0.041			
Muslim	34	20 (5.7%)	14 (11.5%)				
Demographic	n	Mean (min)	Difference	p-value <sup>1</sup>			
<i>Private Clinic</i>							
Hindu	332	24.7	7.3	ns			
Muslim	20	32					
<i>Public Health Post</i>							
Hindu	462	35	20.8	0.0011			
Muslim	36	55.8					
Chi-Squared=1							

**Fig1: Satisfaction of Transportation to Healthcare between Muslims and Hindus****References**

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