Association of Mother's Education with Maternity and Newborn Care Practices in Nepal

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Abstract

Mother's education plays a crucial role for enhancing maternal and child health. This paper aims to examine the association of mother's education with maternity and newborn care practices in Nepal. It builds primarily on secondary data obtained the Nepal Demographic and Health Survey 2016. In this study, it was found that 22.4 percent of mothers with no education made four or more antenatal care visits, which increased to 31.2 percent among those who had completed SLC or higher levels of education. In terms of place of delivery, more than 30 percent of the mothers who completed SLC or higher education chose to had their babies in health facilities. Likewise, over 30 percent of mothers who having SLC or higher education ensured their own and their newborns' health was assessed by healthcare professionals after delivery. Mother's education plays a significant ($p<0.05$) role in increasing antenatal visits, motivating women to have deliveries with health facilities, giving preference to health checkups of mothers and newborns before and after delivery, and preferring health checkups of the mothers and the newborns by health personnel, which eventually improved maternal and newborn health. The main finding of this study is that increasing levels of mother's education have a significant positive association with maternity and newborn care practices in Nepal. Therefore, it is strongly recommended that the nation invest in women's education up to a higher level to improve the health status of both mothers and children.

Keywords: association, mother's education, maternity care, newborn care, practices

Introduction

Education plays a vital role in shaping people's socioeconomic status, lifestyle, and occupation, which in turn greatly affect income, housing, and other material resources. In developing countries, maternal education plays a significant role of improvement in child survival and child health. Natarajan et al., (2013) state that maternal health care is essential for measuring the overall health and economic

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progress of the population. The lack of access to maternal health care leads to a high maternal mortality rate, especially in poor countries. Most of these deaths could be avoided by detecting health issues that could be identified early during pregnancy (Amwonya et al., 2022).

In a study, Barrera (1990) points out that the most substantial effect on child health, particularly for children of 0-2 years, occurs due to the education level of the mother. Enhancing mother's education is crucial for reducing the childhood mortality rate. This is why motherhood education should be emphasized. Natarajan et al. (2013) state that educated mothers have more knowledge about health care and nutrition. Educated mothers can provide help for their children with healthy habits and a safe environment which improve child survival and health in developing countries. The level of mother's education directly influences the utilization of basic health services for children's survival in developing countries.

Educated women are believed to be aware of the availability of maternal health care services and the benefits of utilizing these services. Because educated women have increased independence both within and beyond their household, they are able to communicate more effectively with health professionals and demand professional health care services. Mothers with education tend to show a higher level of knowledge and awareness of modern contemporary treatments as well as an increased ability to identify particular illnesses with precision (Caldwell, 1979 cited in Shrestha, 2018).

Weitzman (2017) conducted a study in Peru that indicated that women who completed a greater number of schooling years had a lower possibility of experiencing numerous maternal health complications during their previous pregnancy or delivery. On the basis of these facts, it has been found that a higher level of women's education reduces the likelihood of low birth intervals and unwanted pregnancies (which may cause unsafe abortions), and increases the utilization of antenatal health care.

Yadav et al. (2021) reiterate that education has a significant impact on the use of maternal health care in developing nations. Higher levels of education had a significant impact on the use of antenatal services, with higher and lower odds being associated with the partner's educational background, respectively. With the rising level of women's education, there was a noticeable rise in skilled birth attendance, but it remained significantly low even with a higher level of partner's education. Postnatal care utilization is also increased with higher levels of mother education. Nepal Demographic and Health Survey (DHS) (2016) revealed that 69 percent of women in Nepal had a minimum of four antenatal care visits. In addition, 58 percent of deliveries were conducted by skilled birth attendants, and 57 percent of deliveries occurred with health facilities. Only 57 percent of both mothers and newborns, however, received a postnatal check within two days of delivery.

Hushen et al. (2021) found that to enhance the utilization of maternal health services in rural areas of Nepal, it is essential that local health authorities and communities address underlying factors like motivating female education and empowerment, along with increasing accessibility and affordability. Khurshid et al. (2019) investigated the link between the mother's years of schooling and mortality, which is interconnected with her parental family education influence on her education. It reveals that mother's education is crucial for their child's health, hunting behavior, and illness venerability. Cent percent of the women who were surveyed in this study acknowledged education's significant impact on child health and mortality. Therefore, enhancing children's health requires prioritizing accessible education for mothers to promote better health care practices.

