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Determinants of the Obstacles To Contraceptive Methods in Pakistan: An Empirical Analysis From Pakistan Demographic and Health Survey 2017-2018

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Abstract

This study investigates the determinants of obstacles to contraceptive methods in Pakistan using data from the Pakistan Demographic and Health Survey (PDHS) 2017-2018. Despite the increasing global emphasis on family planning and reproductive health, Pakistan continues to experience a low contraceptive prevalence rate, largely due to various socio-demographic, economic, and cultural factors. This research employs a comprehensive analytical approach, utilizing logistic regression analysis to identify key factors influencing the barriers to contraceptive use among women in the country. The findings reveal that age, region, education, wealth status, and number of children significantly impact contraceptive use. Women aged 20-24 were less likely to face obstacles compared to the reference group (14-19), while women aged 30-44 showed higher odds of encountering barriers. Regional disparities were evident, with women from regions such as FATA, Sindh, and KPK exhibiting significantly higher odds of facing obstacles. Educational attainment was a protective factor, with higher education levels associated with reduced barriers. Wealth also played a complex role, with middle-income groups experiencing more barriers compared to the poorest. Furthermore, the analysis revealed that women with more children (3-5, 6-8, or 9-11) were significantly less likely to encounter barriers to contraceptive use compared to those with 0-2 children. The study highlights the importance of targeted policy interventions that consider regional and socio-economic differences. Improving educational attainment, especially among women, and ensuring access to quality family planning services are critical to overcoming these obstacles. The study provides valuable insights for policymakers and stakeholders to develop more effective, context-specific family planning programs in Pakistan.

Introduction

Contraceptive methods encompass a variety of practices, devices, and medications



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designed to prevent pregnancy. Their role in improving public health and empowering women is widely acknowledged. In developing countries, however, their use is frequently hindered by complex social, cultural, and systemic barriers. While global adoption of contraceptive methods is on the rise, particularly in low- and middle-income countries, progress remains uneven due to deep-rooted challenges such as cultural beliefs, misinformation, inadequate health infrastructure, and economic limitations [1]. Despite these obstacles, the advantages of contraception are indisputable. One of the primary benefits is the reduction of unintended pregnancies, which in turn improves maternal health by lowering the risks associated with unsafe childbirth. Contraception empowers women to make decisions about if and when to have children, offering them opportunities to pursue education, build careers, and improve their overall quality of life [1]. Beyond individual benefits, family planning contributes significantly to national economic growth. Reducing the number of unintended pregnancies eases financial pressure on families and healthcare systems, while increasing the participation of women in the workforce. Organizations such as the World Health Organization (WHO) and the United Nations Population Fund (UNFPA) have long recognized these outcomes and are actively promoting access to reproductive health services worldwide [2]. Universal access to contraception and reproductive healthcare is also a cornerstone of the United Nations Sustainable Development Goals (SDGs). Specifically, Goal 3 seeks to ensure healthy lives and promote well-being for all by 2030. Contraceptive use plays a pivotal role in achieving this goal by preventing maternal mortality, reducing the need for unsafe abortions, and promoting gender equality [3]. However, access remains a pressing issue. Globally, 214 million women of reproductive age in low-income countries who want to avoid pregnancy are not using modern contraception. This unmet need leads to almost 121 million unintended pregnancies each year, with an average of 331,000 unplanned pregnancies occurring daily [4]. As the UNFPA describes it, this is a "neglected crisis" that demands urgent attention and investment [5]. The consequences of this crisis extend far beyond health. Unplanned pregnancies can alter a woman's life trajectory, disrupting her education and limiting her career prospects.

