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DETERMINANTS OF FERTILITY INTENTIONS AMONG EVER-MARRIED WOMEN IN PAKISTAN: IMPLICATIONS FOR POPULATION GROWTH AND FAMILY PLANNING POLICIES

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ABSTRACT

This study investigates the factors influencing fertility intentions among ever-married women in Pakistan, utilizing data from the Pakistan Demographic and Health Survey (PDHS) 2017-2018. The analysis focuses on a cross-sectional sample of women aged 15-49 from five regions: Punjab, Sindh, Khyber Pakhtunkhwa, Balochistan, and Islamabad. A binary logistic regression model is employed to explore the determinants of fertility intentions, considering both socio-economic and biological factors. The findings reveal that the number of surviving children, age at marriage, and contraceptive use are significant predictors of a woman's desire to limit family size. Women in the middle and late reproductive age groups show varying levels of fertility intentions, with older women less likely to desire additional children. Additionally, urban women, those with higher education, and current contraceptive users are more inclined to limit their fertility. However, regional differences persist, with women in Islamabad more likely to limit their fertility compared to those in other regions. The study underscores the need for targeted family planning services, particularly in high-fertility areas, and highlights the importance of addressing social and economic disparities to achieve a broader decline in fertility rates across Pakistan. The findings suggest that while some progress has been made, significant challenges remain in ensuring that all women have the resources and support necessary to make informed decisions about their fertility, which is crucial for both individual well-being and broader socio-economic development.

Key Words: PDHS, Regions, Fertility Intentions, Dummy Variable, Logistic Regression, Contraception

INTRODUCTION

In 1951, Pakistan was ranked 14th among the world's most populous countries (Afzal, 2009). However, as of August 5, 2023, the Council of Common Interest (CCI) projected Pakistan's population at 241.49 million, placing it as the 5th most populous country globally out of 235 countries and territories (Pakistan Bureau of Statistics, 2023). The population growth rate in Pakistan was approximately 2.55 percent in 2023, driven by several factors including births, deaths, migration, and critical social elements such as education, child marriage, contraceptive use, and religion (Nasir, 2024). Educated couples tend to have fewer children, whereas individuals with stronger religious convictions often desire larger families (Edgell, 2006).

The slow decline in the crude birth rate, from 45 per thousand in 1960 to 26.04 per thousand in 2023, coupled with a low mortality rate, has significantly influenced Pakistan's population dynamics (Idris, 2023). Over the past six decades, both birth and death rates have declined, but the reduction in mortality has been more pronounced (Pakistan Bureau of Statistics, 2023).

Advancements in healthcare have decreased the death rate from 24 per thousand in the 1950s to 6.7 per thousand in 2023, yet the birth rate has shown minimal change, especially before the 1990s (Sanders, 2023). The infant mortality rate

has also significantly improved, dropping from around 150 in 1947 to 55.7 in 2022-23, according to the Pakistan Demographic & Health Survey (PDHS). Despite these improvements, the persistent high fertility rates, well above the replacement level of 2.1%, continue to challenge the country's demographic balance (Pakistan Bureau of Statistics, 2023).

Pakistan's fertility rate stood at 3.2% in 2022-23, a modest decline from 7.0% in 1965, yet still significantly higher than neighboring countries like India and Iran, where the total fertility rate has reached the ideal replacement level of 2.1%. The slow progress in reducing fertility rates in Pakistan can be attributed to several factors, including declining mortality rates, underutilization of contraception, deficits in female education, environmental degradation, and the impacts of conflicts, disasters, and pandemics. Additionally, cultural preferences for male children and concerns about security in old age contribute to the slow reduction in fertility rates.

High fertility, low mortality, and significant rural-urban migration are key drivers of overpopulation in Pakistan. The urban population, which was about 20 percent in 1955, has increased to 37.7 percent in 2022-23 due to agricultural modernization and industrial development in urban areas. This rural-urban migration has placed immense pressure on major cities, leading to overcrowded and under-resourced urban environments. Cities like Karachi, Lahore, Faisalabad, Rawalpindi, and others bear the brunt of this population shift, with Karachi alone accounting for 21 percent of the urban population.