Ghimire et al. (2021) found that, in the context of rural Nepal, out of 178 mothers who participated in the study, 43.3 percent had completed their elementary level of education; 86 percent had undergone at least four antenatal checkups; and 30.9 percent chose delivery at home despite the government incentive for hospital delivery. In terms of postnatal checkups, 59 percent had at least one, and 10 percent attended three postnatal checkups. Ghimire et al.'s (2021) study revealed a significant connection between the utilization of maternal health services and educational status.

Methodology

This study is based on secondary data obtained from a nationally representative sample survey, DHS 2016. The main objective of this study was to analyze the association of mother's education with maternity and newborn care practices in Nepal. This research was based on descriptive research design and analytical research, which require the use of existing facts and information. The percentage distribution, calculated and p-value of chi-square values were calculated from the data set of the Nepal Demographic and Health Survey conducted in 2016. Before calculation, the data were weighted by 10,00,000. In this study, the SAV files were used for the calculation in IBM SPSS Statistics 21. A Chi-square test was performed to check the significance of the associations between mother's education with maternity care and newborn care practices.

The DHS Program at ICF has given its approval for the DHS dataset for further calculation by sending a confirmation letter for approval to use the data set. There was no need to determine the sample size or identify study participants, so there was no potential risk to them. The data file used for the analysis in the study is openly accessible to the public upon request.

On the other hand, in this study mother's education was considered an independent variable. Mother's education level was grouped into four categories: no education (no education, school-based pre-primary centers and informal pre-school), primary education (less than 1 year of education and grade 1-5) completed,

some secondary education (grade 6-9) completed, and higher education (grade 10 and grade 11 and above) completed. Besides this, some of the variables were considered dependent variables. In terms of maternity care practice in Nepal, i.e., number of antenatal visits during pregnancy, place of delivery, delivery by caesarean section, respondent's health checked after discharge or delivery at home and who checked, and respondent's health after discharge or delivery at home are regarded as associated factors.

In place of delivery, there are some attributes, i.e., government sector (government hospital, primary health care center, health post/sub health post, primary health care outreach clinic, and other public sector), private sector (private hospital/nursing home and private clinic), non-government sector (family planning association of Nepal and other NGO facilities), home (respondent's home and others home), and outside Nepal/other (India and other). In this study, these all were regarded as associated factors. On the other hand, some of the variables were regarded as dependent variables for the newborn care practices in Nepal, i.e., the child's health checked before discharge, who checked the child's health before discharge, the baby's postnatal check within 2 months, and the person who performed the postnatal checkup.

Results

The researcher presents the results of quantitative data analysis using the theme of association of mother's education with maternity and newborn care practices in Nepal in separate tables. Residence, ecological zone, province, religion, ethnicity, age group, and wealth quantile were considered background the characteristics of the respondents in this study. In ethnicity, Hill Brahmin, Hill Chhetri, and Terai Brahmin/Chhetri are merged into Brahmin/Chhetri (Hill and Terai), Hill Dalit, and Terai Dalit into Dalit, Newar, Hill Janajati, and Terai Janajati into Janajati (Hill and Terai), other Terai castes, and others into 'others' were merged for recoding.

Table 1 *Percentage Distribution of Background Characteristics of the Respondent*

Background characteristics	Attributes	N	Percent
Residence	Urban	2730	54.0
	Rural	2330	46.0
	Total	5060	100.0
Ecological zone	Mountain	361	7.1
	Hill	1911	37.8
	Tarai	2789	55.1
	Total	5061	100.0
Province	Koshi	818	16.2
	Madhesh	1367	27.0
	Bagmati	813	16.1
	Gandaki	387	7.6

	Lumbini	899	17.8
	Karnali	339	6.7
	Sudurpaschim	437	8.6
	Total	5060	100.0
Religion	Hindu	4321	85.4
	Buddhist	213	4.2
	Muslim	356	7.0
	Kirat	72	1.4
	Christian	99	2.0
	Total	5061	100.0
Ethnicity	Brahmin/Chherti (Hill and Terai)	1396	27.6
	Janajati (Hill and Terai)	1573	31.1
	Dalit	695	13.7
	Muslim	358	7.1
	Others	1038	20.5
	Total	5060	100.0
Age Group	<20 years	391	7.7
	20-34 years	4249	84.0
	35-45 years	419	8.3
	Total	5059	100.0
Wealth quantile	Poorest	1083	21.4
	Poorer	1072	21.2
	Middle	1122	22.2
	Richer	1035	20.5
	Richest	749	14.8
	Total	5061	100.0

