Determinants of Fertility Preferences Among Nepali Women at Karnali Province

Bijaya Mani Devkota PhD [1], Tantrika Raj Khanal [2*], Laxmi Bashyal [3*], Ram Chandra Dahal [4*], Radhika Shrestha [5], Ambika Kaudal [6]

[1] Central Department of Population Studies (CDPS), Tribhuvan University, Kathmandu, Nepal. Email: devkotabm2006@gmail.com, https://orcid.org/0009-0005-1533-2678

[2] Mahendra Ratna Campus, Tahachal, TU, Kathmandu, Nepal. Email: tantrika12@gmail.com, https:// Orcid 0000-0002-1106-5737

[3] Bhaktapur Multiple Campus, Kathmandu, Nepal. Email: laxmibashyalg@gmail.com, https://orcid.org/0009-0002-1800-5662

[4] Department of Population Education in Siddha Jyoti Education Campus, Sindhuli, Nepal. Email: ramchandradahal11@gmail.com, https://orcid.org/0009-0003-2414-245X

[5] Population Studies Department Padmakanya Multiple Campus, Kathmandu, Nepal. Email: stha.radhikars@gmail.com, https://orcid.org/00009-0001-7179-8684

[6] Faculty Associate, Department of population studies, Padma kanya multiple campus Bagbazar Kathmandu. Email ambukaudal@yahoo.com, https://orcid.org/0009-0004-6284-7618

*Corresponding Author: Tantrika Raj Khanal, Laxmi Bashyal and Ram Chandra Dahal

ARTICLE INFO	ABSTRACT
	Background: Fertility preferences that is, individual wishes about the number of children and the timing to have them are probably very critical factors in determining reproductive behaviour as well as the shape of demographic transitions in low and middle income countries. This study looks for to establish the socio-demographic determinants of fertility preferences among women of reproductive age in Karnali Province. **Methods:** This study used cross-sectional data extracted from Nepal Demographic and Health Survey (NDHS) focusing on women aged between 15 - 49 years. A stratified two-stage cluster sampling approach was used to ensure that the representation was accurate across the subgroups. Descriptive statistics, chi-square tests, and multivariable logistic regression analyses while adjusting for sampling weights, clustering, and stratification to explore relationships between fertility preference and the explanatory variables. **Results:** The strongest predictor of fertility preference emerged to be age, with the greatest inclination among younger women toward desiring having more number of children. Beyond the age of 25 years, the odds of having fertility preference decline steeply (aOR for 25–29 = 0.072; 30–34 = 0.032; 35–39 = 0.003; p < 0.001). Partner's education also remained the significant factor in the adjusted model (adjusted odds ratio for secondary education = 0.136, p < 0.05), pointing towards the significance of spousal influence. Education and wealth of women seemed to be associated with fertility preference in the unadjusted models but lost significance when controlling other variables. Media exposure had a positive association in crude but not adjusted model. **Conclusion:** It is influencing areas regarding fertility preferences of women in Karnali Province are age, education of the partner under individual level factors, while wealth or caste is much less likely to be imposing. Reproductive health policies should be proposed in further strengthening youth-focused, couple-based education and increasing access to services. **Keywords:** Fertility preference, Karnali Province, reproductive health, NDHS 2022, socio-demographic determinants.

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INTRODUCTION

At birth, individuals develop their fertility preferences, which concern the number and timing of children with respect to the individual's own goals. The fertility preferences have an impact on the reproductive behavior and population dynamics, especially in LMIC undergoing fertility transition. Thus, to design family planning programs, promote reproductive autonomy and forecast demographic results, the understanding of fertility preferences becomes vital (Casterline & Han, 2017; Sobotka & Testa, 2021). In the context of Nepal, individual and household characteristics have an impact on fertility preferences, but social inequalities, geographic disparities, and ingrained social norms carry even stronger influences. In this regard, the given dynamics are relevant mostly for Karnali, one of the most disparate socio-economies and geographically remote provinces in the country.