According to the United Nations Development Program, Pakistan has the highest rate of urbanization in South Asia, with 36.4% of its population residing in urban areas, a figure expected to approach 50% by 2025. Crude birth rates in Pakistan, which remain high by international standards, further exacerbate these demographic challenges. In 1950, Pakistan was ranked 14th globally in population size, but by 2022-23, it had risen to the 4th or 5th position. Projections by the United Nations suggest that by 2050, Pakistan's population could exceed 380 million, surpassing countries like the United States, Indonesia, Brazil, and Russia to become the world's third-largest country after India and China.

The distribution of rural and urban populations, particularly in developing countries, is critical for development planning. The expansion of economic development has triggered massive rural-urban migrations, particularly due to better job opportunities in urban areas. However, in a country like Pakistan, where 70 percent of the population is directly or indirectly dependent on agriculture, such migrations can harm the economy. The neglect of the agricultural sector can lead to unsustainable conditions, affecting the overall economic stability. Moreover, the overpopulation and congestion of urban areas present additional challenges.

To mitigate these issues, it is essential to enhance rural infrastructure by constructing more roads connecting villages to cities, encouraging the development of small-scale industries, and improving education and healthcare services in rural areas. This will help ensure that rural populations can also benefit from economic development, thereby reducing the pressure on urban areas and contributing to a more balanced demographic distribution.

This study aims to examine factors of desired fertility intentions at regional level of ever married women in Pakistan from Pakistan Demographic & Health Survey PDHS (2017-2018).

Carlsson (1966) presented two pivotal models of fertility transition: the "Innovation Theory" and the "Adjustment Theory." The Innovation Theory emphasizes the dissemination of birth control methods like contraception, which spreads gradually from urban to rural areas and from the middle class to the lower class. In contrast, the Adjustment Theory suggests that fertility decisions are driven by human motivation, personal desires, values, and the information obtained from both government sources and informal networks such as newspapers, friends, and neighbors. The foundational work on fertility transitions began with Malthus's "Essay on the Principles of Population," and later, Thompson's (1929) research, which argued that the migration of rural populations to urban areas—where lifestyle differences between agrarian and industrial societies become apparent—was key to reducing both fertility and mortality rates.

Easterlin (1975, 1978) critiqued the Becker model by categorizing the determinants of fertility into supply-related factors (both natural and potential). He suggested that natural fertility is influenced by biological and cultural factors, while demand is shaped by socioeconomic and environmental influences. Motivation, which is crucial for fertility regulation, arises when the expected productivity of children exceeds demand. Butzig et al. (1988) analyzed time-series data on the total fertility rate in the USA and found that the relationship between fertility and women's labor force participation shifted from negative to positive as income levels increased. Their study highlighted that at higher income levels, the income effect outweighed the substitution effect, altering fertility behavior.

Further research by Ahn et al. (1998) using panel data from European countries between 1970 and 1997 found that the negative relationship between female labor force participation and fertility persisted until 1980, after which the relationship became positive due to more flexible working hours, improved childcare facilities, and rising unemployment. Similarly, Sathar (1984) found a positive correlation between the average age at marriage and educational attainment in Pakistan, noting that illiterate women tend to marry earlier than those with secondary or higher education. Aziz (1994) employed the Bongaarts model (1978) to decompose the total fertility rate in Pakistan from 1974 to 1993, revealing that the index of lactation infecundability had the strongest impact on fertility during this period.

Javaria et al. (2019) investigated fertility differentials across districts in Punjab, Pakistan, using data from the Multiple Indicator Cluster Survey (2013-2014). Their findings indicated that child mortality and contraceptive use were significant determinants of fertility, with child mortality positively correlated and contraceptive use negatively correlated with fertility rates. Ozbay (2020) examined the long-term relationship between economic and institutional variables and fertility rates in Turkey using the ARDL cointegration technique. The study found that per capita income and government expenditure were negatively associated with fertility, while democracy had a positive association.

