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Socio-cultural factors affecting maternal health system in District Buner, Khyber Pakhtunkhwa Pakistan

Faktor sosial budaya yang memengaruhi sistem kesehatan ibu di Distrik Buner, Khyber Pakhtunkhwa Pakistan

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Abstract

The primary objective of this study was to investigate the underlying social and cultural determinants that influence the utilization of child delivery services in the Buner district, located in Khyber Pakhtunkhwa. The research focused on a specific demographic group, namely pregnant women and their husbands aged between 15 and 49 years. A sample of 200 participants was selected using a multistage sampling technique, and data was collected through structured questionnaires employing mixed methods. Data analysis was conducted using SPSS, utilizing statistical tools like frequency distribution tables for univariate analysis and the chi-square test for bivariate analysis. The study showed a strong connection between socio-cultural factors and the child delivery system, with evident implications for the maternal health framework. The results of the chi-square test highlighted the strength of this association, as the calculated value (190.627) was significantly greater than the tabulated value (9.488) at a significance level of 0.05. The research highlights the impact of socio-demographic factors, including cultural barriers, extended family structures, and economic disparities, on maternal health services and their relationship with the utilization of antenatal care services. To improve the situation, it is important to focus on improving education, raising awareness, promoting women's empowerment, addressing socioeconomic disparities, and transforming traditional beliefs prevalent within the local community.

Keywords: antenatal care; maternal healthcare; social and economic determinants

Abstrak

Tujuan utama dari penelitian ini adalah untuk menyelidiki faktor-faktor penentu sosial dan budaya yang memengaruhi pemanfaatan layanan persalinan di distrik Buner, yang terletak di Khyber Pakhtunkhwa. Penelitian tersebut difokuskan pada kelompok demografi tertentu, yaitu ibu hamil dan suaminya yang berusia antara 15 hingga 49 tahun. Sampel sebanyak 200 peserta dipilih dengan menggunakan teknik multistage sampling dan pengumpulan data dilakukan melalui kuesioner terstruktur dengan metode campuran. Analisis data dilakukan dengan menggunakan SPSS, menggunakan alat statistik seperti tabel distribusi frekuensi untuk analisis univariat dan uji chi-square untuk analisis bivariat. Studi ini menunjukkan hubungan yang kuat antara faktor sosio-kultural dan sistem persalinan, dengan implikasi nyata terhadap kerangka kesehatan ibu. Hasil uji chi-square menyoroti kekuatan hubungan ini, karena nilai hitung (190,627) lebih besar secara signifikan dibandingkan nilai tabel (9,488) pada tingkat signifikansi 0,05. Penelitian ini menyoroti dampak faktor sosio-demografis, termasuk hambatan budaya, struktur keluarga besar, dan kesenjangan ekonomi, terhadap layanan kesehatan ibu dan hubungannya dengan pemanfaatan layanan perawatan antenatal. Untuk memperbaiki situasi ini, penting untuk fokus pada peningkatan pendidikan, peningkatan kesadaran, peningkatan pemberdayaan perempuan, mengatasi kesenjangan sosial-ekonomi, dan transformasi kepercayaan tradisional yang ada di masyarakat lokal.

Kata kunci: *perawatan antenatal; kesehatan ibu; determinan sosial dan ekonomi*

Introduction

Maternal mortality is a paramount concern for both public health and global development, particularly in the context of developing nations (Paxton & Wardlaw 2012). During the Millennium Development Goals era spanning from 1990 to 2015, there was substantial progress in reducing the global maternal mortality ratio (MMR). Nonetheless, it is crucial to acknowledge that numerous low-income countries fell short of achieving the ambitious target set by Millennium Development Goal 5, which sought a 75% reduction in MMR between 1990 and 2015 (Alkema et al. 2016). In contrast to many other low and middle-income countries, Pakistan continues to grapple with a persistently high MMR, and the rate of decline has been notably sluggish (Sarfraz & Hamid 2014). This highlights the pressing need for concerted efforts to address the challenges and factors contributing to maternal mortality within the context of Pakistan.