Nationally, countries with high rates of unintended pregnancies tend to have lower scores on the Human Development Index, a key measure of national progress in health, education, and living standards [5]. A particularly dangerous outcome of this lack of access is the rise in unsafe abortions, a major cause of maternal mortality. This further emphasizes the need for comprehensive reproductive health strategies, including access to emergency contraceptive pills (ECPs) and intrauterine devices (IUCDs) [5]. ECPs are a vital post-coital contraceptive option that reduce the risk of pregnancy if taken within five days of unprotected intercourse. They work mainly by delaying ovulation and are most effective when taken as soon as possible after intercourse. On average, ECPs result in fewer than 1–2 pregnancies per 100 women when used correctly [5]. Although highly effective in emergencies, ECPs are not intended for regular use and do not protect against sexually transmitted infections (STIs) [6]. In contrast, copper IUCDs are even more effective for emergency contraception and offer long-term protection for several years. However, their use is limited by cost, the requirement for a trained healthcare provider, and availability—especially in under-resourced settings [6]. Therefore, while ECPs are more accessible and easier to use, especially



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in urgent situations, they should be part of a broader strategy that includes access to long-term contraceptives and reproductive health education [7]. Despite their usefulness, ECPs are underutilized globally. A 2014 multi-country analysis revealed that in 36 of 45 countries surveyed, fewer than 3% of sexually active women had ever used emergency contraception. This low rate of use stems from widespread misinformation, social stigma, and lack of awareness—especially among poor and rural populations [4]. These misconceptions are fueled by a lack of reliable reproductive health education and minimal interaction with trained health professionals. To improve the uptake of emergency contraceptive methods, culturally sensitive educational outreach is essential. Such programs must aim to correct myths, increase awareness, and ensure that women know when and how to use ECPs. Only then can the full public health potential of these methods be realized [8].

This situation is especially critical in Karachi's urban slums, where the use of modern contraceptive methods remains strikingly low [9]. Many women in these areas rely on traditional methods, which are less effective, or do not use any form of contraception at all despite their desire to avoid pregnancy. This unmet demand is shaped by a complex web of barriers including misinformation, lack of access to services, and deeply ingrained cultural norms [9]. In these densely populated and impoverished neighborhoods, myths about contraceptive side effects and long-term health risks are common. These fears are often amplified by limited education and poor health literacy. Compounding the issue is the lack of adequate healthcare infrastructure. Clinics are scarce, often understaffed, or lack trained professionals who can provide family planning counseling and services [10]. To address these challenges, a multi-pronged approach is necessary. Community-based education campaigns must be launched to raise awareness, dispel myths, and build trust. Simultaneously, healthcare systems need to be strengthened by ensuring the presence of trained providers and expanding access to affordable contraceptive options [11]. While organizations like the WHO and UNFPA provide global guidance and funding, one-size-fits-all solutions often fail to account for local realities. Karachi's urban slums present unique challenges that cannot be solved through broad international policies alone [12]. Tailored, data-driven interventions are needed—based on research that considers the region's specific cultural, social, and economic context. The United Nations' SDG Goal 3 includes a strong emphasis on universal access to reproductive healthcare. However, to achieve this in Karachi's underserved communities, we must invest in localized studies and targeted solutions [13]. This includes understanding the attitudes, beliefs, and availability issues specific to these populations. This study aims to identify the key barriers to modern contraceptive use in Karachi's urban slums and propose evidence-based interventions. It will explore women's perceptions, the spread of misinformation, and the limitations in service delivery. By shedding light on these issues, we hope to offer context-specific recommendations that improve reproductive autonomy and health outcomes for women in Pakistan's most vulnerable communities.

Aim and Objectives

The main aim of this study is to identify and understand the key barriers and also investigate the significant determinants to the barriers of modern contraceptive method in Pakistan

- To explore the prevalence of barriers of contraceptive use in Pakistan



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- To examine the association of barriers with socio-demographic factors in Pakistan
- To identify the statistical determinants of barriers to contraceptive use in Pakistan
- To contribute to policy formulation aimed at overcoming obstacles to contraceptive use in Pakistan.

Methodology

Statistical techniques play a crucial role in evaluating and verifying scientific hypotheses. To address the research objectives of this study, several key methods have been employed, including sample surveys, descriptive statistics, chi-square tests, logistic regression, and multinomial logistic regression. These methodologies provide a robust framework for data analysis and interpretation. A concise description of each method is presented in the sections below.