Lee (2020) analyzed panel data from 43 countries between 1900 and 2010, finding that fertility rates increase with infant mortality and natural disasters but decrease with higher educational attainment and political development. The study also highlighted that women's educational attainment at the primary and secondary levels significantly reduces fertility rates. Lal et al. (2021) conducted a macro analysis of fertility in six Pacific Island countries, revealing that variables such as contraceptive prevalence, female labor force participation, and the consumer price index were negatively correlated with fertility, while real GDP had an insignificant effect. Rico (2021) explored the socioeconomic factors influencing cumulative fertility in Ghana, finding that educational attainment, household wealth, employment, and marital status were significant determinants. Lastly, Lubna et al. (2023) evaluated direct and indirect methods of fertility estimation in Pakistan, discovering that total fertility rates were consistently higher than direct estimates, with the gap narrowing as women aged.

Methods and Materials

To investigate the factors influencing fertility intentions among ever-married women in Pakistan at the regional level, data from the 2017-2018 Pakistan Demographic and Health Survey (PDHS) was utilized. This survey is the fourth iteration conducted in Pakistan as part of the Global Demographic and Health Survey (DHS) program, carried out by the National Institute of Population Studies (NIPS) in collaboration with Pakistan's Planning and Development Division in Islamabad. The survey aims to provide up-to-date estimates of key demographic and health indicators, offering a comprehensive overview of population, maternal, and child health issues in Pakistan.

A sample of 13,118 women was selected for the survey, and interviews were conducted with 12,364 ever-married women aged 15-49, representing five regions: Punjab, Sindh, Balochistan, Khyber Pakhtunkhwa (KPK), and Islamabad Capital Territory (ICT). The regions of Gilgit-Baltistan (GB) and Azad Jammu & Kashmir (AJK) were excluded from the survey. This analysis focuses solely on women to examine their fertility intentions, specifically the

intention to have additional children. To analyze these intentions, both multivariate and bivariate analyses were performed using a logistic regression model.

The data collected through PDHS is intended to support policymakers and program managers at the federal and provincial levels, as well as the private sector and international organizations, in designing policies aimed at improving health and providing information on indicators relevant to the Sustainable Development Goals (SDGs).

Modeling

To investigate the factors influencing desired fertility intentions, a selected sample of ever-married women was asked if they wished to have more children. The responses to this question were derived from the 2017-2018 Pakistan Demographic and Health Survey (PDHS).

In the 2017-2018 PDHS, participants were asked, "Would you like to have (a/another) child, or would you prefer not to have any (more) children?" A dummy variable was created based on the responses of the married women. Women who expressed a desire for more children were coded as 0, while those who wanted to limit their family size were coded as 1. Women who were sterilized, declared infecund, or were undecided were excluded from the analysis to avoid bias, resulting in a final sample of 12,364 women (300 sterilized and undecided women were excluded).

Given that the dependent variable is a binary classification, a binary logistic regression model was employed to explore the determinants of desired fertility intentions. The model is represented as:

$$Pi\ 1-Pi = e\ B0+B1\ X1+BP\ XP$$

Where Pi is the fraction of individuals with a optimistic event. B explains model's parameters while X represents explanatory variables. The logistic regression model is useful for predicting the presence or absence of an outcome based on predictor variables and also explains the magnitude of relationships among these variables.

In this study, the social and economic determinants considered include women's education, region, place of residence, wealth index, access to media, a woman's occupation, and decision-making autonomy at the time of the survey. The biological factors include a woman's age, child loss experience, the number of surviving children, current and past contraceptive use, and the age at first marriage ("Rukhsati," which in Pakistan is closely associated with the bride's departure from her family home to her husband's home, signifying the start of marital life). Some variables were recoded from their original forms as provided in the PDHS data to align with the objectives of the present study.

Results: Determinants of Fertility Intentions at National Level:

This study examines the factors influencing the fertility intentions of women across five regions of Pakistan: Punjab, Sindh, Khyber Pakhtunkwa, Baluchistan, and Islamabad, using a cross-sectional analysis. Cross-sectional analysis is particularly valuable as it allows for a broader investigation of various characteristics compared to time series analysis.