According to the latest Pakistan Maternal Mortality Report, the maternal mortality rate in the country has witnessed a decrease over the past decade, dropping from 276 deaths per 100,000 live births to an average of 186 deaths per 100,000 live births. It is noteworthy that a higher percentage of pregnant women are now receiving medical attention, reflecting increased awareness of maternal health. However, when breaking down the maternal mortality rates by province, it becomes evident that this improvement is not uniform across the nation. Punjab boasts the lowest maternal mortality rate at 157 per 100,000 live births, followed by Khyber Pakhtunkhwa at 165, Sindh at 224, and Balochistan at 298. Azad Jammu and Kashmir exhibits the lowest maternal mortality rate worldwide, with 104 deaths, while Gilgit-Baltistan has the highest at 157 (National Institute of Population Studies (NIPS) 2020).

The data reveal that, while Punjab and Khyber Pakhtunkhwa have made strides in improving health facilities and women's access to them, resulting in a lower overall maternal mortality rate, Sindh and Balochistan still face significant challenges in enhancing and facilitating adequate service delivery. Disparities in healthcare access between urban and rural areas are also starkly reflected in the maternal mortality rate, with rural areas experiencing a 26% higher rate (199 deaths) compared to urban areas (158 deaths) (National Institute of Population Studies (NIPS) 2020). Despite the passage of years since the initiation of the Healthy Motherhood Program and the Millennium Development Goals (MDGs), Pakistan has made limited progress in achieving MDGs 4 and 5. A fundamental contributing factor is that only 39% of births are attended by professional birth attendants.

In Ethiopia, 94% of rural women give birth at home without the assistance of a qualified birth nurse, with 28% seeking antenatal care during pregnancy, and only 6% opting for healthcare facilities during childbirth. This situation predominantly affects women in rural areas with limited access to roads, reproductive health clinics, and emergency obstetric treatment. In total, untrained individuals assist in 61% of home deliveries, while 5% of women give birth alone (Tadesse et al. 2014). As a consequence of these practices, 24,000 women and girls lose their lives annually, and 480,000 are left with disabilities, including obstetric fistula, due to complications arising from poor delivery care in rural regions.

The utilization of a professional birth attendant increased significantly from 41% in 1990 to 57% in 2003, based on data from 58 countries that account for 76% of all births in the developing world. The most substantial improvements were observed in Southeast Asia, where the percentage of women with a skilled birth attendant rose from 34% in 1990 to 64% in 2003, and North Africa, where the rate increased from 41% in 1990 to 76% in 2003. Unfortunately, sub-Saharan Africa exhibited minimal change, maintaining one of the world's lowest rates at around 40% (Safer 2007). Notably, substantial variations exist within countries and between urban and rural regions, reflecting socioeconomic disparities among their populations (WHO 2005).

Several factors impact women's decision-making in seeking medical assistance during childbirth. These include inadequate transportation systems, limited healthcare facilities, a scarcity of healthcare personnel, a lack of health records, cultural values, illiteracy, gender discrimination, financial barriers, and the quality of healthcare. The decision to seek medical aid during childbirth is significantly affected by these factors, and maternal mortality is largely attributed to complications during childbirth.

In Ethiopia, only 36 out of 100 residents have access to emergency obstetric services, and just 29% of Ethiopians have access to safe motherhood facilities, with a mere 19% in rural areas and 39% in urban areas (Kagee et al. 2011). In the rural areas of Ethiopia, men typically make decisions, control land, and determine when women should seek medical attention. The educational background of the mother also plays a crucial role in determining the delay in obtaining delivery care, with mothers having higher levels of education more likely to seek help (UNICEF 2008). Traditional values in rural Ethiopian regions heavily influence women's healthcare-seeking behavior during childbirth, while lack of decision-making authority, such as the need for consent from their spouses or guardians, may hinder them from seeking medical attention (Sonderman et al. 2018).

