Effect of Gender Composition on Modern Contraceptive Uptake Among Married Women of Reproductive Age in Pakistan: A Facility-Based Cross-Sectional Study

Muhammad Ishaque *, Jack Hazerjian , Mohamad Ibrahim Brooks , Madiha Latif , Maisam Ali

Posted Date: 24 October 2024

doi: 10.20944/preprints202410.1871.v1

Keywords: Gender norms; modern contraceptive uptake; family planning; reproductive health; Pakistan

 doi:10.20944/preprints202410.1871.v1

Article

Effect of Gender Composition on Modern Contraceptive Uptake Among Married Women of Reproductive Age in Pakistan: A Facility-Based Cross-Sectional Study

Muhammad Ishaque [1,*], Jack Hazerjian [2,†], Mohamad Ibrahim Brooks [2,‡], Tabinda Sarosh [2,‡], Madiha Latif [1,‡] and Maisam Ali [1,†]

[1] Pathfinder International, Pakistan
[2] Pathfinder International, USA
* Correspondence: mishaque@pathfinder.org
† These authors contributed equally to this work.
‡ These authors reviewed the manuscript and provided technical input.

Abstract: Introduction: Pakistan is confronted with a formidable challenge of high population growth, compounded by cultural norms that prioritize male offspring, leading to adverse implications for family planning (FP) efforts and demographic trends. Despite efforts to promote contraception, including a national family planning program, Pakistan continues to struggle with low and stagnant contraceptive prevalence rates and high unmet contraceptive needs among married women. The influence of gender composition on modern contraceptive uptake remains underexplored, necessitating research to elucidate its impact on reproductive behavior. **Materials and methods:** This study was based on a secondary analysis of a facility-based cross-sectional survey conducted in six districts of Sindh and Punjab provinces in Pakistan. A subset of 495 married women of reproductive age (MWRA) seeking health services from March to June 2019 was used for this study. Logistic regression analysis was employed to examine the association between the gender composition of children and MWRA's modern contraceptive uptake, adjusting for covariates such as province, age of women, and health facility type. **Results:** The analysis revealed a significant association between the gender composition of children and modern contraceptive uptake among MWRA. As the number of daughters increased without sons, the likelihood of contraceptive uptake remained low (Adjusted odds ratio [AOR]: 0.12; 95% CI: 0.04–0.34, $p < 0.000$), while having at least one son substantially increased the odds of contraceptive use (AOR: 19.91; 95% CI: 8.00–49.50, $p < 0.000$). Notably, the gender composition of one daughter with two sons emerged as the most preferred gender composition, because the odds of contraceptive uptake were significantly increased. **Discussion:** The findings highlight the pervasive influence of gender composition on reproductive decision-making in Pakistan, with a clear preference for sons driving modern contraceptive behavior among MWRA. These results underscore the need for targeted interventions to address gender norms and biases while promoting equitable access to FP services. Engaging men in FP initiatives is crucial for challenging traditional gender norms and fostering informed decision-making regarding contraception. **Conclusion:** Gender preference influences modern contraceptive uptake among MWRA in Pakistan, with a strong preference for sons driving reproductive behavior. Addressing gender norms and biases while promoting informed choice is essential for enhancing modern contraceptive uptake and achieving sustainable population growth. Targeted interventions, including male engagement strategies, are needed to challenge societal gender norms and empower individuals to make autonomous decisions regarding family planning.

Keywords: gender norms; modern contraceptive uptake; family planning; reproductive health; Pakistan

 doi:10.20944/preprints202410.1871.v1

Introduction

Pakistan, the sixth most populous country globally, faces substantial challenges due to its high population growth rate of 2.55% annually, resulting in a population of 241.49 million [1]. The latest Pakistan Demographic and Health Survey (PDHS) 2017-18 revealed alarming statistics, including a total fertility rate (TFR) of 3.6, a stagnant modern contraceptive prevalence rate (mCPR) of 25% since 2012, and 17% of married women with unmet contraceptive needs [2]. These figures highlight the urgent need for effective family planning (FP) interventions to improve reproductive health (RH) outcomes and place Pakistan among countries with relatively high fertility rates, reflecting a substantial population growth trajectory.