To analyze the data, women were divided into three age cohorts: Early (15-24), Middle (25-34), and Late (35-49). Grouping women by age cohorts increases homogeneity, as women in each group are likely to have experienced similar cultural, economic, and social conditions. This approach enhances the accuracy of the results, as each group reflects distinct life stages and reproductive intentions.

The logistic regression model results indicate that the number of current children, age at marriage, and contraceptive use are significant factors influencing fertility intentions, specifically the desire to have more children. The study categorizes the factors influencing fertility intentions, using the first category as a reference for comparison.

As shown in Table 1, women in the Middle age group (25-34) are 10 percent more likely to limit their fertility, while those in the late reproductive age group (35-49) are 20 percent less likely to intend to limit their fertility. This is likely because older women aim to complete their desired family size before reaching the end of their childbearing years, typically around age 49 in Pakistan. Previous research has demonstrated that the desired family size is positively associated with both parity and period; older women and those with more children generally express a stronger

desire for larger families, as noted by Lightbourne and MacDonald (1984) and the UN Report (1989). Ayebale Lillian (2012) also found that increasing maternal age is associated with greater fertility preferences.

When using Punjab as the reference region, given that the majority of the sample (3,400) is drawn from there, similar patterns emerge across Pakistan, except in Islamabad, where the intention to limit fertility is significantly higher by 15 percent. This difference may be due to Islamabad's status as the capital city. In contrast, women in other regions, except Islamabad, generally desire larger families, as having many children is seen as a source of blessing and prestige, allowing for more significant participation in social events such as weddings and funerals.

Urban women are 10 percent more likely to limit their fertility than their rural counterparts, suggesting a potential future decline in urban fertility. Women with primary and secondary education tend to limit their fertility by 2 percent and 1 percent, respectively, as they marry younger and have a longer reproductive window. Conversely, women with higher education are 20 percent less likely to limit their fertility, as they tend to marry later, leaving them with less time for childbearing. Women with one child are 20 percent less likely to desire reduced fertility, while those with four or more surviving children are 15 percent more likely to intend to limit their family size compared to those with no children.

Access to media also influences fertility intentions, with women exposed to media being 10 percent more likely to limit their fertility due to increased awareness of family planning. Current contraceptive users are found to limit their fertility by 34 percent compared to non-users. Additionally, women who married after the age of 18 are 17 percent more likely to intend to limit their fertility.

Although the study found no significant relationship between decision-making autonomy and fertility rates, a slight negative correlation exists between fertility intentions and women's decision-making autonomy. Despite having high autonomy, women in Pakistan may not intend to limit their fertility, as children are often viewed as assets, sources of pride, and security, particularly in rural settings. Women with more children are often seen as more secure within their in-laws' families.

Table-1 Logistic regression multivariate results predicting determinants of intentions to limit additional children among ever married women: PDHS(2017-18).

	2017-2018		
Variables	B	SE	Exp (β)
WOMEN's AGE			
15-24(ref)			1.00
25-34	0.076	0.088	1.10
35-49	-0.362	0.343	0.80
REGIONS			
Punjab (ref)			1.00
Sindh	-0.332	0.550	0.76
KPK	-0.055	0.085	0.80
Baluchistan	-0.120	0.099	0.50
Islamabad	0.350	0.234	1.15
PLACE OF RESIDENCE			
Rural (Ref)			1.00
Urban	0.045	0.556	1.10
WOMEN'S EDUCATION			
Illiterate (Ref)			1.00
Primary	0.065	0.070	1.02
Secondary	-0.250	0.055	0.01