Low household incomes, high illiteracy, lack of awareness, and various cultural factors have been reported in studies from India and Pakistan as contributing to the low utilization of maternity facilities (Shariff & Singh 2002, Shaikh & Hatcher 2005). Similarly, research in Ethiopia has revealed that women's sociodemographic characteristics, cultural background, and proximity to healthcare facilities all play pivotal roles in determining the utilization of maternal health services (Mekonnen 2003).

Pakistan continues to face challenges in reducing maternal mortality due to low rates of facility-based childbirth. In this study, we aimed to identify the factors influencing women's choices regarding the location of childbirth in Sindh Province, including social, economic, and informational factors. The overall rate of facility-based childbirth in this study was 65%, with higher rates observed in major cities (84%) compared to rural areas. This urban-rural disparity is consistent with previous research findings, demonstrating that women in urban areas are 1.5 to 4 times more likely to give birth in healthcare facilities than their rural counterparts (Nisar & Dibley 2014, Yaya et al. 2017). The advantages of urban settings in terms of higher socioeconomic status, greater availability of qualified healthcare providers (especially female doctors), improved transportation and communication, and better access to healthcare facilities all contribute to the urban-rural discrepancy in facility-based maternal healthcare services. Government investments, geographical remoteness, a lack of perceived necessity to give birth in healthcare facilities, and cultural differences further underscore the urban advantages and rural disadvantages (Shaikh & Hatcher 2007, Agha & Williams 2016).

Numerous studies have identified factors influencing maternal care and the use of safe childbirth services. It has been observed that mothers under the age of 35, those with at least a primary school education, working mothers, and urban residents are more likely to utilize safe delivery services. Additionally, mothers whose husbands have completed at least elementary school education and are employed are more likely to give birth in healthcare facilities. Economic status, cultural traditions, and living standards have also been cited as factors preventing women from accessing safe childbirth facilities (Idris et al. 2006).

Extensive research in the field of gender and health has highlighted various ways in which intra-household dynamics can impact women's reproductive rights, especially in rural Pakistan and similar contexts across the developing world. Findings from multiple settings suggest that social relationships are influenced by interpersonal and societal structures (Beegle et al. 2001, Blanc 2001), and that gender-related social and moral norms shape and are shaped by power dynamics (White et al. 2013, Lowe et al. 2016). Thus, households are of particular interest to feminists and those involved in gender as fields of economic knowledge, as both material resources and ideological aspects of gender and gender relations are embedded within them. In understanding how decision-making authority and responsibilities are distributed within households, the historical, cultural, social, and ideological concept of gender proves immensely valuable.

In light of the gendered socio-cultural influences that inhibit intra-household bargaining power and hinder maternal healthcare utilization, this study contends that gender roles and traditions within society, as well as the form of society (e.g. patriarchal or traditional), have an impact on a woman's status within the family and community. This, in turn, can prevent women from accessing healthcare. Complexities within the marital relationship can also affect resource access and allocation decisions, which ultimately affect maternal health. Additionally, factors such as economic status, traditional practices, and decision-making dynamics can impact women's health-seeking behavior during childbirth (Namasivayam et al. 2012).

These findings underscore the vital role of gender dynamics and social norms in influencing women's healthcare-seeking behavior during pregnancy and childbirth. It is imperative to consider these socio-cultural factors when examining maternal health service utilization. Across the globe, with the exception of Sub-Saharan Africa, regions are witnessing a decline in the use of traditional birth attendants (Odo & Shifti 2014). Barriers such as poor transportation infrastructure, limited healthcare facilities, a shortage of healthcare professionals, a lack of medical records, cultural beliefs, illiteracy, gender discrimination, financial constraints, and varying healthcare quality all impact women's decisions regarding seeking medical assistance during childbirth. Maternal mortality and morbidity persist as a result, making the issue a major public health concern. To address these challenges, it is essential to recognize the influence of gender norms and cultural practices and work toward improving access to safe maternity services and empowering women to make informed healthcare decisions.

