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Interlinkages between Socio-Economic and Demographic Characteristics and Maternal Health Service Use in Bajura District

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Abstract

This study has focused on how socio-demographic factors affect maternal health care access among mothers in Bajura District, Nepal, geographically challenging area where access to health services are still low. A descriptive cross-sectional design was utilized whereby after one month a total of 139 women were sampled in the District Health office through the use of a structured questionnaire. The study analyzed the relationship between age, education, occupation, ethnicity, the number of children, family type, and the distance to health facilities with the use of maternal health services, pregnancies. The findings indicated that the majority of women were young (20-34 years) with the mean age of 25.9 years and mostly were involved in agriculture (82.6%). Almost three fourths had their first pregnancy after 20, and 24.7 percent had their first pregnancy before 20. The rate of education was low and the marginalized ethnic groups were not represented. The high costs in terms of travel distance to health services and reliance on agriculture were major limiting factors to the use of services. The study conclude that the socio-economic, cultural, and geographic factors are interconnected to determine maternal health behavior. The answers to the challenges include multi-sectoral interventions that target the education of women, economic empowerment, outreach interventions to all marginalized groups, and improvements in infrastructure that will provide equitable and sustainable maternal health in remote rural Nepal.

Keywords: Maternal health care utilization; Socio-demographic characteristics; Rural women; Health accessibility; Bajura District, Nepal

1. Introduction

Maternal health remains a critical global public-health concern, particularly in low- and middle-income countries where maternal mortality and morbidity are persistent at high levels. In Nepal, despite considerable progress, as evidenced by reducing the MMR from 539 per 100,000 live births in 1996 to 239 in 2016, large inequities in maternal health care utilisation remain across geographic, socio-economic, and ethnic strata.

Socio-demographic characteristics include age, education, occupation, ethnicity, family structure, parity, and distance to facilities that determine the utilisation of maternal health services (Simkhada et al., 2008; Khanal, Lee & Sauer, 2020). For instance, better-educated women with greater autonomy consistently demonstrate a higher likelihood of attending four or more ANC visits and delivering in health facilities (Adhikari et al., 2019). Geographic and transportation barriers, on the other hand, are associated with delays or non-utilisation of skilled birth attendance (Kaphle et ., 2022). The behavioural model of health services utilisation, predisposing, enabling,

and need-factors interact in influencing the care-seeking behaviour (Andersen, 1995). It is pointed out that the structural and social determinants, especially caste/ethnicity, wealth quintile, and rural-remote location, have been major contributors to inequity (Devkota et al., 2025; Bhusal et al., 2021).

Devkota et al. (2025), look into urban slum settings even in Kathmandu, there is a clear study gap in terms of understanding the influence of socio-demographic characteristics on maternal care utilization in remote mountainous districts. This is an important gap because contexts with remote areas present distinct barriers-topography, weak infrastructure, service-shortages-and possibly different socio-cultural norms compared to peri-urban slums or national aggregated data (Tamang et al., 2020).

Understanding these locally-specific influences informs targeted policy and programmatic interventions addressing the "last mile" of maternal health service equity. In addition, the SDG 3.1 calls for a reduction in the global MMR to less than 70 per 100,000 live births by 2030, and this calls for an urgent need for local-level evidence in the most underserved regions (WHO, 2016). It will assess the factors that influence the utilization of maternal healthcare services as per socio-demographic characteristics. Precisely, it will take into consideration the service use of institutional delivery services, influenced by factors such as age, education, occupation, ethnicity, family type, number of children, and distance to health facilities. It is also supposed to contribute to a better understanding of maternal health behaviors in remote areas and provide evidence-based guidance for policymakers in designing appropriate and efficient maternal health programs in rural areas of Nepal.

2. Methods

It assessed maternal health care utilization and its association with socio-demographic factors among women attending the DHO. The sample size was 139, selected through convenience sampling during the study period. Data collection was done using a structured questionnaire on demographic, socio-economic, and health service utilization variables. It shows a logical flow from the identification of variables to data analysis procedures. It begins by identifying dependent and independent variables, setting out the analytical framework of this study. The flows smoothly into the discussion of ethical considerations that were made to ensure the credibility of the study and protection of the participants. Finally, it discusses the statistical methods applied, which are those that assure internal validity of the study design and population representativeness. The identification of variables, the ethical safeguards considered, and the approach to analysis have been internally coherent, clear, relevant, and methodologically sound throughout the section.