Higher	-0.170	0.098	0.80
NUMBER OF CURRENT CHILDREN			
No child(ref)			1.00
One child	-0.055	0.184	0.80
Two children	-0.067	0.099	0.91
Four and more children	-0.066	0.072	1.15
ACCESS TO MEDIA			
No Access (Ref)			1.00
Infrequent	0.066	0.053	0.70
Frequent	0.099	0.073	1.10
WEALTH INDEX			
Poorest(ref)			1.00
Poor	0.088	0.066	0.50
Medium	0.999	0.778	0.80
Rich	0.155	0.088	1.10
Richest	0.053	0.100	1.25
CONTRACEPTIVE USE			
Never use			1.00
Ever use	0.002	0.047	1.34
AGE AT FIRST MARRIAGE(Rukhsati)			
Before 18 years			1.00
18 and more	- 0.100	0.055	1.17
WOMEN'S DECISION-MAKING AUTONOMY			
Low (ref)			1.00
Medium	-0.666	0.055	0.94
High	-0.088	0.777	0.91
Intercept	-0.100	0.120	0.95
Number of cases	12,64		

SOURCE: AUTHOR'S CREATION FROM PDHS (2017-18).

Discussion

The present study aimed to explore the determinants of fertility intentions among ever-married women in Pakistan, utilizing data from the Pakistan Demographic and Health Survey (PDHS) 2017-2018. The findings provide valuable insights into how various socio-demographic and biological factors influence women's desire to have additional children across different regions and age groups in Pakistan.

Age and Fertility Intentions

The analysis revealed that age is a significant factor in shaping fertility intentions. Women in the middle age group (25-34) were found to be 10% more likely to limit their fertility compared to the younger cohort (15-24). In contrast, women in the late reproductive age group (35-49) were 20% less likely to intend to limit their fertility. This is consistent with previous research by Lightbourne and MacDonald (1984) and the UN Report of 1989, which suggested that older women, particularly those with more children, are more inclined to desire larger families. The results align with the cultural context in Pakistan, where there is a strong preference for completing family size before the natural decline in fertility that typically occurs by the age of 49. Similar findings were observed by Ayebale Lillian (2012), who noted that increasing age is associated with an increased preference for more children.

Regional Differences

The study also highlighted significant regional variations in fertility intentions. Punjab was taken as the reference region due to the larger sample size drawn from this area. Women in Islamabad exhibited a significantly higher intention to limit fertility (15%) compared to other regions. This

could be attributed to the urbanized and capital city context, where access to family planning services and awareness of reproductive health is more prevalent. On the other hand, women in other regions, including Sindh, KPK, and Baluchistan, demonstrated a stronger desire to have more children, reflecting the cultural norm where larger families are seen as a source of pride and social security. These findings echo those of previous studies that emphasized the regional disparities in fertility behavior across Pakistan, often driven by differences in socio-economic development, educational attainment, and access to healthcare services.

Place of Residence

Urban-rural differences in fertility intentions were also evident in the study. Urban women were found to be 10% more likely to limit their fertility compared to their rural counterparts. This finding is consistent with the literature that suggests urbanization is associated with lower fertility rates due to better access to education, healthcare, and family planning services. The trend observed in this study suggests that if current patterns hold, urban areas in Pakistan may experience a continued decline in fertility rates, a phenomenon that has been observed globally in many developing countries.

Education and Fertility Intentions

The role of education in shaping fertility intentions was particularly noteworthy. Women with primary and secondary education were slightly more likely to limit their fertility (2% and 1% respectively) compared to illiterate women. However, women with higher education were found to be 20% less likely to limit their fertility. This somewhat counterintuitive finding may be explained by the fact that highly educated women in Pakistan tend to marry later, thus having a shorter reproductive window, which could lead to a more concentrated effort to achieve their desired family size within a limited timeframe. This result contrasts with some global studies that typically find higher education to be associated with lower fertility intentions. However, it aligns with the specific socio-cultural context of Pakistan, where marriage and childbearing are often closely linked, and delaying marriage does not necessarily correlate with a desire for fewer children.

Media Access and Fertility Intentions

Access to media was found to have a significant impact on fertility intentions, with women who had media access being 10% more likely to limit their fertility. This suggests that exposure to family planning messages and reproductive health information through media can play a crucial role in shaping fertility behavior. These findings are consistent with the broader literature on the impact of mass media on fertility intentions, which has demonstrated that media exposure is often associated with increased knowledge and use of contraception, leading to lower fertility rates.