Research Method

The study population consists of pregnant women and their husbands aged between 15 and 49 years. Specifically, the study targets pregnant women who have experienced traditional birthing practices and have also sought antenatal care at maternal health centers or hospitals. The research was conducted in Tehsil Gagra, District Buner, an area that, like many other districts in Pakistan, has faced longstanding challenges related to maternal and child health. Notably, Pakistan, with the highest birth rate in Asia, is the fifth most populous country globally. The National Institute of Population Studies (NIPS) (2020) reported a reduction in the national mortality ratio in Pakistan to 186 deaths per 100,000 live births, with Khyber Pakhtunkhwa recording 165 deaths per 100,000 live births. Several key demographic variables contribute to maternal health challenges in Buner, including economic disparities among households, transportation limitations, cultural barriers, low levels of awareness, restricted access to formal education, the prevalence of joint family systems, limited availability of emergency obstetric care, and inadequate medical facilities.

The study sample comprised two hundred (200) respondents selected from both rural and urban communities. Data collection was facilitated by two research assistants, one male and one female, who engaged with respondents of their respective genders. Both assistants possessed local community knowledge and fluency in the local language. A multistage sampling technique was employed to randomly select 200 males and females aged 15-49, who were individually interviewed. The sample size of two hundred was considered sufficient for the research objectives. Data were gathered from respondents at private and public sector hospitals, as well as traditional birth attendant centers.

The data collection process involved structured and unstructured questionnaires, utilizing a combination of quantitative and qualitative methods. While structured questionnaires were administered by the researcher to collect quantitative data, in-depth interviews were conducted to gather more contextually relevant information on the subject of inquiry. This approach aimed to strike a balance between quantitative and qualitative insights. Key indicators of socio-cultural factors included education levels, social and economic status, adherence to traditional or modern birthing practices, healthcare accessibility, and cultural and religious beliefs.

For data analysis, the researcher employed the latest version of the Statistical Package for Social Sciences (SPSS 26), entering both qualitative and quantitative data and assigning numerical values, such as one for male and two for female respondents. The data analysis encompassed both univariate and bivariate approaches. Univariate analysis involved the use of descriptive statistics, including frequency distribution tables and percentages, to categorize respondents based on demographic variables and economic characteristics. Bivariate analysis was conducted to examine relationships between variables, utilizing the chi-square test to test hypotheses and gauge the strength of associations between socio-cultural factors and maternal health outcomes.

Results and Discussion

The demographic factors influencing the child delivery system and maternal health services in the rural area of Khyber Pakhtunkhwa are complex and interconnected. Socio-demographic characteristics of the

study's respondents encompass a range of demographic and socioeconomic attributes of the individuals who participated in the research. These attributes include age, gender, race/ethnicity, education level, income, occupation, and geographic location. Understanding the socio-demographic profile of the respondents is essential for gaining insights into the population under study and for identifying potential biases or limitations within the research.

Table 1 presents the demographic profiles of the respondents involved in the child delivery system and maternal health system in District Buner. The table highlights that female respondents constituted 65.5% of the sample, with males making up the remaining 34.5%. In terms of age groups, the largest proportion fell within the 26-30 years' category, accounting for 46.0%, followed by the 21-25 years' group at 32.5%. The 15-20 years' category represented 10.0% of the respondents, while the 31-35 age group comprised the remaining 11.5%. Concerning marital status, the majority (86.5%) of the respondents were married, while 13.5% reported being divorced. Family structures primarily consisted of joint family setups (60.5%), with the remaining 39.5% living in nuclear families. Additionally, housing status and conditions played an important role in socio-demographic characteristics.

