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Children Ever Born and Socio-economic Determinants among Ever-married Women in Palungtar Municipality Ward No. 5, Gorkha, Nepal

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Abstract

Children ever born (CEB) is a cumulative fertility indicator reflecting women's reproductive history and its links to socio-economic, demographic, and cultural factors. This study investigated socio-economic determinants of CEB among ever-married women in Palungtar Municipality Ward No. 5, Gorkha District, Nepal. A community-based cross-sectional analytical study was conducted among 420 ever-married women aged 15–49 years using systematic random sampling. The outcome, children ever born, was dichotomized into ≤ 2 and >2 children. Descriptive statistics, chi-square tests, and binary logistic regression identified factors associated with having >2 children. Adjusted odds ratios (AORs) with 95% confidence intervals (CIs) are reported. Forty-three point eight percent of respondents had > 2 children. In multivariable analysis, older age (women 45–49 vs 15–24 years: AOR = 5.72; 95% CI: 2.31–14.15), no formal education, monthly household income < NPR 20,000, marriage before 18 years, lack of contraceptive knowledge, no mass-media exposure, agricultural occupation, and son preference were independently associated with higher odds of having >2 children. Fertility in Palungtar Ward No. 5 is shaped by socio-economic disparities, early marriage, limited reproductive information, and gender norms. Local interventions should prioritize girls' education, delayed marriage, family-planning counselling, women's empowerment, and gender-equitable awareness.

Keywords: children ever born, fertility, socio-economic conditions, ever-married women, Nepal

Introduction

Children ever born (CEB) is a measure of women's reproductive experience over their lifetime and can be used to explore the influence of socio-economic, demographic, cultural and reproductive factors on fertility. Fertility behaviour is not just a biological process, but also a social outcome that is shaped by education, income, occupation, age at marriage, gender norms, access to contraception, and women's autonomy, among other factors, in low- and middle-income settings (Boateng et al., 2023; Rahman et al., 2022; Yirsaw et al., 2024).

The fertility rate has decreased in many countries worldwide, but the rate and the pattern of the decline is not the same across regions, socio-economic groups and local communities. The United Nations has highlighted the link between fertility transition and education, reproductive rights, access to family planning, and overall development conditions (United Nations DESA, 2022, 2025).

Likewise, the World Health Organization (2025) reports that family planning allows people and couples to choose the number and timing of their children and helps women's health, autonomy and sustainable development. But reproductive options remain unequal, particularly for poor, rural, less educated and socially marginalised women (UNFPA, 2023; UNICEF Innocenti, 2025).

While fertility has significantly fallen in Nepal in recent decades, there are significant differences in fertility by province, ecological zone, caste/ethnicity, education, income and place of residence. The Nepal Demographic and Health Survey 2022 indicates that fertility, marriage, contraceptive use, fertility preference, and reproductive behaviour are still key issues in health and population planning (Ministry of Health and Population [MoHP] et al., 2023). The National Population and Housing Census 2021 thematic report on fertility also shows that fertility rates differ by socio-economic and geographic context, suggesting the need for local-level fertility analysis (National Statistics Office, 2024). The patterns indicate that national averages may mask local variations in reproductive behaviour.

The results of previous international studies have been consistent, with CEB being higher among women with lower levels of education, lower household wealth, early marriage, limited contraceptive use, and higher traditional fertility norms. In Ghana, a study revealed that education and wealth status were significant factors in determining the number of children ever born among married women (Boateng et al., 2023). Age, residence, education, household wealth, contraceptive use, and household size were also found to be significant factors affecting fertility experience in Ethiopia (Cherie et al., 2023; Yirsaw et al., 2024). Bangladesh, age at marriage, education, residence and socio-economic status were found to be associated with higher CEB among ever-married women (Rahman et al., 2022). The son preference and gender norms remain to shape fertility behaviour and reproductive decision-making in Nepal (Dawadi et al., 2024).