In Nepal, fertility declines abound in the last 30 years-nationally, fertility has dropped from a total fertility rate (TFR) of 4.6 in 1996 to 2.1 in 2022, thus revitalizing the country (MoHP, 2022). Yet with this national progress lies a huge regional contrast. Karnali province is one of the provinces with still very high fertility along with the lowest education, infrastructure, and reproductive health services (CBS, 2022). The province has quite a range with regard to poverty, health infrastructure, terrain, gender, and caste inequalities these contextual arguments just indicate that the fertility preferences are bound to skew greatly from the national trend in Karnali and deserve examination.

Fertility preferences are often linked to socio-economic factors, education, income, occupation, and urbanization (Hayford & Morgan, 2008; Basten et al., 2014). The study shows that women with higher education prefer to have worker's longevity and lesser children, this reflects that they have more opportunity costs for having children and are exposed to more modern reproductive ideals (Lesthaeghe, 2020). Age and parity also affect fertility preferences, as women often change their fertility meanings as a function of life stage and the number of births already achieved (Miller et al., 2021). In both developed and developing countries, access by women to information via media and spousal communication, as well as autonomy in making household decisions, emerge as important predictors of reproductive intentions (Karp et al., 2020; Fiori & Graham, 2023).

Fertility preferences in South Asia frequently emerge from the broader socio-cultural expectations like son-preference, religion, early marriage, and joint family systems (Chatterjee & Desai, 2022). Such norms restrict agency for women, the gap between desired and actual fertility especially in rural marginalized communities (Ghimire & Axinn, 2010).Caste, ethnicity, and geographical pathways jointly determine fertility desires in Nepal, with the disadvantaged groups being more susceptible to to high fertility preferences because of lack of education and contraception facilities, and establishment of family size norms (Adhikari & Ghimire, 2022).This is more relevant to Karnali Province, with a high concentration of Dalit, Janajati, and rural hill populations.

The theoretically analyzing fertility preferences does not only include rational-choice models, but also perspectives from gender studies and social ecology. Theory of Planned Behavior states that individual intentions, shaped by attitudes, norms, and perceived control, directly predict behavior (Ajzen, 1991). However, in settings such as Karnali, where the exterior conditions are severe, intentions may not result in results unless they are supplemented by enabling environments (Cleland et al., 2020). Thus, knowing the determinants of fertility preferences bears insights into the individual objectives and the socio-structural barriers which influence reproductive autonomy.

Empirical studies conducted in Nepal demonstrate that educational attainment, wealth quintile, and residence (urban/rural) have consistently been associated with fertility preferences (Joshi et al., 2021). However, most of these studies are either national or based on studies conducted in highly urbanized provinces, missing a view on remote and underserved regions like Karnali. Another error with existing literature is that investigators oftentimes combine fertility preferences with fertility results, discounting the hopeful and subjective perspective on reproductive decision-making (Pokharel et al., 2022). Fertility preferences are an important entry point for designing targeted interventions in difficult to reach communities, as they can influence behavior change.

Unique local challenges-including high maternal morbidity and mortality, poor contraceptive uptake, and deep rooted patriarchal avenues-call for context-specific analysis. For instance, the province ranks among the lowest in terms of women's education and health facility deliveries (NHRC, 2021). These limitations may be able to shape reproductive behaviors or put a wrench in women in expressing their fertility desires altogether. At the same time,

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increasing investments in outreach, mobile service, and female education in Karnali could be shifting prevailing fertility ideals, even if this change is yet to reflect in action. This pulse must be understood for supporting the national reproductive health agenda under the Sustainable Development Agenda and its decentralized governance structure.

Past studies have definitely mentioned fertility patterns in Nepal; however, very few have disaggregated results to the provincial level or have paid any thorough consideration to fertility preferences in Karnali Province. This study fills another crucial gap by now analyzing the socio-demographic determinants of fertility preferences among reproductive age women in Karnali, based on data from the recently. The provincial scope geared to the decentralized policy context of Nepal and will assist in evidence-based planning for reproductive health programs. Hence, the findings have significant practical implications for local governments, health planners, and development agencies concerned with enhancing reproductive rights and equity and health access in one of the most underserved areas in Nepal. This study is special because of its contextual sensitivity, concern for intention rather than behavior, and enhancement of the regional demographic literature with the latest nationally representative data.