As indicated in the results, a substantial majority (81.0%) of the respondents had their own homes in good conditions, while the remaining (19.0%) resided in rented houses, which were also reported to be in good conditions, including semi-kacha and pakka houses. In terms of religious affiliation, 92.5% of the respondents identified as Muslim Hanafi, while the remaining 7.5% belonged to non-Muslim communities such as Hindu and Sikh. Regarding the occupational status of the respondents' husbands, 57.0% were self-employed and engaged in their own businesses, 22.5% were unemployed, and the remaining 20.5% were employed in the public sector, working as daily laborers, or held positions in the private sector. However, the majority of the respondents themselves (80.0%) identified their occupation as housewives, 4.0% worked as schoolteachers, and the remaining 16.0%) were employed in various medical professions as a source of livelihood. When it came to the educational level of the respondents' husbands, 41.0% had completed secondary to higher education, 23.5% had received primary to middle-level education, and the remaining 35.5% were reported as illiterate with no formal education related to antenatal care. Most of the female respondents (50.0%) were also illiterate and lacked formal education, while 41.0% had received primary to middle-level education, and (9.0% had attained secondary to higher education levels.

Previous research has extensively explored the impact of various cultural and social factors on the child delivery and maternal care systems in rural areas globally. Numerous studies conducted in developing countries have focused on the child delivery system and the utilization of maternal health services. These studies have consistently highlighted the significance of maternal education, age, occupation, place of residence, and economic status as crucial socio-demographic determinants affecting the utilization of maternal care, particularly safe delivery services in Ethiopia, which aligns with findings in many developing nations (Idris et al. 2006).

Furthermore, traditional cultural values and rituals prevalent in rural areas have a profound influence on the healthcare access of pregnant women. Low socioeconomic status and the prevalence of joint family systems tend to impede women's rights in these contexts. Islam, in fact, advocates for a nuclear family system, emphasizing individual autonomy and decision-making. In contrast, joint family systems limit various aspects of life, including education, health, business, and decision-making, with the head of the household typically being the sole decision-maker.

Similarly, research by Danforth et al. (2009) revealed that women in rural areas often have limited opportunities for taking sick leave due to the demanding responsibilities of childcare, livestock management, agricultural work, and cooking. This limitation persists even when pregnancy complications arise, as women frequently require their husband's permission to temporarily suspend household and farm duties due to the patriarchal structure of the family. This hierarchical structure also grants men decision-making authority regarding family matters, including resource allocation for healthcare, education, and other domestic expenses.

Table 1.
Socio-demographic characteristics of the respondents

Demographic variables		Frequency	Percentage
Gender	Male	69	34.5
	Female	131	65.5
	Total	**200**	**100.0%**
Age category	15-20	20	10.0
	21-25	65	32.5
	26-30	92	46.0
	31-35	23	11.5
	Total	**200**	**100.0%**
Marital status	Married	173	86.5
	Divorced	27	13.5
	Total	**200**	**100.0%**
Family status	Nuclear Family	79	39.5
	Joint Family	121	60.5
	Total	**200**	**100.0%**
Home status	Self-owner	162	81.0
	Rented	38	19.0
	Total	**200**	**100.0%**
Condition of home	Kacha	35	17.5
	Semi-kacha	125	62.5
	Pakka	40	20.0
	Total	**200**	**100.0%**
Religious affiliation	Muslim	185	92.5
	Non-Muslim	15	7.5
	Total	**200**	**100.0%**
Occupation of husband	Self employed	114	57.0
	Unemployed	45	22.5
	Employed	41	20.5
	Total	**200**	**100.0%**
Occupation of women	Housewife	160	80.0
	Teacher	8	4.0
	Medical Profession	32	16.0
	Total	**200**	**100.0%**
Education level of husband	Illiterate	71	35.5
	Primary-middle	47	23.5
	Secondary-Higher	82	41.0
	Total	**200**	**100.0%**
Education level of women	Illiterate	100	50.0
	Primary-middle	82	41.0
	Secondary-Higher	18	9.0
	Total	**200**	**100.0%**

Source: Primary data from the questionnaire

A related study conducted in India found that the education level of the head of the household significantly influenced the choice between public, private, or home deliveries for maternal healthcare (Thind et al. 2008). Another study from Tanzania identified key factors affecting the choice of child delivery system, including women's education, healthcare facility quality, gender of the household head, ethnicity, socioeconomic status, and sudden onset of labor (Mrisho et al. 2007). Similarly, research in Pakistan highlighted the correlation between household size, parity, educational status, the head of the family's occupation, age, gender, and marital status with maternal health system utilization (Babar et al. 2004).