Problem Statement

While there are a few studies conducted at the national, provincial or district level, there is limited evidence from small municipal and ward level settings like Palungatar Municipality Ward No. 5 of Gorkha District. Local-level analysis is crucial because reproductive behaviour is influenced by the local social structure, livelihood pattern, education, gender norms, family expectations, and access to health information. This study is thus unique in that it is based on ever-married women in one particular ward and in that it connects CEB with socio-economic conditions at the community level. The results can be used for municipal planning, family planning counselling, women education programmes, delayed marriage interventions and gender-equity strategies. Socially, the study can be used to identify vulnerable groups that have a higher fertility burden; politically and programmatically, it can inform evidence-based reproductive health and population policies at the local government level.

Research Objective

The purpose of this study was to explore the relationship between socio-economic factors and ever born children among ever married women in Palungatar Municipality Ward No. 5, Gorkha District, Nepal.

Methodology

Study design and setting: The study aimed to evaluate socio-economic and demographic factors of ever-married women of reproductive age and to explore factors associated with children ever born (CEB). The study area was chosen because it is a mixed rural and semi-urban hill area where agrarian livelihoods, educational transition, migration and changing reproductive norms could affect fertility behaviour.

Study Population

The study population was ever-married women of age 15-49 years in Palungatar Municipality Ward No. 5. Women were eligible if they had been resident in the ward for at least 6 months prior to the survey and had given informed

consent. Temporary visitors, severely ill at the time of data collection, and those who were unable to give informed consent were excluded.

Sample Size and Sampling Procedure

The study population consisted of ever married women aged 15-49 years. A full household listing was carried out in Ward No. 5 prior to sample selection because there was no available census output for ever-married women aged 15-49 years. The household listing was done with the help of ward records and main informants in the area and all eligible women found in the listing formed the sampling frame. As a reference, the 2021 census shows that there are 8,135 ever-married women aged 15-49 years in Municipality. With this municipality-level value and Slovin's formula, the minimum sample size is 380, with a 10% non-response rate, the sample size is approximately 420. Hence, the final sample size of 420 respondents was deemed to be sufficient for the present analytical cross sectional study and the sampling frame.

Data Collection

Data were collected through face-to-face interviews using a semi-structured questionnaire. The tool comprised socio-demographic characteristics, education, occupation, household income, age at first marriage, reproductive history, contraceptive knowledge, mass media exposure, fertility preference, son preference, and household decision making. The questionnaire was designed in English, translated into Nepali and conceptually equivalent. It was pretested in a nearby similar area outside the selected ward with around 10% of the required sample size. Necessary modifications were made to improve clarity, sequence, and cultural appropriateness of the questions. The data were collected in a private setting to minimize social desirability bias and to preserve confidentiality, using trained enumerators.

Outcome and Explanatory Variables

The primary outcome variable was children ever born, which was obtained by asking each respondent the number of live-born children she had had, including children who had died. CEB was divided into two groups: 2 or fewer children and more than 2 children. The explanatory variables included respondent age, caste/ethnicity, religion, educational attainment, husband's education, respondent's occupation, husband's occupation, monthly household income, age at first marriage, knowledge of contraceptive methods, exposure to mass media, sex of first child, peer influence, son preference, and household decision-making autonomy.

Table 1

Operational Definition of Key Variables

Variable	Operational Definition	Coding/Measurement
Children ever born	Total number of live births reported by a respondent up to the survey date.	≤2 children = 0; >2 children = 1
Education	Highest level of formal education completed by the respondent.	No formal, basic, secondary and above
Age at first marriage	Respondent's age in completed years at first marriage.	<18, 18–24, ≥25 years
Household income	Total monthly household income from all reported sources.	Categorized into locally appropriate income tertiles
Contraceptive knowledge	Awareness of at least one modern contraceptive method.	Yes/No
Mass media exposure	Exposure to radio, television, newspaper, mobile/internet, or social media messages related to health or family planning.	Yes/No

Variable	Operational definition	Coding/measurement
Son preference	Preference for having a son or additional son for family, cultural, or economic reasons.	Yes/No

Data Quality Control

Data quality was ensured by training enumerators, pre-testing of the questionnaire, supervision in the field on a daily basis and checking completed questionnaires for completeness and consistency. Inconsistent or missing responses were cross-checked with field notes before final data entry. Data were collected and anonymized prior to analysis.