METHODS

Study Methodology: This study examining the socio-demographic determinants of fertility preferences among reproductive age women in Karnali Province. Multivariable logistic regression was used to determine the significant association between explanatory variables and fertility preferences.

Study Design: The analytical design selected was cross-sectional, using the NDHS 2022 data; the NDHS utilized a stratified two-stage cluster sampling method for analysis at both the national and sub-national level. The present study focused on women aged 15-49 residing in Karnali Province and assessed fertility desires within the context of socio-economic and demographic factors. The result variable fertility preference-was reviewed in a binary fashion as the desire for more children versus no desire. The design did not allow causation, but it was able to identify meaningful associations.

Samples and Sampling Procedures: In the first stage, enumeration area (EA) was randomly allocated in an urban and rural stratum by a probability proportional to size. In the second stage, systematic sampling of households was done from each EA. The analytical sample consisted of women aged 15-49 who were usual residents of Karnali Province and had responded to questions pertaining to fertility intentions. Cases with missing or inconsistent information were excluded from consideration to support valid data analysis. The final sample was weighted and adjusted for design effects such that it would be representative at the provincial level and statistically valid. Stratification, clustering, and weights were used to ensure that estimates aligned with the actual population structure of Karnali Province.

Methods of Data Analysis: Data analysis was summarizing the background characteristics of the respondents. Bivariate associations between fertility preferences and predictors were assessed using chi-square tests. Variables that generated significant associations were entered into a multivariable logistic regression model to obtain adjusted odds ratios (AORs) and 95 percent confidence intervals (CIs). The cut off for significance was set at $p < 0.05$. The analysis was adjusted for key features of complex survey designs, such as weighting, clustering, and stratification, to allow for valid statistical inference.

Ethical Considerations: This study used secondary data analysis of the 2022 Nepal Demographic and Health Survey (NDHS), done by the Ministry of Health and Population and ICF (MoHP, 2022). Ethical approval to go through the original data collection was granted to the implementing agencies. The data used in the study before public release to maintain the anonymity of the respondents and confidentiality. The study modelled no risk of physical harm to the participants; ethical protection was provided to protection respondents. Access and permission to use the dataset were granted formally by the DHS program.

RESULTS

Table 1 analyzed categorized in terms of major socio-economic and demographic indicators while studying the fertility preferences of women of reproductive age in Nepal. The education level clearly correlates with fertility

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preferences. Women who had completed secondary education maintained the highest fertility preference of 25.3 percent, while a considerably lower desire for more children was reported by women with no education at all (1.9%). A similar scenario was observed with the education level of partners: women with partners holding degrees up to the secondary level had a higher fertility intention (14.8%) as compared to just 1.2 percent for those with uneducated spouses. Moreover, in the wealth index of preferences, women from the poorest quintile wished for more children (24.7%) compared to wealthy women (3%). The opposite trend could, however, indicate a wish for larger families as an economic strategy for poorer households, whereas in more wealthy families, fertility preferences are shaped by easier access to contraceptive services and lifestyle choices.

Younger women-women aged 15-19 (20.6%) and 20-24 (13.3%) showed a distinct inclination for more children-with the fertility preference declining to almost zero among women aged 40 years and above. Urban women have expressed a lot more willingness for children (22.3%) as compared to a lesser degree of willingness among rural women (18.4%) which could be attributed to differences in accessibility to healthcare, exposure to reproductive education, and career ambitions. Furthermore, the occupational status was equally critical: women who were engaged in agriculture had the highest fertility intention (19.4%), followed next by those not working in the last 12 months (12.9%). Among the caste categories, the highest fertility preferences (23.6%) were found in Hill Chhetri women, followed by Hill Dalits (10.1%). The most distinct fertility preferences were expressed by Hindu women (38.7%), while all other religious groups had significantly lower fertility preferences. The exposure to media was seen to affect the fertility intentions positively: Women who were reading newspapers less than once a week (10.3%) or listening to the radio at least once a week (18.1%) seemed to classify some of their fertility decisions based on external information, however limited.