This study tests two hypotheses: (1) A significant relationship exists between maternal health and female education, and (2) A significant relationship exists between maternal health and male education.

Table 2 presents the results, demonstrating the pivotal role of female education in safeguarding maternal health during pregnancy. The chi-square analysis reveals that the calculated chi-square value (Cal-X2) = 213.837a, with a degree of freedom (df) of 4, calculated using the formula (c-1) (r-1) = (3-1) (3-1) = 2x2 = 4. With a significance level of 0.05 and a tabulated value (T-X2) of 9.488, the calculated value (213.837a) significantly exceeds the tabulated value (9.488). Consequently, the null hypothesis is rejected in favor of the alternative hypothesis. These results establish a strong association between antenatal visits during pregnancy and the respondents' education level.

Table 2.
Association between antenatal visit in the pregnancy period and education level of female

		Antenatal visit in the pregnancy period			
		None	1-3	4 above	Total
Education level of the female	Illiterate	94	6	0	100
	Primary-middle	0	46	36	82
	Secondary-higher	0	0	18	18
	Total	**94**	**52**	**54**	**200**

	Chi-square tests		
	Value	Df	Asymptotic significance (2-sided)
Pearson chi-square	213.837[a]	4	.000
Likelihood ratio	265.601	4	.000
Linear-by-linear association	153.958	1	.000
N of valid cases	**200**		

2 cells (22.2%) have expected count less than 5. The minimum expected count is 4.68.

Existing literature further corroborates this finding, highlighting that higher education levels for both women and their partners are linked to greater concern for maternal health and a higher likelihood of making four to five antenatal care center visits and utilizing healthcare facilities (Simkhada et al. 2008, Joshi et al. 2014, Islam & Masud 2018). According to Agha & Williams (2016), women's education and awareness levels are closely tied to antenatal care visits in Sindh. Maternal education is a critical factor in ensuring that women are informed about their health and prioritize antenatal care (Mumtaz & Salway 2009).

Less educated or illiterate individuals tend to be less engaged with antenatal care during pregnancy compared to highly educated people. Education and awareness levels significantly impact their level of care, as education provides them with the knowledge and ability to choose appropriate antenatal care services for their health. Women's education plays a crucial role in raising awareness about antenatal care and motivating their partners regarding these issues (Cutler & Lleras-Muney 2010). The low ratio of educated females in Pakistan, especially in rural areas where only 11% have secondary or higher education, affects the living patterns of women. To enhance awareness and increase the utilization of antenatal care services among less educated women, the development and expansion of health promotion services targeted at this demographic are essential. Governmental policies promoting women's education and awareness can also have a long-term influence on the use of antenatal care services.

According to the findings in Table 3, husbands or male household members are more likely to be aware of their pregnant wives during pregnancy. The interpretation of the chi-square analysis reveals a calculated value (Cal-X2) of 190.627a and a degree of freedom (df) of 4, calculated using the formula (c-1) (r-1) = (3-1) (3-1) = 2x2 = 4. With a significance level of 0.05 and a tabulated value (T-X2) of 9.488, the calculated value (190.627a) significantly exceeds the tabulated value (9.488). Consequently, the null hypothesis is rejected in favor of the alternative hypothesis, indicating a strong relationship between antenatal visits during pregnancy and the husband's education level.

Multiple studies have consistently shown that the husband's educational level is highly correlated with appropriate antenatal care usage. Notably, in Sindh, researchers observed that a husband's education level was not significantly associated with having four or more antenatal care visits. This finding may be explained by the sociocultural concept of masculinity in Pakistan, where men are traditionally considered shameless if they express too much interest in their wife's reproductive health. This concept stems from a belief system that views pregnancy as a uniquely feminine characteristic, leading to men's exemption from involvement in their wives' reproductive health matters, including antenatal care (Joshi et al. 2014, Chama-Chiliba & Koch 2015).