Wanted fertility refers to the desired number of children that couples or individuals wish to have. In Pakistan, the total wanted fertility rate is reported to be 2.9, indicating a desire for fewer children than the actual TFR. This suggests a level of unmet need for family planning services, as couples may desire fewer children than they currently have [2].

The unmet need for contraception represents the proportion of women who wish to avoid or delay pregnancy but are not using any contraceptive method. In Pakistan, 17% of married women are reported to have an unmet need for contraception [2]. This indicates a significant gap in access to and utilization of family planning services, contributing to high fertility rates and population growth.

Pakistan's patriarchal social system limits women's empowerment. In Pakistan, daughters are often seen as increased financial responsibility than sons due to the very low participation of daughters in the labor force, as well as the large costs incurred when daughters marry as a result of dowries [10,11]. According to Pakistan Labor Force Survey 2012-13, merely 22% of women engage in labor force [12]. Women's participation in the productivity and financial empowerment is limited and primarily occurs within urban settings. As Pakistan's rural population is 61 percent, most women rely on male members of the household for economic support and are less likely to contribute to household earnings [13].

Similarly, dependence on sons is stronger in rural areas due to the association of agricultural work and land ownership with male inheritance, even in urban areas boys are expected to carry the family name in old age and care for parents [14].

Studies have found that the preference for sons is a vital factor when deciding on permanent contraceptive methods in most of the Southeast Asian countries [19]. This preference is especially strong in India, Nepal, and Pakistan. In terms of temporary and traditional contraceptive methods, the study found slight relation with son preference in this region [19].

Another evidence explored by the Bongaarts (2013) having sex preferences for male offsprings, Pakistan is ranked as the second among the 61 contries [15]. These results on sex preference was also confirmed by the results of the series of Pakistan Health and Demographic Surveys (PDHS) [15].

This significant factor influencing FP practices in Pakistan as the prevailing gender preference for male offspring, deeply rooted in South-Asian culture [3]. The societal misconception that sons provide financial stability and perpetuate family lineage perpetuates a strong desire for male descendants. This preference has profound implications for FP programs, as couples may continue childbearing until a son is born, contributing to higher fertility rates and lower contraceptive uptake. Gender preferences influencing FP decisions have been observed not only in Pakistan but also in other regions, particularly in South Asia, East and Southeast Asia, and North Africa [4]. In these regions, the desire for sons influences reproductive behavior, leading to differential stopping behavior (DSB) or a male-preferring stopping rule. Understanding the impact of gender preferences on contraceptive uptake is critical for designing effective FP interventions tailored to the socio-cultural context of Pakistan.

Moreover, the persistence of gender-based discrimination and traditional patriarchal norms in Pakistani society exacerbates the challenges faced in implementing successful FP programs [5]. Women often face social and cultural barriers that limit their autonomy in reproductive decision-making, further complicating efforts to address unmet contraceptive needs and achieve desired fertility rates. Despite efforts to promote FP and RH services in Pakistan, the prevalence of unmet contraceptive needs among married women remains high [2]. The persistence of gender preferences

 doi:10.20944/preprints202410.1871.v1

for male offspring exacerbates this issue, perpetuating high fertility rates and hindering contraceptive uptake. The societal emphasis on male descendants not only restricts women's reproductive autonomy but also contributes to gender inequalities and perpetuates patriarchal norms [6]. Addressing the influence of gender preferences on contraceptive uptake is essential for improving reproductive health outcomes and advancing gender equality in Pakistan.

Rationale:

The rationale behind exploring the influence of gender preferences on contraceptive uptake among married women of reproductive age in Pakistan is multifaceted. Firstly, understanding the socio-cultural factors driving reproductive behavior is crucial for designing effective FP interventions tailored to the specific needs and beliefs of the population. Pakistan, like many other countries in South Asia, grapples with deeply entrenched gender norms and preferences, which significantly impact reproductive decision-making.