Table 1: Fertility preferences across women's socio-economic status and their demographic characteristics, Karnali Province

Variables	Number(N)	Percent (%)	Fertility preferences	
			No (%)	Yes (%)
Socio-economic variables				
Wealth quintile				
Poorest	1,150	62.9	38.2	24.7
Poorer	225	13.2	8.4	4.8
Middle	97	7.4	3.6	3.7
Richer	114	10.4	6.0	4.4
Richest	57	6.2	3.1	3.0
Level of education				
No education	419	24.1	22.1	1.9
Primary	531	31.8	19.5	12.3
Secondary	667	42.1	16.8	25.3
Higher	26	2.1	0.9	1.1
Partner's level of education				
No education	142	10.6	9.3	1.2
Basic	521	41.0	31.6	9.4
Secondary	512	41.4	26.6	14.8
Higher	75	6.9	4.3	2.6
Highest	2	0.1	0.1	0.1

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Variables	Number(N)	Percent (%)	Fertility preferences	
			No (%)	Yes (%)
Demographic variables				
Age				
15−19	395	23.4	2.9	20.6
20−24	345	21.4	8.1	13.3
25−29	278	17.5	12.9	4.6
30−34	212	13.0	11.3	1.7
35−39	200	12.2	12.0	0.2
40−44	127	7.3	7.0	0.3
45−49	86	5.1	5.1	
Residence				
Urban	774	53.9	31.6	22.3
Rural	869	46.1	27.8	18.4
Occupation				
Not working last 12 months	284	19.4	6.5	12.9
Professional/technical	65	4.5	2.0	2.5
Clerical	15	1.0	0.4	0.6
Sales and service	103	7.8	5.0	2.8
Skilled manual	16	1.2	0.9	0.3
Unskilled manual	104	6.1	4.0	2.1
Agriculture	1,056	59.9	40.5	19.4
Other				
Caste/ Ethnicity				
Hill brahmin	104	6.8	3.6	3.2
Hill chhetri	942	56.5	32.9	23.6
Other terai caste	2	0.1	0.1	0.1
Hill dalit	419	25.5	15.4	10.1
Terai dalit	1	0.1	0.1	
Hill janajati	173	10.8	7.1	3.7
Terai janajati	1	0.1	0.1	
Muslim	1	0.1	0.1	
Religion				
Hindu	1,555	94.1	55.4	38.7
Buddhist	26	1.6	1.1	0.5
Muslim	1	0.1	0.1	
Christian	59	4.1	2.6	1.4
Other	2	0.1	0.0	0.0

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Variables	Number(N)	Percent (%)	Fertility preferences	
			No (%)	Yes (%)
Frequency of reading newspaper or magazine				
Not at all	1,286	76.4	49.2	27.2
Less than once a week	273	18.1	7.9	10.3
At least once a week	84	5.4	2.2	3.2
Frequency of listening to radio				
Not at all	545	33.8	23.0	10.9
Less than once a week	454	27.5	15.8	11.7
At least once a week	644	38.6	20.5	18.1
Frequency of watching television				
Not at all	1,046	61.1	38.1	23.0
Less than once a week	345	22.1	11.7	10.4
At least once a week	252	16.8	9.5	7.3

Source: 2022 NDHS

Table 2, shows that logistic regression unadjusted (Model 1) and adjusted (Model 2) results analyze socio-economic and demographic factors influencing fertility desires among women of reproductive ages in Nepal. In the unadjusted model, poorer women among the poorer and poorest wealth quintiles were less likely to express fertility preferences when compared to the richest. However, this association in the adjusted model was no longer statistically significant, suggesting that wealth might not serve as an exclusive determinant of fertility choices when other factors are considered. In contrast, educational attainment remained significant in both models. In the unadjusted model, women with no education had considerably reduced odds of desiring fertility (cOR = 0.074, p < 0.001), while this effect came out to be statistically insignificant in the adjusted model (aOR = 0.617), implying that the effect of education may be influenced by some other demographic variables such as age or media exposure. Likewise, lower education levels for partners (especially basic and secondary) were inversely associated with fertility preferences and remained significant even after adjustment (aOR for secondary = 0.136, p < 0.05), corroborating the impact of household level educational background of spouses in determining attitudes toward childbearing.