In line with this cultural context, one traditional birth attendant interviewed mentioned the sacred nature of traditional birthing practices deeply rooted in cultural beliefs within the community. She explained that these customs, passed down through generations, continue to be preferred over modern healthcare

by many families. A pregnant woman, who had experienced both traditional birthing rituals and antenatal care services, emphasized the importance of adhering to cultural traditions while ensuring the health and safety of her baby.

Table 3.
Association between antenatal visit in the pregnancy period and education level of male

		Antenatal visit in the pregnancy period			
		None	1-3	4 above	Total
Education level of the male	Illiterate	71	0	0	71
	Primary-middle	23	24	0	47
	Secondary-higher	0	28	54	82
	Total	**94**	**52**	**54**	**200**

Chi-square tests

	Value	Df	Asymptotic significance (2-sided)
Pearson chi-square	190.627[a]	4	.000
Likelihood ratio	253.025	4	.000
Linear-by-linear association	150.914	1	.000
N of valid cases	**200**		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 12.22.

The current study has established a significant relationship between socio-cultural factors and knowledge about maternal health services. Mothers with a good educational background and knowledge about maternal health services were more than five times as likely to visit antenatal care facilities compared to illiterate mothers. These findings highlight the strong influence of cultural barriers, joint family systems, and poverty on maternal health services, particularly regarding antenatal care facilities. Similar research conducted in Pakistan and Kenya has also demonstrated a robust connection between socio-demographic factors and maternal health services (Van Eijk et al. 2006, Agha & Carton 2011). Additionally, a study in Bangladesh revealed that a belief in traditional healer practices was a significant factor contributing to the lack of maternal health service utilization (Chakraborty et al. 2003).

While bivariate analysis in this study has indicated a positive association between the education levels of both wives and husbands and the utilization of antenatal care services, highly educated families are more likely to use these services compared to illiterate families. The results show that educated mothers are approximately two and a half times more likely to utilize antenatal care services. It's worth noting that religious families appeared to face more constraints and were less likely to access antenatal care services. This issue appears to be related to the limited presence of female staff in maternal health centers and inadequate transportation facilities, both of which directly affect access to antenatal care services.

Conclusion

In conclusion, this study has established a significant relationship between socio-cultural factors and the maternal health system in Buner, Khyber Pakhtunkhwa, Pakistan. In the context of Pakistan, a country with the highest birth rate in Asia and the fifth-largest population globally, these findings emphasize the importance of addressing maternal health challenges, particularly in rural areas. The study has highlighted the significance of antenatal care (ANC) services and the need for tailored attention to the unique requirements of rural areas within District Buner. The research has underlined the positive relationship between socio-cultural factors and child delivery systems, which, in turn, affect maternal health outcomes. Indicators such as maternal mortality rates, utilization of prenatal care, education levels, socioeconomic status, traditional versus modern birthing practices, access to healthcare, and cultural and religious beliefs have all been shown to impact maternal health significantly. Among these factors, socio-demographic elements, including cultural barriers, joint family systems, and poverty, stand out as influential determinants affecting maternal health services and the utilization of antenatal care. The chi-square test results further highlight the strong relationship between socio-cultural factors and the child delivery system, demonstrating the far-reaching implications of these elements on maternal health.

This research has also extracted the central role of education and empowerment of women, socioeconomic development, and transformations in traditional mindsets within the population as vital indicators for improving maternal health outcomes. The qualitative data, in line with the quantitative findings, highlight the pervasive impact of socio-cultural factors on the maternal health system in District Buner. In light of these findings, this study stresses the importance of targeted efforts to enhance antenatal care in rural areas. It is essential to address issues such as low education levels, poor transportation, poor economic conditions, and a lack of awareness, all of which contribute to adverse maternal health outcomes. The recommendations derived from this study include initiatives to increase awareness, enhance economic status, and empower women to ultimately enhance maternal health outcomes within District Buner. Furthermore, the research suggests that improving the quality of antenatal care services can be achieved through socioeconomic stability, women's empowerment, and development modifications in the traditional mindset of the population.

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