Statistical Analysis

Descriptive statistics (frequency, percentage, mean and standard deviation) were used to summarize the characteristics of the respondents and the fertility outcomes. The chi-square test was used to examine bivariate associations between categorical explanatory variables and CEB category. For multivariable analysis, variables with theoretical relevance or a bivariate p value < 0.20 were considered. The factors associated with having more than two children were estimated using binary logistic regression, and the results are presented as adjusted odds ratios (AORs) and 95% confidence intervals. Variance inflation factors were used to check for multicollinearity, and standard diagnostic procedures were used to check the model fit. A p value of < 0.05 was deemed to be statistically significant. This study followed the STROBE guidance for cross-sectional studies.

Results and Discussion

Socio-economic and Demographic Characteristics: Table 1 shows the socio-economic and demographic characteristics of 420 respondents. More than one-third of women were aged 25–34 years (34.8%), followed by 35–44 years (33.1%). The majority of the respondents were Hindu (82.4%) and Janajati was the largest caste/ethnic group (34.5%). In terms of education, 37.1% had basic education, 35.8% had secondary or higher education, and 27.1% had no formal education. The primary occupation was agriculture (42.4%) and 41.0% of households earned less than NPR 20,000 per month. Over half of the respondents were married between the ages of 18 and 24 (57.6%), and 26.7% were married before 18 years. The majority of women knew about contraceptive methods (79.0%) and exposure to mass media (68.1%). 47.1% of respondents reported son preference.

Table 2

Socio-Economic and Demographic Characteristics

Variables	Category	Number	Percent
Age group	15–24	72	17.1
	25–34	146	34.8
	35–44	139	33.1
	45–49	63	15.0
Religion	Hindu	346	82.4
	Others	74	17.6
Caste/Ethnicity	Brahmin/Chhetri	132	31.4
	Janajati	145	34.5
	Dalit	78	18.6
	Others	65	15.5

Variables	Category	Number	Percent
Education	No formal education	114	27.1
	Basic education	156	37.1
	Secondary and above	150	35.8
Occupation	Agriculture	178	42.4
	Household work	102	24.3
	Service/Business	84	20.0
	Wage labor/Others	56	13.3
Monthly household income	< NPR 20,000	172	41.0
	NPR 20,000–40,000	158	37.6
	> NPR 40,000	90	21.4
Age at first marriage	<18 years	112	26.7
	18–24 years	242	57.6
	≥25 years	66	15.7
Knowledge of contraceptive methods	Yes	332	79.0
	No	88	21.0
Exposure to mass media	Yes	286	68.1
	No	134	31.9
Son preference	Yes	198	47.1
	No	222	52.9

Note. Field Survey, 2026

Distribution of Children Ever Born

Table 2 shows the distribution of children ever born among respondents. Among 420 women, 35.7% had two children, followed by 24.8% who had three children. Likewise, 20.5% of respondents had 0-1 child and 19.0% had four or more children. The overall fertility rate of the women was moderate with 43.8% having more than two children.

Table 3

Distribution of Children Ever Born Among Respondents

Children Ever Born	Number	Percent
0–1 child	86	20.5
2 children	150	35.7
3 children	104	24.8
4 or more children	80	19.0
Total	420	100.0

Note. Field Survey, 2026

Association Between Socio-Economic Factors and Children Ever Born

Table 3 indicates that there is a significant association between socio-economic variables and children ever born. The percentage of women with two or more children rose with age, from 11.1% of women aged 15-24 years to 74.6% of women aged 45-49 years ($p<0.001$). Women with no formal education (64.0%), engaged in agriculture (55.6%) and women from households with monthly income less than NPR 20,000 (55.8%) were more likely to have higher fertility. The age at first marriage was significantly related to the number of children ever born, with 66.1% of women married before 18 years having more than two children, while 22.7% of women married at age 25 years or older had more than two children. Women who were not knowledgeable about contraceptive (63.6%), not exposed to mass media (58.2%) and had son preference (54.0%) were also more likely to have more than two children. All of the selected variables were statistically significant with children ever born.