Contraceptive Use and Fertility Intentions

Current contraceptive use emerged as one of the strongest predictors of fertility intentions, with users being 34% more likely to intend to limit their fertility compared to non-users. This finding is consistent with the well-established role of contraception in family planning and fertility regulation. The significant impact of contraceptive use on fertility intentions underscores the importance of enhancing access to and education about contraceptive methods in Pakistan, particularly in rural areas where use remains relatively low.

Age at Marriage and Fertility Intentions

Women who married after the age of 18 were found to be 17% more likely to limit their fertility. This finding aligns with previous studies that have shown a negative correlation between the age at marriage and fertility rates. Delayed marriage often leads to a shorter reproductive window, which may influence women to limit the number of children they desire.

Decision-Making Autonomy and Fertility Intentions

Interestingly, the study found no strong relationship between women's decision-making autonomy and their fertility intentions, although a slight negative correlation was observed. This may reflect the complex dynamics of gender roles and family structures in Pakistan, where, despite having autonomy in decision-making, women

may still adhere to traditional norms that prioritize larger families as a source of social security and prestige. This finding suggests that increasing women's autonomy alone may not be sufficient to influence fertility behavior without addressing the underlying socio-cultural norms that value larger families.

The results of this study provide important insights into the various factors that influence fertility intentions among ever-married women in Pakistan. The findings suggest that while age, region, education, media access, contraceptive use, and age at marriage all play significant roles, the cultural context in Pakistan, which values larger families, continues to exert a strong influence on fertility behavior. These results have important implications for policymakers and program managers aiming to design effective family planning and reproductive health initiatives in Pakistan. To achieve the Sustainable Development Goals (SDGs) related to maternal and child health, it is essential to consider these socio-cultural factors and tailor interventions accordingly.

Recommendations, Policy Implications, and Future Directions

Recommendations

Based on the findings of this study, several key recommendations can be made to improve family planning and reproductive health outcomes among ever-married women in Pakistan:

1. **Enhance Access to Family Planning Services:** Given the significant impact of contraceptive use on fertility intentions, it is crucial to improve access to a variety of contraceptive methods, particularly in rural areas where usage remains low. Efforts should be made to ensure that women have access to affordable and high-quality family planning services.

2. **Promote Education and Awareness Campaigns:** The study underscores the importance of education and media access in shaping fertility intentions. Comprehensive awareness campaigns should be launched to educate women, especially in rural areas, about the benefits of family planning, the importance of spacing children, and the health risks associated with high fertility rates.

3. **Support for Later Marriages:** The finding that women who marry later are more likely to limit their fertility suggests that promoting later marriages could be an effective strategy to reduce fertility rates. Policies and programs that encourage girls' education and delay the age of marriage should be prioritized.

4. **Tailored Regional Strategies:** The study revealed significant regional differences in fertility intentions, indicating that a one-size-fits-all approach may not be effective. Regional-specific strategies should be developed, taking into account the cultural, social, and economic contexts of each region. For instance, in urban areas like Islamabad, where the intention to limit fertility is higher, programs should focus on maintaining and enhancing these trends, while in rural areas, efforts should be geared towards shifting norms towards smaller family sizes.

5. **Strengthening Media Outreach:** Given that media access was associated with higher intentions to limit fertility, it is important to leverage media platforms to disseminate family planning information widely. Television, radio, and social media campaigns should be intensified, particularly targeting regions with high fertility rates and limited access to information.

6. **Empower Women through Decision-Making Autonomy:** While the study found only a slight correlation between decision-making autonomy and fertility intentions, it is important to continue efforts to empower women. Programs that enhance women's autonomy in family and reproductive decisions, coupled with education and community engagement, can gradually shift cultural norms towards smaller family sizes.

Policy Implications

The findings of this study have several implications for policymakers in Pakistan:

1. **Integration of Family Planning into Primary Healthcare:** Policymakers should integrate family planning services into the broader primary healthcare system to ensure that

these services are accessible to all women, particularly in underserved regions. This could involve training healthcare providers, ensuring the availability of contraceptive supplies, and offering counseling services as part of routine healthcare visits.