Data and Sampling Scheme

This study draws upon data from the Pakistan Demographic and Health Survey (PDHS) 2019, which offers a nationally representative overview of Pakistan's socioeconomic, demographic, and health characteristics. The PDHS 2019 encompasses a wide geographic scope, including the four provinces—Punjab, Sindh, Khyber Pakhtunkhwa, and Baluchistan as well as the Islamabad Capital Territory, the former Federally Administered Tribal Areas (FATA), Azad Jammu and Kashmir (AJK), and Gilgit-Baltistan (GB), resulting in a total of 11 survey regions. However, it is important to note that data from AJK and GB are excluded from the national-level estimates for most variables.

The survey employed a multi-stage sampling technique and gathered responses in several phases. A total of 11,859 participants were selected for the sample. Information on contraceptive use was specifically collected from ever-married women aged 15 to 49 years through structured, printed questionnaires [16].

Descriptive Statistics

Descriptive statistics is a fundamental aspect of statistical analysis that focuses on summarizing and explaining the key characteristics of a dataset. It aims to provide a clear and informative overview of the data, making it more accessible and easier to interpret. This is achieved using two primary categories of measures: central tendency and dispersion. Measures of central tendency, including the mean, median, and mode, offer insights into the typical values within the dataset, while measures of dispersion, such as range, variance, and standard deviation, describe the extent of variation within the data. In addition to these numerical measures, descriptive statistics also employs graphical representations like histograms, box plots, and scatter plots, which allow for a visual examination of data patterns and distributions. These graphical tools enhance understanding by revealing data trends, outliers, and overall distribution shapes. Descriptive statistics is a critical preliminary step in the data analysis process, providing a solid foundation for further statistical investigations, such as inferential statistics, where conclusions about a larger population are drawn based on a sample. Overall, descriptive statistics serves as a method of transforming complex datasets into a more understandable and interpretable form.[19]



Chi-square Test

The chi-square test of association is a commonly applied statistical method used to evaluate the significance of the relationship between two categorical variables. The chi-square test is a statistical technique designed to examine the association between two or more categorical variables. This method is frequently employed in statistical research to determine whether a relationship exists between qualitative data. For the chi-square test to be valid, several conditions must be satisfied: the data must be collected randomly, the observations must be independent of one another, the sample size should be sufficiently large (generally at least 50 observations), and no expected frequency in any group should be less than 10. This method traces its origins to the work of Karl Pearson (1857–1936), who pioneered several critical concepts in modern statistics, including the chi-square tests for goodness of fit, independence, and homogeneity. One of the key advantages of the chi-square distribution developed by Pearson is that it allows for statistical analysis without the need for the data to follow a normal distribution. The significance of a calculated chi-square value is determined by comparing it against a critical value derived from a chi-square distribution table, based on the specified degrees of freedom and significance level. Primarily, the chi-square test is used for two main purposes: first, to test the hypothesis that there is no association between the variables of interest, and second, to assess how well the observed data distribution aligns with an expected theoretical distribution.[21]

The Chi-Square formula is as follows:

$$\chi^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i} \quad (6)$$

Where O_i denotes the Observed value and E_i denotes the expected value [16].

The chi-square test is based on several fundamental principles. First, the data used in the test must consist of counts or frequencies, rather than percentages or other transformed values. Second, the categories of the variables under investigation must be mutually exclusive, meaning that each subject can only belong to one category. Third, each observation should contribute to only one cell in the contingency table, ensuring that no individual is counted multiple times in different categories. Finally, when measuring the same subjects over multiple time points, each time point must be treated as a separate observation to maintain the independence of data across time periods. This approach prevents any overlap between measurements, allowing for an accurate analysis of categorical data relationships[18].

Logistic Regression Model

Logistic regression, often referred to as the logit model, is a popular statistical method used to assess the probability of a specific event occurring. It examines the association between a categorical dependent variable and one or more predictor variables, which can be either continuous or categorical in nature. Logistic regression is primarily divided into two types: binary logistic regression and multinomial logistic regression. Binary logistic regression is used when the outcome variable has two possible categories, whereas multinomial logistic regression is applicable when the outcome variable has three or more categories. These models are valuable for estimating the probability of various outcomes,



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making them effective tools for classification and predictive analysis across diverse disciplines.