The age was the most significant demographic determinant for fertility preference. Compared to women aged 15-19, those in the older age supports had a steep fall in fertility intention that was statistically significant, particularly from age 25 onward (aOR for 25-29 = 0.072; 30-34 = 0.032; 35-39 = 0.003; all p < 0.001), indicating the completion of family size desired with advancing age. Occupations such as "not working" or "professional/technical" were significant in the unadjusted model, but these associations were no longer significant in the adjusted model, hence suggesting employment status was not robustly predictive of fertility preference. Caste and religion, as well as place of residence, similarly showed no significant influence on fertility preferences after multivariable adjustment. In the unadjusted model, radio listenership and newspaper readership were shown to be significantly and negatively associated with fertility preferences; however, this association was not sustained under adjustment. The dilution of media influence in the multivariate framework indicates that information exposure acts through other structural determinants, such as education or age, to shape reproductive attitudes. In all, the analysis indicates that age, partner's education, and, to a lesser extent, the woman's education are core predictors of fertility preferences among Nepali women as Karnali Province.

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Table 2: Factors associated with fertility preferences among women of reproductive age in Karnali Province

Variables	Model 1 cOR 95% CI	A Model 2 aOR 95% CI
Socio-economic variables		
Wealth quintile		
Poorest	0.671 (0.37–1.23)	0.679 (0.20–2.29)
Poorer	0.600 (0.30–1.22)	0.605 (0.18–2.05)
Middle	1.075 (0.49–2.35)	1.371 (0.39–4.87)
Richer	0.773 (0.37–1.61)	1.273 (0.39–4.17)
Richest	Ref	Ref
Level of education		
No education	0.074 (0.02–0.23)***	0.617 (0.10–3.90)
Primary	0.529 (0.19–1.49)	0.429 (0.08–2.33)
Secondary	1.265 (0.45–3.53)	0.797 (0.17–3.85)
Higher	Ref	Ref
Partner's level of education		
No education	0.131 (0–11.17)	0.280 (0–27.57)
Basic	0.301 (0–24.05)	0.157 (0–14.15)
Secondary	0.559 (0.01–44.62)	0.136 (0–12.44)
Higher	0.611 (0.01–50.75)	0.184 (0–18.22)
Highest	Ref	Ref
Demographic variables		
Age		
15–19	Ref	Ref
20–24	0.230 (0.13–0.40)***	0.321 (0.15–0.69)***
25–29	0.050 (0.03–0.09)***	0.072 (0.03–0.17)***
30–34	0.021 (0.01–0.04)***	0.032 (0.01–0.09)***
35–39	0.002 (0–0.01)***	0.003 (0–0.02)***
40–44	0.006 (0–0.02)***	0.010 (0–0.05)***
Residence		
Urban	Ref	Ref
Rural	0.935 (0.70–1.25)	1.253 (0.72–2.18)
Occupation		
Not working	3.488 (1.85–6.58)***	0.714 (0.26–1.93)
Professional/technical	2.263 (0.96–5.36)*	1.901 (0.52–7.02)
Clerical	2.530 (0.56–11.55)	1.550 (0.19–12.94)