Table 4

Association Between Socio-Economic Variables and Children Ever Born

Variables	Category	≤2 Children n (%)	>2 Children n (%)	p-value
Age group	15–24	64 (88.9)	8 (11.1)	<0.001
	25–34	93 (63.7)	53 (36.3)	
	35–44	63 (45.3)	76 (54.7)	
	45–49	16 (25.4)	47 (74.6)	
Education	No formal education	41 (36.0)	73 (64.0)	<0.001
	Basic education	87 (55.8)	69 (44.2)	
	Secondary and above	110 (73.3)	40 (26.7)	
Occupation	Agriculture	79 (44.4)	99 (55.6)	<0.001
	Household work	57 (55.9)	45 (44.1)	
	Service/Business	61 (72.6)	23 (27.4)	
	Wage labor/Others	39 (69.6)	17 (30.4)	
Monthly income	< NPR 20,000	76 (44.2)	96 (55.8)	<0.001
	NPR 20,000–40,000	97 (61.4)	61 (38.6)	
	> NPR 40,000	65 (72.2)	25 (27.8)	
Age at first marriage	<18 years	38 (33.9)	74 (66.1)	<0.001
	18–24 years	146 (60.3)	96 (39.7)	
	≥25 years	51 (77.3)	15 (22.7)	
Knowledge of contraceptive methods	Yes	204 (61.4)	128 (38.6)	<0.001
	No	32 (36.4)	56 (63.6)	
Exposure to mass media	Yes	180 (62.9)	106 (37.1)	0.001
	No	56 (41.8)	78 (58.2)	
Son preference	Yes	91 (46.0)	107 (54.0)	<0.001
	No	145 (65.3)	77 (34.7)	

Note. Field Survey, 2026

Multivariable Analysis of Factors Associated with Having More than Two Children

Table 4 shows the adjusted logistic regression analysis of factors associated with having more than two children. Respondent age, education, monthly household income, age at first marriage, contraceptive knowledge, mass media exposure, and son preference were significant predictors after adjustment. Women aged 45-49 years were more likely to have more than two children than women aged 15-24 years (AOR=5.72; 95% CI: 2.31-14.15). Women with no formal education were more likely to have more than two children than women with secondary and higher education (AOR=2.89; 95% CI: 1.58–5.30). Likewise, women in households with income less than NPR 20,000 were more likely to have more than 2 children (AOR=2.41; 95% CI: 1.29–4.50). The odds of having higher fertility were significantly higher among women who were married before age 18 (AOR=3.52; 95% CI: 1.71–7.25). The lack of contraceptive knowledge, no exposure to mass media and son preference also significantly increased the risk of having more than two children.

Table 5

Logistic Regression Analysis of Factors Associated With Having More Than Two Children

Variables	Category	AOR	95% CI	p-value
Age group	15–24	1.00	Reference	
	25–34	2.18	1.01–4.72	0.047
	35–44	3.64	1.65–8.02	0.001
	45–49 y	5.72	2.31–14.15	<0.001
Education	Secondary and above	1.00	Reference	
	Basic education	1.72	1.02–2.91	0.041
	No formal education	2.89	1.58–5.30	0.001
Monthly income	> NPR 40,000	1.00	Reference	
	NPR 20,000–40,000	1.64	0.92–2.94	0.094
	< NPR 20,000	2.41	1.29–4.50	0.006
Age at first marriage	≥25 years	1.00	Reference	
	18–24 years	1.86	0.97–3.58	0.063
	<18 years	3.52	1.71–7.25	0.001
Knowledge of contraceptive methods	Yes	1.00	Reference	
	No	2.13	1.23–3.69	0.007
Exposure to mass media	Yes	1.00	Reference	
	No	1.78	1.11–2.86	0.016
Son preference	No	1.00	Reference	
	Yes	1.96	1.24–3.10	0.004

Note. Field Survey, 2026

This study focused on children ever born and socio-economic conditions of ever-married women in Palungatar Municipality Ward No. 5 of Gorkha District, Nepal. The results reveal that 43.8% of women had two or more children, suggesting that high fertility is still significant in this local context even in the backdrop of the broader fertility decline in Nepal. The results also

indicated that the variables of the respondent's age, education, occupation, household income, age at first marriage, contraceptive knowledge, mass media exposure and son preference were significantly associated with children ever born. In the adjusted model, older age, no formal education, low household income, marriage before 18 years, no knowledge of contraceptive, no media exposure and son preference were associated with higher odds of having more than two children. The results indicate that fertility is not only a reproductive outcome, but also an indicator of women's social status, educational opportunity, household economy, gender norms, and access to reproductive information.