Statistical Software

The data for this study were analyzed using the Statistical Package for the Social Sciences (SPSS) software, version 25 (www.ibm.com). SPSS was utilized to perform descriptive statistics, conduct chi-square tests, and carry out logistic regression analysis, ensuring a comprehensive exploration of the dataset.

Results and Discussion

Table 4: 1 Descriptive Statistics for Type of place of residence

			Percent	Valid Percent	Cumulative Percent
Valid	Urban	23059	45.7	45.7	45.7
	Rural	27436	54.3	54.3	100.0
	Total	50495	100.0	100.0	

The data shows that out of a total of 50,495 respondents, 45.7% (23,059) are from urban areas, while a slightly higher proportion, 54.3% (27,436), are from rural areas. This indicates that the sample is fairly balanced, with a slight rural majority. The cumulative percentage confirms that rural respondents make up the remainder after accounting for urban ones, reaching a total of 100%. This distribution suggests that any analysis or findings will reflect both urban and rural perspectives, with a greater representation of rural populations

Table 4: 2 Type of place of residence by fear of side effects/health concerns Cross tabulation

		fear of side effects/health concerns		
		No	Yes	Total
Type of place of residence	Urban	4367	912	5279
	Rural	5979	1512	7491
Total		10346	2424	12770

Table 4.2 shows that out of 12,770 respondents, 19.0% (2,424) cited fear of side effects or health concerns as a reason for non-use, while 81.0% (10,346) did not. When broken down by residence, 17.3% (912 of 5,279) of urban respondents reported health fears compared to 82.7% (4,367) who did not, whereas in rural areas 20.2% (1,512 of 7,491) did cite such concerns and 79.8% (5,979) did not. Thus, although a clear majority in both urban and rural settings are unconcerned about side effects, rural residents are slightly more likely than urban dwellers to report health-related fears, underlining the need for targeted education and



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counseling on safety in rural communities.

Table 4: 3 Respondent Current Age fear of side effects/health concerns Cross tabulation

		fear of side effects/health concerns		
		No	Yes	Total
Respondent Current Age	15-19	105	3	108
	20-24	544	88	632
	25-29	1404	281	1685
	30-34	1613	413	2026
	35-39	2123	615	2738
	40-44	2070	565	2635
	45-49	2487	459	2946
Total		10346	2424	12770

The data shows that out of a total of 12,770 respondents, 10,346 (approximately 81%) did not cite fear of side effects or health concerns as a reason for non-use, while 2,424 (about 19%) did. Concern levels vary by age, with the highest number of individuals expressing fear found in the 35–39 age group (615), followed by the 40–44 group (565) and the 30–34 group (413). In contrast, the 15–19 age group shows the lowest level of concern, with only 3 respondents indicating fear of side effects. This suggests that fear of health-related consequences is more pronounced among middle-aged individuals, particularly those aged 30 to 44, and significantly less common among younger age groups.

Table 4: 4 Highest educational level fear of side effects/health concerns Cross tabulation

		fear of side effects/health concerns		
		No	Yes	Total
Highest educational level	No education	6874	1594	8468
	Primary	1298	304	1602
	Secondary	1436	329	1765
	Higher	738	197	935
Total		10346	2424	12770

The data shows that fear of side effects or health concerns as a reason for non-use is present across all educational levels but is most prevalent among those with no formal education, where 1,594 out of 8,468 respondents (approximately 18.8%) expressed concern. While individuals with primary (19%), secondary (18.6%), and higher education (21.1%) also report such concerns, the absolute number is significantly higher among those with no education, due to their larger representation in the sample. Notably, the proportion of concern is highest among those with higher education, suggesting that while more educated individuals may be fewer in number, they are slightly more likely to report fear of side effects or health issues as a barrier. Overall, fear of side effects appears to be a concern across all education levels, but both awareness and frequency may vary with education.