Secondly, addressing unmet contraceptive needs and promoting contraceptive uptake is vital for improving maternal and child health outcomes, reducing maternal mortality, and achieving sustainable population growth. By identifying barriers to contraceptive use, such as gender preferences for male offspring, policymakers, and healthcare providers can develop targeted interventions to address these barriers and enhance access to family planning services.

Furthermore, addressing gender preferences for male offspring is essential for advancing gender equality and women's empowerment in Pakistan. By challenging traditional patriarchal norms and promoting reproductive autonomy for women, efforts to improve contraceptive uptake can contribute to broader social and economic development goals, including poverty reduction and increased access to education and employment opportunities for women. In conclusion, examining the influence of gender preferences on contraceptive uptake in Pakistan is not only crucial for addressing unmet contraceptive needs and improving reproductive health outcomes but also for promoting gender equality and women's empowerment. By understanding the complex interplay between gender norms, societal expectations, and reproductive behavior, stakeholders can develop more effective strategies to promote family planning and advance the rights and well-being of women and girls in Pakistan. The objective of this analysis was to determine the association between gender composition of children and modern contraceptive uptake among MWRA.

Materials and Methods

Study Design: The analysis for this paper is based on a secondary analysis of data collected from the "Naya Qadam[1] " project. The Naya Qadam project, focused on increasing contraceptive uptake among married women of reproductive age, specifically young women ages 15–24 years. The Naya Qadam project was launched by the Pathfinder International in 2018 and concluded in 2021. implemented started in The "Naya Qadam" facility-based cross-sectional survey was collected between March and June 2019. A secondary analysis of the "Naya Qadam" dataset was used to study the association between gender composition and moden contraceptive uptake among MWRA in Pakistan.

Study site: The survey was carried out across three districts in the Sindh (Karachi, Shaheed Benizarabad and Larkana) and three in the Punjab provinces (Okara, Pakpattan and Rawalpindi).

Sample Size Determination: The "Naya Qadam" survey recruited a total of 1,690 MWRA who visited healthcare facilities seeking health services. The sample size for the study was determined using the two-proportions population size formula. Parameters considered included design effect, intraclass correlation coefficient (ICC), proportions of contraceptive users, and refusal rate. The study aimed for a robust sample size, considering a design effect of 1.482, ICC of 0.025, and proportions of contraceptive users in Sindh and Punjab at 25% and 30%, respectively.

[1] Naya Qadam means "a new step" in English.

 doi:10.20944/preprints202410.1871.v1

Data Collection: Trained data collectors conducted face-to-face interviews with MWRA who visited healthcare facilities seeking health services. A structured questionnaire was used to collect data on demographic characteristics, reproductive history, and contraceptive use.

Questionnaire: The questionnaire was developed based on the questionnaire used in the PDHS 2017-18 and consultations with experts in the field. It included validated measures to document the necessary information, ensuring the reliability and validity of the data collected.

Data Management: Data were collected on paper and later it was entered into a secure electronic database. The data were cleaned to identify and resolve any inconsistencies or missing values. Quality control measures were implemented to ensure the accuracy and completeness of the data.

Analysis: The primary analysis focused on examining the association between gender composition and modern contraceptive uptake among MWRA. Logistic regression analysis was employed to estimate the adjusted odds ratios, considering potential confounding factors such as province, age, and health facility type. This statistical approach enabled the assessment of the strength and direction of the relationship between gender preferences and contraceptive behavior while controlling for covariates.