2. **Educational Reforms and Marriage Laws**: The government should implement educational reforms that promote secondary and higher education for girls, which has been shown to influence fertility intentions. Additionally, revising marriage laws to enforce a minimum legal age for marriage could help in delaying marriages, thus contributing to lower fertility rates.

3. **Addressing Regional Disparities**: The study highlights the need for region-specific policies. The government should allocate resources and design programs tailored to the unique demographic and cultural characteristics of each region. For example, in regions like Punjab and Sindh, where the desire for large families remains strong, policies should focus on shifting societal norms towards smaller families.

4. **Promoting Gender Equality**: To achieve sustainable changes in fertility behavior, it is important to address gender inequalities that limit women's decision-making autonomy. Policies aimed at improving women's access to education, employment, and healthcare, as well as laws protecting women's rights, can create an environment where women are better able to make informed decisions about their reproductive health.

5. **Media and Communication Policies**: Government policies should support the expansion of family planning messages through media channels. Partnerships with media outlets can be established to ensure that family planning information is regularly broadcasted, reaching a wide audience, particularly in rural and remote areas.

Future Directions

While this study provides valuable insights, there are several areas where further research is needed:

1. **Longitudinal Studies**: Future research should focus on longitudinal studies that track changes in fertility intentions and behavior over time. Such studies would provide a deeper understanding of how socio-economic changes, policy interventions, and cultural shifts impact fertility decisions.

2. **In-Depth Regional Analysis**: There is a need for more detailed regional studies that explore the specific factors influencing fertility intentions in different parts of Pakistan. Such studies could investigate the role of cultural, economic, and environmental factors in shaping reproductive behavior.

3. **Impact of Education and Economic Empowerment Programs**: Research should be conducted to assess the long-term impact of educational and economic empowerment programs on women's fertility intentions. Understanding the effectiveness of these interventions can guide future policy development.

4. **Exploring Male Perspectives**: Since fertility decisions often involve both partners, future studies should also consider the role of men in fertility intentions. Research that includes male perspectives could provide a more comprehensive understanding of the dynamics influencing reproductive decisions.

5. **Investigation of Social Media Influence**: With the growing influence of social media, future research could explore how social media platforms shape fertility intentions and reproductive health behaviors, particularly among younger women.

6. **Examination of Policy Implementation**: Further studies are needed to evaluate the effectiveness of existing family planning policies and programs in Pakistan. Understanding the barriers and facilitators to successful policy

implementation can help refine strategies to achieve better outcomes.

By addressing these areas, future research can contribute to a more nuanced understanding of fertility behavior in Pakistan and support the development of more effective policies and programs that promote sustainable population growth and improve maternal and child health.

Conclusion

Fertility, while a deeply personal choice, has profound social and economic implications, making it a critical issue for policymakers in Pakistan. The country's fertility rate has seen a limited decline, primarily among a select group of women who are well-educated, employed, and tend to marry later. However, this decline is not uniform across the population. Fertility remains relatively high among middle-aged and older women compared to their younger counterparts. Additionally, while urban women exhibit a strong desire to limit family size, actual fertility rates are higher in urban areas than in rural ones, indicating a gap between intentions and outcomes.

The persistent high fertility rates in certain regions highlight the need for targeted family planning services. As shown by previous research, increasing access to family planning by even a modest amount can significantly reduce fertility rates. The findings of this study suggest that a comprehensive approach, which integrates demographic, social, and economic factors, is essential for achieving a substantial decline in fertility rates across Pakistan.

To address the challenges of uncontrolled fertility and improve the status of women in Pakistan, policymakers must consider the various factors influencing fertility intentions. By enhancing education, employment opportunities, and access to family planning services, particularly in high-fertility regions, it is possible to foster a more widespread and sustainable fertility transition. However, economic development alone will not suffice; there must be concurrent changes in social structures to achieve long-term reductions in fertility rates.

In conclusion, the path to declining fertility in Pakistan requires a multifaceted approach that addresses the diverse and complex factors at play. Only through coordinated efforts across demographic, social, and economic systems can the country achieve meaningful progress in controlling population growth and enhancing the well-being of its women.

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