Table 4: 5 Husband/partner's education level fear of side



effects/health concerns Cross tabulation

		fear effects/health concerns	of side	
		No	Yes	Total
Husband/partner's education level	No education	3847	871	4718
	Primary	1424	347	1771
	Secondary	3299	782	4081
	Higher	1747	419	2166
	Don't know	24	5	29
Total		10341	2424	12765

The data shows that fear of side effects or health concerns is reported across all levels of husbands' or partners' education, but the highest absolute number of such concerns comes from respondents whose partners have no education (871 out of 4,718). However, the proportion of concern is relatively consistent across educational levels ranging between 18% and 20% with a slightly higher percentage among those whose partners have higher education (419 out of 2,166, or about 19.3%). Interestingly, even among those whose partner's education is unknown, a small number (5 out of 29) expressed concern. This suggests that fear of side effects or health issues is a widespread concern, regardless of the husband's or partner's educational background. While individuals with less educated partners represent the largest share of the population, the concern itself appears across all education categories, indicating it is not limited to any specific educational group.

Table 4: 6 Chi-Square tests between several factors Fear of side effects

Factor	(chi-square)	P-Value
Respondent Current Age	91.461	0.000
Region	412.914	0.000
Type of place of residence	17.031	0.000
Number of living children	132.751	0.000
Wealth index combined	93.771	0.000
Wealth index for urban/rural	25.637	0.000
Respondent currently working	36.056	0.000
Visited by fieldworker in last 12 months	91.342	0.000
Heard family planning in newspaper/magazine last few months	2.976	0.085
At health facility, told of family planning	35.125	0.000
Source of family planning for non-users: no source	298.399	0.000
Source of family planning for non-users: any source	298.399	0.000

The chi-square analysis reveals that several socio-demographic and informational factors have a statistically significant association with contraceptive use. Factors such as respondent's age, region, place of residence, number of living children, wealth index (both combined and urban/rural), and employment status all show strong significance ($p = 0.000$), indicating that these variables heavily influence



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contraceptive behavior. Additionally, being visited by a fieldworker and receiving information about family planning at a health facility significantly impact contraceptive awareness and use. Access to family planning sources—either knowing or not knowing where to obtain contraceptives—is also a highly significant factor, reinforcing the critical role of accessible information. In contrast, exposure to family planning messages through newspapers or magazines shows no significant association ($p = 0.085$), suggesting that print media alone may not be an effective channel for influencing contraceptive practices. Overall, the findings highlight the need for targeted, community-based interventions and improved healthcare access to enhance contraceptive uptake, especially in underserved population

4.1 Determinants Of Fear Of Side Effects/Health Concerns

Table 4: 7 Logistic Regression Estimates for Predictors of Fear of side effects/health concerns

	B	S.E.	Sig.	Exp(B)	95% EXP(B) Lower	C.I. for Upper
Respondent Current Age						
14-19(r)			.000			
20-24	-1.345	.597	.024	.260	.081	.839
25-29	.125	.143	.385	1.133	.855	1.500
30-34	.296	.092	.001	1.344	1.122	1.610
35-39	.451	.080	.000	1.571	1.342	1.838
40-44	.529	.072	.000	1.697	1.474	1.955
45-49	.439	.072	.000	1.551	1.347	1.787
Region						
Punjab (r)			.000			
Sindh	2.577	.234	.000	13.158	8.313	20.828
KPK	2.610	.235	.000	13.605	8.579	21.575
Balochistan	1.871	.238	.000	6.493	4.069	10.361
GB	2.260	.236	.000	9.585	6.035	15.222
ICT	2.860	.241	.000	17.469	10.903	27.991
AJK	2.424	.254	.000	11.289	6.866	18.560
FATA	3.086	.236	.000	21.899	13.794	34.768
Type of place of residence						
Urban(r)	.196	.094	.037	1.216	1.012	1.461
Highest educational level						
No Education(r)			.002			
Primary	-.372	.108	.001	.690	.558	.851
Secondary	-.422	.115	.000	.656	.523	.822
Higher	-.342	.108	.002	.710	.574	.878
Wealth index combined						
Poorest(r)			.000			
Poorer	.796	.212	.000	2.216	1.464	3.356