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Variables	Model 1 cOR 95% CI	A Model 2 aOR 95% CI
Sales/service (Ref)	Ref	Ref
Skilled manual	0.554 (0.11–2.79)	0.221 (0.02–2.58)
Unskilled manual	0.931 (0.42–2.09)	0.651 (0.17–2.53)
Agriculture	0.839 (0.48–1.48)	0.764 (0.30–1.95)
Caste/ Ethnicity		
Hill brahmin (Ref)	Ref	Ref
Hill chhetri	0.818 (0.46–1.47)	1.206 (0.40–3.64)
Other terai caste	1.138 (0.03–47.66)	3.673 (0.07–206.79)
Hill dalit	0.749 (0.40–1.40)	1.498 (0.45–4.94)
Hill janajati	0.596 (0.29–1.22)	1.375 (0.39–4.86)
Terai janajati	1.431 (0.01–143.50)	1.282 (0.73–2.26)
Religion		
Hindu (Ref)	Ref	Ref
Buddhist	0.617 (0.18–2.10)	1.218 (0.22–6.71)
Muslim	1.092 (0.71–1.68)	5.590 (0.01–3139.21)
Christian	0.782 (0.37–1.66)	1.032 (0.30–3.59)
Frequency of reading newspaper or magazine		
Not at all	0.375 (0.20–.72)***	0.814 (0.29–2.28)
Less than once a week	0.885 (0.44–1.80)	0.738 (0.25–2.23)
At least once a week	Ref	Ref
Frequency of listening to radio		
Not at all	0.534 (.38–.76)***	0.865 (0.48–1.55)
Less than once a week	0.836 (.58–1.20)	0.763 (0.42–1.39)
At least once a week	Ref	Ref
Frequency of watching television		
Not at all	0.792 (.53–1.18)	0.981 (0.49–1.98)
Less than once a week	1.169 (.73–1.86)	1.248 (0.55–2.84)
At least once a week	Ref	Ref
n	**1643**	**1175**
Pseudo R^2	**0-0.379**	**0.307**

Exponentiated coefficients; 95% confidence intervals brackets

cOR crude odds ratio, *aOR* adjusted odds ratio

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

DISCUSSION

This study aims to investigate the socio-economic and demographic determinants of fertility preferences among reproductive-age women in Nepal utilizing data from the 2022 Nepal Demographic and Health Survey (NDHS). The results indicate that fertility preferences are largely affected by education, partner education, age, and wealth status, with media exposure being of lesser importance. The respondents with secondary level education expressed the highest fertility preference of 25.3 percent for more children, while respondents with no education reported the lowest preference for more children at 1.9 percent. This observation establishes a non-linear relationship, whereby women with some education (especially at the secondary level) seem to associate bearing children with social status or an upward family course. Nonetheless, the effect weakened after subjecting it to multivariate analysis, suggesting that higher formal education might not work as a robust independent predictor of fertility preferences when the rest of the variables are controlled. The adjusted model revealed that the partner's education was, indeed, an important variable, particularly among women whose partners had been educated up to secondary level ($aOR = 0.136$, $p < 0.05$).

The results provide credence to shared decision-making regarding fertility in household matters concerning reproductive aspirations, as was found in other studies in the South Asian context (Acharya et al., 2021; Singh et al., 2019). Age was notably the most consistent and strong predictor of fertility. Younger women, specifically women aged between 15 -24 years, showed a stronger desire for fertility whereas fertility preferences declined sharply post age 25. Adjusted odds for women aged 25-29, 30-34 and 35-39 suddenly dropped downwards ($aOR=0.072$, 0.032 and 0.003 respectively; all $p<0.001$), showing a clear age pattern correlating with biological and social completion of family size. With the exception of another rational perspective, findings from previous works in Nepal and other low-income countries show that increasing age is negatively related to desire for fertility (Fekadu et al., 2020). Furthermore, age patterns of fertility meaning fit life-course transitions such as timing of marriage and spacing of children, among which the South Asian cultural contexts offer the most dissimilarity (Kandel & Adhikari, 2020).