3. Results

Socio-demographic characteristics such as age, education, occupation, ethnicity, family structure, and availability of health facilities are strongly influencing factors in maternal health care utilization. A greater portion reported their first pregnancy after the age of 20 years, though a smaller portion experienced early pregnancies. The population was dominantly Brahmin/Chhetri, with few marginalized groups represented. Most were living in joint families and had smaller family sizes, depicting better fertility control. However, long travel distances to health facilities remain one of the major barriers to timely and equitable maternal health care.

Age: It is a simple demographic variable expressed in years starting from birth. Age carries a number of implications for social, health, and economic aspects. Categorized into stages like

adolescence, adulthood, and old age, it helps in identifying population trends, thereby aiding policymakers, health planners, and resource allocators to make affective decisions.

Table 1: Distribution of age

Age	Number	Percent
15 – 19	9	6.7
20-34	123	88.8
35 or above	6	4.5
Total	**139**	**100.0**
Mean ± SD = 25.9±4.4		

Source: Field Survey, 2021

Table 1, is mainly comprised of mothers whose age range is from 20-34 years, accounting for a whopping 88.8 percent, with an average age of 25.9 ± 4.4 years. The mothers in the age group of 15-19 accounted for only 6.7 percent and those aged 35 or more 4.5 percent. Hence, the age structure is very young and quite homogeneous.

Age at first pregnancy: The first pregnancy of a woman is referred to as the age at first pregnancy, which differs from one place to another depending on the social norms, the practices of the society, and the health of the woman. It is something very central to the study of the population's fertility trends and their socio-cultural activities as it reveals the extent to which childbearing has been postponed or accelerated and the ensuing impact on maternal as well as child health.

Table 2: Distribution of age at first pregnancy

Age at first pregnancy	Number	Percent
<20	34	24.7
>20	105	75.3
Total	**139**	**100.0**

Source: Field Survey, 2021

Table 2, it can be observed that 75.3 percent of women experienced their first pregnancy after the age of 20 years, while 24.7 percent became pregnant before reaching 20 years. This indicates that although most of the pregnancies are among adults, still a significant number are among teenagers.

Education: Education plays a vital role in the development of not only individuals but also societies. It equips people with the needed knowledge, skills, and values to actively participate in the economy and make decisions on various issues. The level of education in primary, secondary, and higher education is reflected in human capital in society, which plays a major role in determining the socio-economic status and opportunities for progress.

Table 3: Distribution of education

Education	Number	Percent
Read and write only	32	23
Elementary	60	43.3
Secondary	41	29.2
Bachelor and higher level	6	4.5
Total	**139**	**100.0**

Source: Field Survey, 2021

Most of the people who answered the survey and gave their educational background (43.3%) obtained elementary education and then secondary education with 29.2 percent and 23 percent who could read and write only. A bachelor's degree or higher was achieved by just 4.5 percent of the applicants. This points to a very low level of higher education among the population and the urgent need for more advanced education to be available to the poor and therefore contribute to their empowerment and making the right choices concerning maternal health based on their awareness.

Occupation: The occupational category of an individual serves as a reflection of the person's source of income and is directly linked to the socio-economic status. It includes a wide range of jobs from manual labor to professionals and affects the person's identity, income, and access to health services. Furthermore, the study of occupation patterns can help in the formulation of employment policies and in planning health care interventions for mothers based on their occupation.

Table 4: Distribution of occupation

Occupation	Number	Percent
Farmer	115	82.6
Service	16	11.2
Business	5	3.4
House wife	4	2.8
Total	**139**	**100.0**

Source: Field Survey, 2021

Table 4 shows that the majority of respondents, who constituted 82.6 percent, were farmers. This is a clear sign of the district's agricultural based economy. Following farmers were those in services

(11.2%), business (3.4%), and housewives (2.8%) were the least. The described pattern suggests a shortage of different types of jobs.

Ethnicity: Ethnicity is a category of characteristics that encompasses sharing of culture, language, and ancestry, which in turn, it is the basis of social identity and belonging. It has an impact on the availability of education, jobs, and healthcare, and often it is the case that social inequalities are determined by ethnicity. The knowledge of the ethnic composition of the area is pivotal for the proper unfolding of inclusion, equity, and culturally sensitive health interventions.

Table 5: Distribution of ethnicity

Ethnicity	Number	Percent
Brahmin/Chhetri	85	61.2
Jangati	51	36.5
Dalit	3	2.2
Total	**139**	**100.0**

Source: Field Survey, 2021

Table 5 shows that Brahmin/Chhetri was the dominant (61.2%), Jangati (36.5) and Dalit (2.2) were the other groups. This also shows the existence of a powerful higher-caste group that has minimal representation of the marginalized groups, hence the importance of inclusive policies on health that are inclusive of the social and ethnic differences.