Grouping for data analysis: Among the interviewed MWRA, 495 participants, constituting 27% of the total sample, were included in this analysis. This subset was selected based on the criterion of adopting a family planning (FP) method, ensuring that the analysis focused specifically on modern contraceptive uptake among MWRA. To assess the effect of gender composition on modern contraceptive uptake, four binary categories were created based on the number of sons and daughters reported by the participants. The categories were designed to capture variations in contraceptive behavior based on the gender composition of children:

Category 1: Group with zero sons and at least one or more daughters

Category 2: Group with only one son and at least one or more daughters

Category 3: Group with zero daughters and at least one or more sons

Category 4: Group with only one daughter and at least one or more sons

These categories allowed for a nuanced analysis of how the presence or absence of sons or daughters influenced modern contraceptive uptake among MWRA. A study conducted in Bangladesh also created similar categories of gender composition of offsprings to study the association between the sex preference and contraceptive use [20].

Ethical Considerations: Ethical approval for the study was obtained from the Research and Development Solutions (RADS) institutional review board. Informed consent was obtained from all participants before data collection, and confidentiality and anonymity were maintained throughout the study. Participants were assured of their right to withdraw from the study at any time without repercussions.

By systematically implementing these methodological steps, the study ensured rigorous data collection, analysis, and interpretation, ultimately providing valuable insights into the complex interplay between gender composition and modern contraceptive uptake among MWRA in Pakistan.

Results

Table 1 presented participants' demographic characteristics and contraceptive history. Of the 495 married women, the majority (68%) were aged 25-34 years old and had almost equal numberof sons and daughters. The majority of the women (96%) had ever used modern contraceptives, whereas 38% were using modern contraceptives at the time of the interview. Among current modern contraceptive users, the pill was the most preferred method followed by condoms (7%) and injections (6%).

The findings of the study revealed a significant association between gender composition and modern contraceptive uptake among MWRA in Pakistan, highlighting the impact of son composition on reproductive behavior. Table 2 presents the adjusted odds ratio (AOR) for all four categories with the significance level. Regardless of province, age, and health facility type, the AOR for modern contraceptive uptake was notably low when the number of daughters increased without sons. Specifically, the AOR for modern contraceptive uptake in this scenario was 0.12 (95% CI: 0.04–0.34, p

 doi:10.20944/preprints202410.1871.v1

< 0.000), indicating a substantially decreased likelihood of adopting modern contraceptive methods among women with daughters but no sons.

Conversely, the presence of at least one son was strongly associated with increased modern contraceptive use among MWRA in Pakistan. Women who reported having at least one son exhibited a significantly higher likelihood of modern contraceptive uptake, with an AOR of 19.91 (95% CI: 8.00–49.50, $p < 0.000$). This finding underscores the influential role of son preference in shaping reproductive decision-making and contraceptive behavior among married women in Pakistan. In addition, when the number of daughters was fixed at zero and the number of sons increased, the adjusted odds of modern contraceptive usage demonstrated a gradual increase. Although this trend was not statistically significant at conventional levels ($p = 0.061$), the observed pattern suggests a potential association between son preference and modern contraceptive uptake, even in the absence of daughters.

Of particular note, the gender composition of one daughter and two sons emerged as the most preferred scenario for modern contraceptive uptake among MWRA in Pakistan. Women in this category exhibited odds 2 times higher for modern contraceptive uptake compared to other gender compositions, highlighting the pronounced influence of gender preferences on reproductive behavior.

Overall, the results underscore the complex interplay between gender composition and modern contraceptive uptake among MWRA in Pakistan. The findings emphasize the need for targeted interventions aimed at addressing gender biases and promoting informed decision-making regarding family planning to improve reproductive health outcomes and empower women to make autonomous choices regarding their reproductive lives.

Table 1. Participants' demographic characteristics and contraceptive history.

Variable	n	%
Province (n=495)		
Punjab	200	40%
Sindh	295	60%
Health facility type (n=495)		
CMWs	117	24%
Public	222	45%
Private	156	32%
Age categories (n=495)		
15 – 24 years	82	18%
25 – 34 years	309	68%
35+ years	63	14%
Average no. of children (n=495)		
Daughter	2.0	
Son	1.8	
Parity (n=495)		
1 Child	41	8%
2 Children	220	44%
3 Children	181	37%
>3 Children	53	11%
Ever use (n=495)		
Yes	436	96%
No	18	04%
Current use (n=495)		
Yes	173	38%
No	281	62%

 doi:10.20944/preprints202410.1871.v1

Current FP method mix (n=173)		
Pill	87	19%
Condom	32	7%
Injectable	28	6%
IUD	15	3%
Implant	6	1%
Female sterilization	5	1%

Table 2. Analysis of gender composition and modern contraceptive uptake.