Source: Nepal Demographic and Health Survey Data File, 2016 (Calculated)

Of the total respondents (mothers), 54.0 percent were from urban areas, and the rest were from rural areas. In terms of the ecological zone, over half (55.1 percent) of the respondents were from the Terai region, while more than one-fourth (27.0 percent) were from Madhesh Province. Similarly, the majority of the respondents (85.4 percent) were of Hindu religion, and 31.1 percent of Janajati (Hill and Terai) ethnicity according to their social structure. Furthermore, 84.0 percent of them were from the 20-34 age group, which is also known as the prime reproductive age range for women. In terms of the wealth quantile, all respondents were from all the attributes regarding the wealth quantile, which were distributed in one-fifth except the richest wealth quantile.

Maternity Care and Mother's Level of Education

Maternity care and the level of a mother's education are interlinked, and that can significantly impact on the health and well-being of both mother and child. The education level of a mother can influence various aspects of her pregnancy and delivery, such as, antenatal visits, place of delivery, caesarean section, health

checkup after delivery, health personnel who check the mother's health after delivery, etc., as well as the overall health outcomes for herself and her child.

Table 2 *Percentage Distribution of Mother's Level of Education and Maternity Care Factors with Calculated Value and P-value of Chi-square*

Maternal Care	Mother's education				Total N	Chi-square Value	Sig. (p value)
	No education	Primary	Some secondary	SLC or Higher			
Number of antenatal visits during pregnancy							
1 time visit	59.9	21.8	13.4	4.9	142	535.034	.000
2 times visit	57.4	20.1	16.0	6.6	319		
3 times visit	41.6	24.7	23.6	10.1	526		
4 and more than 4 times visit	22.4	18.0	28.5	31.2	2773		
No antenatal visit	62.9	22.4	10.5	4.2	237		
Total	31.4	19.4	25.2	23.9	3997		
Place of delivery							
Government sector	21.3	17.7	29.5	31.5	2183	821.375	.000
Private sector	17.8	13.2	30.4	38.7	517		
Non-government sector	21.9	18.8	28.1	31.3	32		
Home	51.6	23.5	17.6	7.3	2095		
Outside Nepal/Other	37.9	28.0	20.3	13.8	232		
Total	34.3	20.1	24.2	21.4	5059		
Delivery by caesarean section							
No	35.9	20.9	24.2	18.9	4604	202.708	.000
Yes	17.1	12.5	24.1	46.3	456		
Total	34.2	20.1	24.2	21.4	5060		
Respondent's health checked after discharge or delivery at home							
No	32.7	20.3	25.9	21.1	3183	66.788	.000
Yes	26.5	15.9	22.9	34.7	816		
Total	31.4	19.4	25.3	23.9	3999		
Who checked respondent health after discharge or delivery at home							
Doctor	19.0	12.4	23.5	45.1	306	37.172	.000
Nurse, midwife	26.1	19.9	22.6	31.4	261		
Other	36.3	16.1	22.2	25.4	248		
Total	26.5	16.0	22.8	34.7	815		

Source: Nepal Demographic and Health Survey Data File, 2016 (Calculated)

In this study, of the 3997 respondents (mothers), 31.4 percent had no education, whereas 23.9 percent had SLC or a higher level of education. Of the

mothers who had no education, 62.9 percent never visited for antenatal care during pregnancy, and only 22.4 percent of them visited four or more times for antenatal care during pregnancy. Similarly, of the mothers who had SLC or higher education, only 4.2 percent never visited for antenatal care during pregnancy, whereas 31.2 percent of them visited four or more times for antenatal care during pregnancy. It shows that a higher level of mother's education plays a significant role ($p<0.01$) in the full or maximum number of visits for utilization of antenatal care practice in Nepal.