Children: The number of children is an important demographic variable that measures the fertility behavior and particular family structure. It is predetermined by social-economic factors, cultural values, and family planning opportunities. Studying this factor contributes to the interpretation of the population growth tendencies and allows creating beneficial reproductive health and social welfare policies.

Table 6: Distribution of number of children

Number of Children	Number	Percent
One Children	76	54.5
Two Children	47	33.7
Three or more Children	16	11.8
Total	**139**	**100.0**

Source: Field Survey, 2021

Table 6 shows that more than half of the participants, specifically 54.5 percent, were parents of one child, 33.7 percent were parents of two children, and merely 11.8 percent were parents of three children or more.

Type of family: Family type characterizes the structure of a household and is usually referred to as either nuclear or joint. It determines who will be taking care of the children, how decisions will be made, and what the support system will be like socially. Knowing the family composition is essential for understanding social dynamics and for policymaking that will cater to the diverse needs of families in various cultural and economic situations.

Table 7: Distribution of type of family

Type of Family	Number	Percent
Single family	43	30.9
Joint Family	96	69.1
Total	**139**	**100.0**

Source: Field Survey, 2021

Table 7 shows that joint families were the living arrangement of 69.1 percent of the participants, while single (nuclear) families comprised 30.9 percent. This proves that the living style of extended family is still the most prevalent one, which is a characteristic already influenced by traditional and collective social structures that might do that for maternal care decisions and support systems.

Distance of health facility: One of the most important factors influencing healthcare access, especially in rural areas, is the distance to the health facility. Limitations like greater distances often result in delaying treatment and, consequently, the health of the patient getting worse. So, it is essential that the movement barriers to be reduced through better infrastructure and local service delivery for the purpose of ensuring that maternal healthcare access does not depend on one's social, economic or physical conditions.

Table 8: Distribution of distance of health facility

Distance of health facility	Number	Percent
Less than 30 minutes	37	26.4
30 minutes t0 1 hrs	61	43.8
More than 1 hr	41	29.8
Total	**139**	**100.0**

Source: Field Survey, 2021

Table 8 Shows that 43.8 percent of people surveyed spent 30 minutes to 1 hour on their way to a health facility, while 26.4 percent resided within 30 minutes, and 29.8 percent had to take more than an hour to reach it. This shows that all in all the access was moderately good, but almost one-third of the respondents faced a lot of troubles because of the long distance, thus pointing at the necessity of better health care facilities and outreach in the distant areas.

4. Discussion

The present study has focused on socio-demographic factors influencing the utilization of maternal health care among mothers. It becomes clear from the findings that age, age at first pregnancy, education, occupation, ethnicity, family structure, number of children, and distance to health facilities act together in influencing the utilization pattern of maternal health services in the rural setup.

Age and use of maternal health care: The age distribution showed this was a young reproductive population; a large proportion of the respondents were concentrated in the age group of 20-34 years (88.8%). This corresponds to demographic patterns across developing countries where the majority of childbirths take place among young adults (Karkee & Lee, 2016). These women are generally physically active, very responsive to health promotion messages, and yet predisposed to barriers in autonomous decision-making due to social or familial restrictions (Dhakal et al., 2020). The mean age of 25.9 years indicates that women were in the prime reproductive period, as reflected at the national level by the Nepal Demographic and Health Survey (Ministry of Health, 2022). Thus, age has been considered one of the main predictors of health-seeking behavior, where women in early adulthood tend to utilize antenatal and delivery services more than adolescents or older women would (Devkota et al., 2025).

Age at first pregnancy: The respondents reported a first pregnancy after 20 years of age, 75.3 percent, showing a gradual improvement in delaying early childbearing. Early pregnancy, recorded for almost a quarter of the respondents, is an issue of concern since early pregnancy is associated with high risk for obstetric complications and anemia, together with preterm births (Kumar et al., 2021). In adolescent pregnancies reveals socio-cultural practices such as early marriage and ignorance about the methods of contraception in rural Nepal. Delayed first pregnancy by way of comprehensive reproductive education and youth-friendly health services would go a long way in reducing maternal and neonatal morbidity and mortality (WHO, 2018). This trend has also been reflected in other rural areas of Nepal: poor health literacy and underutilization of institutional delivery services were associated with limited female education. Other significant strategies include health education, retention in school, and the empowerment of adolescent girls.