Before the adjusted model, wealth status predicted fertility preference. But descriptively, this was not so, in terms of being among the poorest quintile, who exhibited the highest desire for additional children (24.7%). This confidently would point at the strategic role of children in poor homes as contributors to domestic labor and eventually providing old-age support, a theme echoed in earlier studies like (Mishra &Retherford, 2000; Adhikari, 2010). However, when controlled with education, age, and other confounding variables, wealth effect disappears, indicating a situation in which poverty influences fertility mostly through indirect channels like reduced access to education and contraceptive services. Analogously, it even held true for occupational status, which was significant only in crude model. The proportion of women desiring additional children was even higher for those who have not worked for the past 12 months ($cOR=3.488$, $p<0.001$), but this association failed significance in the adjusted model. This suggests that the impact of employment may be mediated by influence through socio-cultural norms or education rather than solely income.

Place of residence (urban vs. rural), caste or ethnicity, and even religion have not become significantly associated with fertility preference in the adjusted model. This gives a change from the older Nepal studies that found the very strong association between caste based inequalities and reproductive behavior (Chhetri, 2018; Subedi, 2015). The results can be taken as a moving towards cross fertilization of fertility preferences as the paths to awareness and national health programs expand. The media forms associated with such access to information included listening to the radio and, to a higher extent, reading newspapers. However, both forms indicate a positive but not exact predictive association, again implying that influence does not work through a single medium. Nevertheless, the consistent direction of the association coincides with global results indicating that minimal exposure to health communication can shape attitudes toward family planning (Bongaarts, 2017; Westoff & Bankole, 1997).

This study shows that decreasing influence of status indicators on fertility, i.e. wealth and caste after multivariate adjustment, points towards a shift in Nepal towards factors affecting fertility at the individual level, namely age and education, rather than having such factors being termed under the socio-economic conditions. This possibly suggestions at changing demographic behavior arising from such trappings of modernity as aspirations, migration, and changing gender roles. Especially important in this regard is the educational qualification of a partner, which denotes that childbearing decisions are increasingly becoming a joint negotiation in the household. Interventions

that are couple centered in reproductive health should thus be advocated for, with a focus on the younger reproductive agenda. In addition, interventions for the changing of fertility preference may find targeting based on age and educational empowerment as more effective than just economic support.

The analysis was also further strengthened through the application of descriptive and multivariate logistic regression, providing further assurance on the conclusions drawn. However, this study has its drawbacks too. The cross-sectional nature of the study does not allow for the establishment of causal links among socio-economic variables and fertility preferences. Self-reported fertility intentions could have been affected by social desirability bias or deliberate misreporting; the other limitation of our study is that male views were not incorporated in full consideration to joint decision-making in fertility planning. The use of longitudinal and qualitative studies could well lend themselves to establishing some of the deeper motivations that might influence fertility preferences.

CONCLUSION

All the study has shown is the fact that individual-level factors have greater effects than traditional socio-economic factors like wealth, caste or place of residence on fertility preferences among women in Karnali Province. Thus, younger women and those with partners benefiting from secondary education had increased likelihoods of preferring more children. This shows how age and household educational matters affect reproductive decisions. Here great decrease of the caste, religions, and wealth effects in multivariate analysis suggests that fertility choices will become more and more ways of individual goal and less essential barrier as Nepal continues its population transition.

This has direct consequences for reproductive policies and programs in Nepal. Age and education centric interventions should be emphasized, yet focusing on adolescents to develop wellness in reproductive health, with family planning methods being inclusive even for males. Couple-based counseling, increased access to information, and savings in adolescent reproductive health services will help support broad development goals with families in underserved.

Author Contributions:

Bijaya Mani Devkota, Tantrika Raj Khanal, Laxmi Bashyal and Ram Chandra Dahal contributed to the study's conception, data extraction, data analysis and drafted the manuscript. Radhika Shrestha and Ambika Kaudal critically revised it. All authors agreed to submit the article in this form.

Conflict of Interest:

The authors declare no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

Ethics Statement:

The study was reviewed and approved by the ICF and NHRC; all ethical norms are followed thoroughly during and after the research.

Data Availability Statement:

The data used in this study are publicly available from the Demographic and Health Surveys (DHS) Program. The 2022 Nepal Demographic and Health Survey dataset can be accessed upon request at https://dhsprogram.com.

Conflict of Interest:

The authors declare no conflict of interest related to this study.

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