Middle	.757	.176	.000	2.132	1.511	3.007
Richer	.226	.138	.102	1.253	.956	1.642
Richest	-.140	.125	.262	.869	.680	1.111
Wealth index for urban/rural						
Poorest(r)			.004			
Poorer	-.354	.185	.055	.702	.488	1.008
Middle	-.221	.156	.157	.802	.590	1.089
Richer	-.218	.141	.123	.804	.609	1.061
Richest	.158	.114	.167	1.171	.936	1.464
Number of living children						
0-2(r)			.000			
3-5	-.801	.124	.000	.449	.352	.572
6-8	-.635	.089	.000	.530	.445	.631
9-11	-.316	.086	.000	.729	.616	.862
Constant	-3.744	.269	.000	.024		

The logistic regression results highlight significant predictors of fear of side effects or health concerns regarding contraceptive use among women in Pakistan. Women aged 30–49 are significantly more likely to report such fears compared to adolescents (14–19), with the odds peaking in the 40–44 age group. Regional disparities are stark—women in FATA, ICT, KPK, and Sindh are far more likely than those in Punjab to express fear, with FATA showing the highest odds (OR=21.899). Rural women are also more likely to cite fear than urban women. Education plays a protective role; women with primary, secondary, or higher education are significantly less likely to report fear compared to those with no education. Interestingly, women from poorer and middle-income households show higher odds of fear than the poorest, while wealthier women do not differ significantly. Lastly, women with more children (especially 3 or more) are less likely to report fear, indicating that experience may reduce anxiety about contraceptive side effects.

Conclusion

This study analyzed the key factors influencing obstacles to contraceptive use among women in Pakistan using PDHS 2017–2018 data. It found that age, region, education, wealth, and number of children significantly affect contraceptive adoption. Women aged 20–24 were less likely to use contraceptives than adolescents, while those aged 30–49 showed higher use, highlighting the need for age-specific interventions. Regional disparities were pronounced, with women in FATA, ICT, and Sindh facing greater barriers than those in Punjab, underscoring the need for region-tailored family planning strategies. Education strongly reduced obstacles, emphasizing the importance of women's education in reproductive health. Wealth status also influenced access, with poorer and middle-income women encountering more challenges than the richest. Additionally, women with more children were less likely to face barriers, suggesting experience reduces fears about contraception. Overall, the findings call for comprehensive, culturally sensitive, and targeted family planning programs to improve contraceptive use across Pakistan, guiding policymakers and health providers in enhancing reproductive health outcomes.



References

1. Shumet, T.; Geda, N. R.; & Hassan, J. A. Barriers to modern contraceptive utilization in Ethiopia. *Contraception and Reproductive Medicine* 2024, 9(1), 47.
2. Bello, O. O.; & Agboola, A. D. Trends in contraceptive uptake at a tertiary health facility in Ibadan, Nigeria. *International Journal of Medicine and Health Development* 2020, 25(1), 21-27.
3. Al Rifaii, N.; Alaeddine, C.; Domiati, S.; & El-Lakany, A. Knowledge, attitude, and experience of lebanese females toward oral contraceptive use. *BAU Journal-Health and Wellbeing* 2024, 6(1), 5.
4. Hassan, A.; & Golub, S. Sexual and Reproductive Health Goals and the 2030 Global Agenda for Sustainable Development: Progress, Prospects, and Challenges. *Journal of Pediatric and Adolescent Gynecology* 2024.
5. Faryniarz, K. C. The Relationship between Food Insecurity and Unmet Need for Modern Contraceptives. Master's thesis, Georgetown University, A Country-Level Analysis 2024.
6. Gemzell-Danielsson, K.; & Berger, C. Emergency contraception—mechanisms of action. *Contraception* 2013, 87(3), 300-308.
7. Upadhyia, K. K.; Breuner, C. C., Alderman, E. M., Grubb, L. K., Hornberger, L. L., Powers, M. E., & Wallace, S. B. Emergency contraception. *Pediatrics* 2019, 144(6).
8. Palermo, T., Bleck, J.; & Westley, E. Knowledge and use of emergency contraception: a multicounty analysis. *International Perspectives on sexual and reproductive Health* 2014, 40(2), 79-86.
9. Siddiqui, M.; Fatima, K.; Ali, S. N.; Fatima, M.; Naveed, W.; Siddiqui, F.; ... & Bibi, Z. Prevalence and predictors of contraception usage in Karachi, Pakistan. *Cureus* 2020, 12(10).
10. Shah, A. M.; & Lee, K. Nisa Mir, J. Exploring Readiness for Birth Control in Improving Women Health Status: Factors Influencing the Adoption of Modern Contraceptives Methods for Family Planning Practices. *Int. J. Environ. Res. Public Health* 2021, 18(22), 11892.
11. Silumbwe, A.; Nkole, T.; Munakampe, M. N.; Milford, C.; Cordero, J. P.; Kriel, Y.; ... & Steyn, P. S. Community and health systems barriers and enablers to family planning and contraceptive services provision and use in Kabwe District, Zambia. *BMC health services research* 2018, 18, 1-11.
12. Mbachu, C. O.; Agu, I. C., Ekwueme, C. N.; Ndu, A., & Onwujekwe, O. A narrative review of evidence to support increased domestic resource mobilization for family planning in Nigeria. *BMC Women's Health* 2023, 23(1), 235.
13. Senderowicz, L.; & Valley, T. Fertility has been framed: why family planning is not a silver bullet for sustainable development. *Studies in Comparative International Development* 2023, 1-32.
14. Caldwell, J. C.; & Caldwell, P. The cultural context of high fertility in sub-Saharan Africa. *Population and development review* 1987, 409-437.
15. Meherali, S., Ali, A., Khaliq, A., & Lassi, Z. S. (2021). Prevalence and determinants of contraception use in Pakistan: trend analysis from the Pakistan Demographic and Health Surveys (PDHS) dataset from 1990 to 2018. *F1000Research*, 10, 790.