Categories	n	%	Adjusted Odd Ratio (95% CI)
0 Son (n=282)			
1 Daughter	**41**	**39%**	**1**
2 Daughters	228	05%	0.13*** (0.05 - 0.34)
3+ Daughters	13	79%	6.6* (1.39 – 31.39)
1 Son (n=402)			
0 Daughter	**40**	**40%**	**1**
1 Daughter	220	21%	0.39** (0.19 – 0.78)
2 Daughters	93	62%	2.10 (0.93 – 4.71)
3+ Daughters	49	71%	3.60** (1.42 – 9.03)
0 Daughter (n=97)			
1 Son	**40**	**40%**	**1**
2 Sons	30	87%	11.08*** (2.72 – 45.11)
3+ Sons	27	100%	23.29*** (4.13 – 131.32)
1 Daughter (n=495)			
0 Son	**41**	**39%**	**1**
1 Son	220	22%	0.45* (0.22 – 0.93)
2 Sons	181	43%	2.11* (1.01 – 4.39)
3+ Sons	53	72%	4.11** (1.64 – 10.27)

*P<0.05, **<P0.01, ***<P0.001.

Discussion

In Pakistan, as in many other Asian countries, there is a strong societal preference for male offspring. This preference is deeply rooted in cultural and socio-economic factors, including the desire for male heirs to inherit property and provide financial support to parents in old age [7]. The preference for sons can influence reproductive behavior, leading to higher fertility rates as couples may continue childbearing until they have a male child. Similar preferences for male offspring are observed across various Asian countries, particularly in South Asia, East Asia, and parts of the Middle East. However, the intensity of this preference may vary, with some countries experiencing more pronounced gender imbalances than others. For example, in countries like India and China, son preference has contributed to imbalanced sex ratios at birth, with a higher number of male births compared to female births [8]. Likewise, sex preference of the children is an significant barrier to birth control in Nepal [17]. Healthcare providers in Karachi also confirmed that the preference for male offsprings is high in Pakistani society. Sons are preferred for their perceived social value, their role in continuing the family name. their inheritance rights and their ability to support the family economically [16]. Another study conducted in Pakistan found that the preference for a specific sex, especially for sons, significantly hinders the use of contraceptive measures [18]. This phenomenon has implications for family structures, gender equality, and social stability, underscoring the need for targeted interventions to address underlying socio-cultural norms. In contrast, countries like Japan

 doi:10.20944/preprints202410.1871.v1

and South Korea have experienced shifts in gender preferences over time, with increasing acceptance of gender equality and smaller family sizes.

Studies have shown that couples may continue childbearing until they have a male child, leading to higher fertility rates and lower contraceptive uptake [8]. Moreover, gender preferences can also affect the use of sex-selective technologies, such as sex-selective abortion or preimplantation genetic diagnosis, which may further skew sex ratios and impact reproductive health outcomes [9].

The findings of this study highlight the profound influence of gender composition on modern contraceptive uptake among married women of reproductive age (MWRA) in Pakistan. The strong societal desire for male offspring significantly shapes reproductive behavior, leading to differential contraceptive practices based on the gender composition of children. These findings corroborate previous research demonstrating the pervasive role of son preference in perpetuating high fertility rates and low contraceptive uptake, particularly in patriarchal societies. The preference for sons not only perpetuates high fertility rates but also exacerbates gender inequalities and perpetuates patriarchal norms within Pakistani society. Women may face immense pressure to continue childbearing until a son is born, thereby limiting their autonomy and reproductive choices. This pressure reflects broader societal expectations and gender roles, which often prioritize the male child as the bearer of family lineage and provider of financial stability.