In the case of delivery, more than 30 percent of mothers whose education was SLC or higher delivered their babies amid health facilities (government sector, private sector, and non-government sector). Furthermore, 51.6 percent of the mothers who had no education delivered their babies at home. It shows that mother's education plays a significant ($p<0.01$) role for the choice of the place of delivery (either health facilities or home).

In addition, 46.3 and 34.7 percent of the mothers said 'yes' for delivery by caesarean section and having their health checked after discharge or delivery at home, respectively, if their education was SLC or higher. Mother's education plays a significant ($p<0.01$) role in the decision to have a caesarean section and health check after discharge or delivery at home. Moreover, 45.1 and 31.4 percent of mothers whose education is SLC or higher ensure their health checkup after discharge or delivery at home by health personnel (doctors, nurses, and midwives), respectively, whereas 36.3 percent of those who have no education go for their health check after discharge or delivery at home by others. It shows that mother's education determined the respondent's health checkup after discharge or delivery at home by health personnel (doctors, nurses, and midwives).

Newborn Care and Mother's Level of Education

The educational background of mothers and newborn care are closely connected factors that are significantly influenced by the close relationship between newborn care and the level of education of mothers. The education level of a mother can have multiple impacts on different aspects of newborn care, like a child's health check before discharge, health personnel who checked the child's health before discharge, a post-natal checkup within 2 months, health personnel who performed a post-natal checkup, etc.

Table 3 *Percentage Distribution of Mother's Education and Newborn Care Factors with Calculated Value and P-value of Chi-square*

Newborn care and Postnatal checkup	Mother's education				Total N	Chi-square Value	Sig. (p value)
	No education	Primary	Some secondary	SLC or Higher			
Child's health checked before discharge							
No	25.5	19.0	29.2	26.3	353	22.220	.001
Yes	17.8	15.5	30.3	36.3	1945		
Total	19.0	16.0	30.2	34.8	2298		
Who checked child health before discharge							
Doctor	11.8	12.3	28.3	47.5	829	96.199	.000
Nurse, midwife	22.4	17.1	32.2	28.2	1052		
Other	20.6	28.6	25.4	25.4	63		
Total	17.8	15.4	30.3	36.4	1944		
Baby postnatal check within 2 months							
No	34.4	20.9	24.8	19.9	2517	74.116	.000
Yes	26.3	16.9	26.1	30.7	1482		
Total	31.4	19.4	25.3	23.9	3999		
Person who performed postnatal checkup							
Doctor	21.3	12.5	23.7	42.5	569	81.951	.000
Nurse, midwife	23.9	21.3	28.4	26.4	489		
Other	35.8	17.9	26.7	19.6	424		
Total	26.3	16.9	26.1	30.6	1482		

Source: Nepal Demographic and Health Survey Data File, 2016 (Calculated)

The data show that 36.3 and 30.7 percent of mothers said 'yes' for having their child's health checked before discharge and their baby's postnatal check within 2 months, respectively, whose education is SLC or higher (Table 3), which increases according to the respondent's level of education. These facts show that mother's education plays a significant ($p<0.05$) role for raising awareness of health checkups before discharge and checking within 2 months, which is an indication of the improvement of newborn care practices in Nepal. Furthermore, respectively 47.5 percent and 42.5 percent of the mothers whose education is SLC or higher ensure their postnatal health checkup and child health checkup before discharge by health personnel (doctor), respectively. Moreover, 20.6 and 35.8 percent of the mothers who have no education go for their postnatal health checkup and child health checkup before discharge by others, respectively. It also shows that mother's education plays a significant ($p<0.01$) role for the health checkup of the newborn and postnatal care by health professionals in Nepal.

Discussion

The majority of mothers who have no education never make antenatal visits during pregnancy, whereas less than five percent of mothers who have acquired SLC or higher education never do so. The data typically show that mothers with no or low levels of education make either no or fewer antenatal visits than those having

higher levels of education. There is a significant association between a mother's education and the number of antenatal visits during pregnancy. There is enough evidence to say that to increase the number of antenatal visits during pregnancy, the level of education must be increased. A similar study also shows that two out of every three people, almost two of whom had recently given birth, went for at least four antenatal checkups. The education level of both the mother and their parents affected the number of antenatal checkups. Mothers with more education were more likely to go for the recommended number of antenatal checkups (Neupane et al., 2020b).