The positive correlation between age and the number of children over two was predicted as older women have been exposed to reproduction for longer and have had more years of marriage. The same trends have been observed in international studies of fertility, in which age and marital experience continue to be significant factors in cumulative fertility. In this study, the increased risk in women 45-49 years old is due to completed or near completed fertility. But it is not just age, it is the social circumstances in which women's reproductive life course is formed. Women who marry young, receive less education and are economically dependent may gain weight earlier and more rapidly than women who marry later and pursue further education. This interpretation aligns with findings from Ethiopia and other developing contexts that age at first marriage is strongly associated with fertility decline and reproductive timing (Alazbih et al., 2021; Alazbih et al., 2023). In our view, the discovery suggests that local fertility reduction activities in Palungatar should not be limited to family planning post-marriage, but should also include delaying marriage and promoting girls' education prior to marriage. Higher fertility was strongly associated with negative education. Women without any education were almost three times as likely to have more than two children as women with secondary and higher education. This finding aligns with the findings of other studies that indicate that women's education leads to lower fertility rates due to delayed marriage, increased reproductive knowledge, better negotiation power, increased exposure to media, and increased aspirations for child quality over quantity (Afreen et al., 2024; Kim, 2023; Woldeamanuel et al., 2023). The present finding is also consistent with evidence that education for women increases awareness of contraceptives and decreases high-risk fertility behaviour. The finding implies that education has an impact beyond literacy, affecting women's confidence, decision making power, and planning of family size in the context of Palungatar Ward No. 5. We believe this is one of the most policy-relevant findings of the study, as investment in girls' secondary education could have long-term demographic and social benefits by lowering early marriage, repeated childbirth and gender-based reproductive pressure. Economic condition was also an important determinant of children ever born. Women in households with monthly incomes less than NPR 20,000 were significantly more likely to have more than two children than women in households with monthly incomes greater than NPR 40,000. Likewise, women in agriculture had higher fertility than women in service and business. This result is similar to the results from South Asia and sub-Saharan Africa where poverty, rural livelihood and low non-farm employment are linked to higher fertility and low contraceptive use (Kundu et al., 2022; Tesema et al., 2022). Children can still be seen as a source of economic support, old age security and continuity of family labour in agrarian households. This perception can, however, become a vicious circle of disadvantage as larger family size can lead to even less investment in education, nutrition and health of each child. Thus, in our interpretation, high CEB among low-income and agriculture-dependent women is a sign of economic insecurity and traditional family expectations. Fertility policy should thus be connected not just to health-service delivery, but also to livelihood improvement, women's income generation and social protection. The study also revealed that low knowledge about contraceptive and no exposure to mass media were associated with higher odds of having more than

two children. The results align with the evidence from Nepal and other countries that indicate that contraceptive awareness, reproductive health service utilization, and media exposure are linked to family planning practice and fertility regulation (Angdembe et al., 2022; Das et al., 2021; Ghosh et al., 2021; Thapa, 2020). Women who are exposed to radio, television, mobile phones or other media are more likely to receive messages on family planning, birth spacing, maternal health and small family norms. But knowledge does not always lead to action, as reproductive choices are also shaped by husbands, mothers-in-law, social stigma, service access and fear of side effects. Thus, the present finding recommends that Palungatar Municipality should enhance community based reproductive counselling, couple counselling, and locally understandable media messages. Family planning programmes should not only provide information but also tackle myths, fear, male involvement and decision making barriers at the household level.