Furthermore, the societal emphasis on male descendants undermines efforts to promote gender equality and women's empowerment in Pakistan. The perpetuation of son preference perpetuates a cycle of gender-based discrimination, wherein women are relegated to subordinate roles within the family and society. This perpetuation of patriarchal norms not only restricts women's reproductive autonomy but also hinders their ability to participate fully in social, economic, and political spheres.

Addressing the root causes of gender preference and its impact on contraceptive uptake is essential for advancing reproductive health and gender equality in Pakistan. Effective interventions should aim to challenge societal norms and beliefs surrounding gender roles, promote women's autonomy in reproductive decision-making, and provide access to comprehensive family planning services tailored to the needs of MWRA.

Moreover, efforts to promote gender equality and women's empowerment must be integrated into broader development agendas, encompassing education, healthcare, economic opportunities, and social protection. By challenging entrenched patriarchal norms and promoting gender-sensitive policies and programs, Pakistan can move towards a more equitable and inclusive society where all individuals have the autonomy to make informed choices about their reproductive lives.

Limitations

The survey was conducted in health facilities, which may not represent the broader population. Married women seeking health services may have different characteristics and behaviors compared to those who do not seek medical care, leading to a biased sample. In addition, the survey was limited to six districts in Pakistan, specifically three from each of the Sindh and Punjab provinces. These districts may not be fully representative of the cultural, socioeconomic, and geographic diversity present in the entire country, thus limiting the generalizability of the findings. Lastly, while the analysis adjusted for certain covariates such as province, age of women, and health facility type, other potential confounding variables, such as socioeconomic status, education level, and cultural factors, were not included as these were not asked in the survey instrument. These unmeasured variables could impact contraceptive behavior and outcomes. Addressing these limitations would enhance the robustness and applicability of the study's findings and recommendations.

Conclusions

In conclusion, the findings of this study highlight the significant influence of gender composition on modern contraceptive uptake among married women of reproductive age (MWRA) in Pakistan. The strong societal preference for sons drives reproductive behavior, leading to differential contraceptive practices based on the gender composition of children. Addressing gender norms and

 doi:10.20944/preprints202410.1871.v1

biases while promoting informed choice are essential steps toward enhancing modern contraceptive uptake and achieving sustainable population growth in Pakistan.

Effective interventions must challenge entrenched societal norms and beliefs surrounding gender roles and preferences. By promoting gender equality and women's empowerment, individuals can make autonomous decisions regarding family planning, free from external pressures and constraints. Targeted strategies, including male engagement initiatives, are crucial for challenging patriarchal norms and fostering an environment where all individuals have the autonomy to make informed choices about their reproductive lives.

Furthermore, integrating gender-sensitive approaches into broader reproductive health programs and policies is essential for addressing the underlying determinants of gender preference and promoting equitable access to family planning services. By prioritizing gender equality and reproductive rights, Pakistan can create an enabling environment where individuals are empowered to make informed decisions about their reproductive health, ultimately contributing to improved health outcomes and sustainable development for all.

Acknowledgments: The author extends sincere appreciation to the participants who generously shared their time and insights, without whom this study would not have been possible. We also acknowledge the dedication and hard work of the data collectors who diligently collected and managed the data. Our gratitude goes to the staff of the health facilities involved in this study for their support and cooperation. Additionally, we thank the Bill & Melinda Gates Foundation (BMGF) for its generous funding, which enabled this research endeavor. Their commitment to improving global health outcomes and promoting reproductive health initiatives has been instrumental in advancing our understanding of family planning dynamics in Pakistan.

Conflicts of Interest Disclosure: The authors declare that they have no conflicts of interest related to this research. This study was funded by the Bill & Melinda Gates Foundation (BMGF), but the foundation had no role in the study design, data collection, analysis, interpretation, or writing of the manuscript.