Education and maternal health behavior: Education was the significant determinant of maternal health awareness and service utilization. Almost half of the women had only elementary education, and less than 5 percent had completed higher education (Paudel & Budhathoki, 2020). It also assists in various pregnancy complication identifications and in seeking skilled care. Educated mothers will have a higher possibility of adopting modern contraceptives (Regmi et al., 2020). Upgrading education empowers not only knowledge but also builds autonomy and improves communication skills in making active decisions related to health. The findings reflect the requirement for community-based programs on literacy and women's empowerment that may stimulate the use of maternal health services within the catchment area. Occupation and Economic Influence: Occupational status presented that 82.6 percent of the respondents were engaged in farming, indicating an agrarian economy predominantly. Economic dependence on agriculture as one's livelihood often constrains cash flow, making people inflexible and thus restricting timely seeking of medical care (Pandey et al., 2021). Paid employment in service or business sectors, even though in minor proportion, enhances economic independence and facilitates access to health services (Acharya et al., 2019). Economic empowerment can improve the maternal health result

of a woman since income generated from these activities helps her bear the direct and opportunity costs arising from care-seeking.

Ethnicity and social inclusion: Ethnic composition is one of the major determining factors of health service utilization. As 61.2 percent of the respondents belonged to Brahmin/Chettri communities, while one of the most marginalized groups-Dalits-constituted only 2.2 percent. Ethnic disparities in Nepal have been manifested historically through various ways: in terms of access to education, income, and healthcare services (Bennett et al., 2013). The general trend among marginalized ethnic groups is that they face discrimination and have low participation in health programs organized by institutions. Although there are nominal free-of-cost health services available through various government schemes in Bajura, there is still a need for an intervention on social exclusion and communication barriers. Outreach through FCHVs with culturally sensitive health promotion would, over time, reduce these inequities. Policies should ensure equity-based health planning; ethnicity must not decide maternal health results.

Family structure and social support: The joint family system dominated the study area, with 69.1 percent representation, reflecting the traditional household pattern that offers both support and constraints to maternal health behavior. Though a joint family may offer practical and emotional support in pregnancy and childbirth, decision-making is often controlled by the decisions made by more senior members based on traditional practices (Pandit et al., 2019). While nuclear families can give women more autonomy to make independent decisions about health, though few in number, they lack social and logistical support in times of emergency. Family-centered health education programs are thus very important in fostering collective responsibility toward maternal wellbeing and timely utilization of institutional care.

Number of children and fertility preferences: From the interviews conducted, 54.5 percent reported having just one child, an indication of the transition toward a norm of small families. Policies should ensure equity-based health planning and ethnicity should not decide maternal health results. These facts are further supported by the declines in national fertility rates because of education, urbanization, and access to family planning services a reason for (Ministry of Health, 2022). As families become smaller in size, women bear a reduced reproductive burden; this contributes to the improved health conditions of women and children. However, parity is one of the prime determinants of maternal health behavior. Women having more than one child may feel less need for formal care during subsequent pregnancies (Paudel et al., 2020). Thus, spacing methods and male participation must be continued to be advocated by family planning programs in order to maintain fertility reduction and improvement in maternal health.

Distance to the health facility and service accessibility: Accessibility remains one of the major barriers in Bajura, a mountainous district with limited road connectivity. About one-third of the respondents reported traveling more than an hour to reach the health facility. Thus, distance significantly contributes to delayed care-seeking during labor or at the time of an emergency (Kaphle et al., 2022). Across rural Nepal have pointed out some major obstacles in the utilization of maternal services: distance and poor transportation (Tamang et al., 2020). Local birthing centers need to be strengthened, the road network improved, and deployment of mobile health clinics considered. Similarly, local health workers can be empowered to provide basic obstetric and post-natal services that reduce the need to go too far-away facilities in order to improve maternal results. The interrelation of these socio-demographic variables means that no one factor influences

maternal health utilization; rather, this may be affected through an interrelation between social, cultural, and economic influences.

Thus, distance delays care-seeking during labor or any other emergency. The variables which have shown the greatest consistency in studies in the Nepalese context include education, economic empowerment, and proximity to services. Targeting maternal health interventions so that they address these intersecting inequities can go a long way in efforts toward meeting Nepal's targets for the reduction of maternal mortality as set out in the Sustainable Development Goals.

5. Conclusion

This study established that age, education, occupation, ethnicity, family type, parity, and distances to health facilities were the significant socio-demographic determinants of the utilization of maternal health care services in Bajura District. There is ethnic inequity because the service utilization is lower amongst marginalised groups like the Dalits. Joint families, while they could provide social support, sometimes also restricted women's autonomy.

The study, therefore, recommends increasing the level of education for women, advancing economic opportunities, and improving access to health facilities. These programs will aim at adolescent health, integrating marginalized communities, and be family-centered in awareness. It also suggests strengthening the capacity of the health infrastructures at the local level, empowering FCHVs, and aligning initiatives with the Safe Motherhood Act of Nepal and SDGs to help ensure equitable improvement in maternal health results in rural settings.

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