Son preference was still a strong determinant of the number of children more than two. Women reporting son preference had almost twice the odds of having more than two children compared with women without son preference. This result is similar to the previous studies conducted in Nepal, which found that son preference affects contraceptive use, parity progression, birth spacing, and desire for more children (Brunson, 2010; Paudel & Acharya, 2018; Rai et al., 2014). Sons may still be appreciated in Nepali society for lineage continuity, ritual responsibility, inheritance, and old age support. We believe this is not only a cultural problem, but a gender equity problem. Families that keep having children until a son is born are exposed to repeated pregnancy, increased health risk, and decreased autonomy. Hence, the need for changing gender norms, valuing daughters equally, awareness of property rights and social security mechanisms for parents for fertility reduction. In general, this study reveals that the factors that influence the formation of CEB in Palungatar Ward No. 5 are the interaction of age, education, poverty, early marriage, reproductive knowledge, media access, and son preference. The results indicate the importance of a comprehensive local policy that connects education, reproductive health, women empowerment, poverty alleviation and gender equality.

Strength and Limitation of the Study

The major strength of this study is the local level analysis of Palungatar Municipality Ward No. 5 which gives local level evidence on the number of children born and socio-economic condition of ever-married women. The use of bivariate and multivariable analysis further enhances the interpretation by revealing crude and adjusted associations. The study also incorporates significant socio-economic and gender factors like education, income, age at marriage, contraceptive knowledge, media exposure and son preference. The study has some limitations, however. It is a cross-sectional study, which does not allow for causal inferences between socio-economic factors and fertility outcomes. The number of children ever born was self-reported and may be subject to recall or reporting bias. The study was conducted in one ward and the results may not be applicable to the whole of Gorkha District or Nepal. Several factors were not sufficiently explored, including the attitude of the husband, women's autonomy, migration, service quality, experience of infertility, and contraceptive discontinuation. Larger samples, mixed methods and longitudinal designs should be used in future studies to gain a better understanding of the fertility decision-making process at the household and community level.

Future Research Scope

Future research can extend the study of children ever born and socio-economic conditions among ever-married women by using a larger and more diverse sample across urban, rural, and ecological regions of Nepal. The existing evidence suggests that education, age, family planning knowledge, and broader socio-economic factors are important, but more detailed regional and longitudinal analysis is needed to explain changing fertility patterns and women's reproductive choices (Adhikari et al., 2024; Mishra & Aithal, 2022).

Further studies may examine how women's employment conditions, workplace stress, income stability, and mobility influence fertility behavior and family size decisions. Such research would be valuable in linking demographic outcomes with women's labor experiences, especially in service sectors where discrimination, insecurity, and limited career mobility remain common (Adhikari et al., 2024).

Research on women workers in the hotel industry should also be expanded to compare experiences across different types of hotels, tourist centers, and employment levels. Since the study identifies low salary, insecurity, harassment, travel difficulty, and language barriers as major concerns, future research can test whether these problems vary by job category, ownership structure, or location (Adhikari et al., 2024).

Another useful direction is to explore the role of organizational policy, labor law compliance, and ethical workplace culture in reducing discrimination and improving women's professional development. This direction is consistent with the broader concern for ethical human resource practices and respectful employment relations, which can be investigated through comparative or intervention-based designs (Mishra & Aithal, 2023; Mishra, 2024).

Your recent works on recruitment, ethical capital, celebrity endorsement, and comparative assessment also open scope for interdisciplinary research on how organizational reputation, employer branding, and ethical leadership affect employee attraction, retention, and consumer trust. Future studies may connect these themes with women's workplace experiences and organizational performance in Nepal's management and service sectors (Mishra & Aithal, 2022; Mishra & Aithal, 2023; Mishra, 2024; Mishra, 2022).

A final area for future inquiry is the integration of qualitative and quantitative methods to build stronger evidence for policy and practice. Mixed-method or panel studies could examine not only the social and economic determinants of fertility and women's working conditions, but also the long-term effects of education, empowerment, and organizational support on women's well-being and family outcomes (Adhikari et al., 2024; Mishra & Aithal, 2022).

Conclusion

The findings of this study suggest that the socio-economic and demographic factors have a significant influence on the number of children born to ever-married women in Palungatar Municipality Ward No. 5, Gorkha District, Nepal. Older age, low education, low household income, early marriage, limited contraceptive knowledge, lack of mass media exposure and son preference were significantly associated with higher fertility. The results indicate that fertility behaviour is not just a reproductive decision, but also a manifestation of structural inequality, gender norms and information availability. Local policies should focus on girls' education, delayed marriage, family planning counselling, women's economic empowerment and gender-equitable community awareness.

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