Dhakal et al. (2018) found that the majority (58.1%) of the mothers gave birth amid health facilities, while 49.1 did so at home. The accessibility of education to mothers and raising awareness among their partners about the benefits of giving birth amid health facilities with skilled attendance hold significance for encouraging institutional delivery. It clearly shows that there is a significant association between the place of delivery and mother's education. This study also shows that, in terms of the place of delivery, the majority of mothers whose education is SLC or higher, delivered their babies amid health facilities (government sector, private sector, and non-government sector). On the contrary, the majority of mothers who had no education delivered their babies at home, which shows the level of the mother's education plays a prominent role and the importance of the place of delivery (either health facilities or home). So, to bring mothers into a health facility for safe delivery, the level of education must be increased to a higher level, which eventually results in better health outcomes in maternity and newborn care.

Ardic (2018b) concluded that people who attended university and had higher education were more inclined to opt for the caesarean section delivery compared to those women who only completed primary school. Similarly, Neuman et al. (2014) indicate that well-educated women might have a higher preference for the caesarean delivery and that individuals and health care providers together suggest that caesarean deliveries should be bushed for. This study also shows that the majority of mothers accepted delivery by the caesarean section, the respondent's health checked after discharge or delivery at home, the child's health checked before discharge, and the baby's postnatal check within 2 months for those whose education is SLC or higher. It reveals that the level of mother's education plays a crucial role for practicing the caesarean section, health checkup of the mother, awareness of health checkup before discharge, and check within 2 months, which eventually improves maternity and newborn care practices in Nepal. In a similar study, Seid and Ahmed (2020), who analyzed the Demographic Health Survey Data of Ethiopia, found that information, communication, and education programs should play a vital role in encouraging mothers to bring their newborns for postnatal checkups after they are born. Appiah et al. (2021) investigated the

Demographic Health Survey Data of Papua New Guinea and concluded that a mother's education is associated with a postnatal checkup uptake for the newborns in Papua New Guinea. It is important to enhance public health education to increase awareness among women in Papua New Guinea about the advantages of getting postnatal checkup services for their newborn babies.

The main responses of mothers whose education is SLC or higher are found to have ensured their health checkup after discharge or delivery at home by health personnel (doctors, nurses, and midwives), whereas the majority of mothers who have no education go for a health checkup after discharge or delivery at home by others. All these facts show that the level of mother's education plays a significant role in the health checkup of mothers by health personnel after discharge or delivery at home. A mother's health checked by health personnel improves the overall health of the mother who recently has a newborn.

Most mothers whose education is SLC or higher go for their child's health checkup before discharge and postnatal checkup by health personnel (doctors, nurses, and midwives), whereas the majority of mothers who have no education generally go for their child's health checkup before discharge and a postnatal checkup by others. It shows the level of a mother's education plays a substantial role in the importance of a newborn's health checkup before and after discharge by health personnel (doctors, nurses, and midwives). It also eventually impacts positively on the wellbeing and health status of the newborn.

Wang et al. (2021) conducted a survey in 2017-2018 in the Democratic Republic of the Congo and found that mother's education plays a significant role in utilizing appropriate maternal healthcare. In this study, a similar situation was also observed regarding maternal and newborn care practices in Nepal. All the related variables regarding maternal and newborn care play a significant role in maternity and newborn care practice in Nepal. All the facts show that a mother's education always encourages the facts which could be the betterment of maternity and newborn care practices in Nepal.

Educated mothers prioritize their child's health checkup before discharge or delivery and prefer postnatal checkups within 2 months, and these checkups are with a doctor, nurse, or midwife rather than others. All these activities ultimately enhance the health status of both the mother and the newborn. So, mother's education has a significant association with maternity and newborn care practices in Nepal.

Conclusion

Mother's education plays a crucial role in improving maternal health and child survival in developing countries like Nepal. The increasing level of maternal education has a notably positive influence on maternity and newborn care practices in Nepal. Educated mothers are more inclined to utilizing the maternal

health care and newborn care practices in Nepal. Educated mothers tend to opt for a higher number of antenatal visits; they choose health facilities for delivery; opt for a health checkup before and after discharge or delivery for both mother and child, and ensure the checkup in the presence of a doctor, nurse, and midwife rather than others. Therefore, it is highly recommended that countries make substantial investments in mother's education, extending it to higher levels, in order to improve the health of both mothers and the newborns.

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