References

1. Pakistan Bureau of Statistics, Government of Pakistan. Results of 7th Population and Housing Census 2023 "The Digital Census". https://www.pbs.gov.pk/content/announcement-results-7th-population-and-housing-census-2023-digital-census
2. National Institute of Population Studies (NIPS) [Pakistan] and ICF. (2019). Pakistan Demographic and Health Survey 2017-18. Islamabad, Pakistan, and Rockville, Maryland, USA: NIPS and ICF.
3. Mumtaz, Z., & Salway, S. (2009). "I never go anywhere": extricating the links between women's mobility and uptake of reproductive health services in Pakistan. Social Science & Medicine, 68(11), 2066-2073.
4. Das Gupta, M. (1987). Selective discrimination against female children in rural Punjab, India. Population and Development Review, 13(1), 77-100.
5. Kabeer, N. (1999). Resources, agency, achievements: Reflections on the measurement of women's empowerment. Development and Change, 30(3), 435-464.
6. Ghaus-Pasha, A., Muzaffar, N., & Naz, S. (2016). The role of women's empowerment and fertility preferences in contraceptive use in Pakistan. Pakistan Journal of Women's Studies, 23(1), 111-128.
7. Mumtaz, Z., & Salway, S. (2009). "I never go anywhere": extricating the links between women's mobility and uptake of reproductive health services in Pakistan. Social Science & Medicine, 68(11), 2066-2073.
8. Arnold, F., & Kishor, S. (2002). Sex-selective abortions in India. Population and Development Review, 28(4), 759-785.
9. Guilmoto, C. Z. (2012). Sex imbalances at birth: Current trends, consequences, and policy implications. United Nations Population Fund (UNFPA).
10. Channon M. D. (2017). Son Preference and Family Limitation in Pakistan: A Parity- and Contraceptive Method-Specific Analysis. International perspectives on sexual and reproductive health, 43(3), 99–110. https://doi.org/10.1363/43e4317
11. Royan, R., Zaidi, B. (2011). Trends in sex selection in Pakistan, UNFPA: Report of the International Workshop Skewed Sex on Ratios at Birth: Addressing the Issue and the Way Forward, Ha Noi, Vietnam.
12. Government of Pakistan (2013). Pakistan Labour Force Survey 2012-13: Statistical Division, Pakistan Bureau of Statistics, Islamabad.
13. Pakistan Bureau of Statistics (PBS). Key Findings of Pakistan Census 2023. 2023. Pakistan Bureau of Statistics (PBS). [https://www.pbs.gov.pk/sites/default/files/population/2023/Pakistan.pdf]. Accessed May 3, 2024.

 doi:10.20944/preprints202410.1871.v1

14. Sathar, Z., Rashida, G., Hussain, S., & Hassan, A. (2015). Evidence of Son Preference and Resulting Demographic and Health Outcomes in Pakistan. doi:10.31899/pgy9.1085
15. Bongaarts, J. (2013). The implementation of preferences for male offspring. Population and Development Review, 39(2), 185-208.
16. Sathar, Zeba, Gul Rashida, Sabahat Hussain, and Anushe Hassan. 2015. "Evidence of son preference and resulting demographic and health outcomes in Pakistan." Islambad: Population Council.
17. Leone, T., Matthews, Z., & Dalla Zuanna, G. (2003). Impact and determinants of sex preference in Nepal. International family planning perspectives, 29(2), 69–75. https://doi.org/10.1363/ifpp.29.069.03
18. Saleem, A., & Pasha, G. R. (2008). Women's reproductive autonomy and barriers to contraceptive use in Pakistan. The European Journal of Contraception & Reproductive Health Care, 13(1), 83–89. https://doi.org/10.1080/01443610701577107
19. Channon, M. D. (2015). Son preference, parity progression and contraceptive use in South Asia. Population Horizons, 12(1), 24–36. doi:10.1515/pophzn-2015-0004
20. Islam, M. A., Islam, M. R., & Banowary, B. (2009). Sex preference as a determinant of contraceptive use in matrilineal societies: A study on the Garo of Bangladesh. The European Journal of Contraception & Reproductive Health Care, 14(4), 301–306. https://doi.org/10.1080/13625180903033460