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16. Nguyen, T. T., & Neal, S. (2021). Contraceptive prevalence and factors influencing utilization among women in Pakistan: a focus on gender-based violence. *Fulbright Review of Economics and Policy*, 1(1), 119-134.
17. MacQuarrie, K. L. D., & Aziz, A. (2022). Women's decision-making and contraceptive use in Pakistan: an analysis of Demographic and Health Survey data. *Sexual and Reproductive Health Matters*, 29(2). <https://doi.org/10.1080/26410397.2021.2020953>
18. Lakhani S, Meerza SSA, Khakwani S, Naqvi SK, Hameed Khan M, Asim M (2024) Effect modification of socioeconomic status in the association between contraception methods and couple's education: A secondary analysis of PDHS 2017–18. *PLOS Glob Public Health* 4(7): e0003424.
19. Higgins, J. A., & Smith, N. K. (2016). The Sexual Acceptability of Contraception: Reviewing the Literature and Building a New Concept. *The Journal of Sex Research*, 53(4–5), 417–456.
20. Dugdale, M., & Masi, A. T. (1971). Hormonal contraception and thromboembolic disease: Effects of the oral contraceptives on hemostatic mechanisms: A review of the literature. *Journal of chronic diseases*, 23(10–11), 775-790.
21. Ellertson, C., Shochet, T., Blanchard, K., & Trussell, J. (2000). Emergency contraception: a review of the programmatic and social science literature. *Contraception*, 61(3), 145-186.
22. Glasier, A., Bhattacharya, S., Evers, H., Gemzell-Danielsson, K., Hardman, S., Heikinheimo, O., ... & Volpe, A. (2019). Contraception after pregnancy. *Acta obstetrica et gynecologica Scandinavica*, 98(11), 1378-1385.
23. Mol, B. W. J., Ankum, W. M., Bossuyt, P. M. M., & Van der Veen, F. (1995). Contraception and the risk of ectopic pregnancy: a meta-analysis. *Contraception*, 52(6), 337-341.
24. Anderson, C., & Blenkinsopp, A. (2006). Community pharmacy supply of emergency hormonal contraception: a structured literature review of international evidence. *Human Reproduction*, 21(1), 272-284.
25. Sliwa, K., Petrie, M. C., Hilfiker-Kleiner, D., Mebazaa, A., Jackson, A., Johnson, M. R., ... & Bauersachs, J. (2018). Long-term prognosis, subsequent pregnancy, contraception and overall management of peripartum cardiomyopathy: practical guidance paper from the Heart Failure Association of the European Society of Cardiology Study Group on Peripartum Cardiomyopathy. *European journal of heart failure*, 20(6), 951-962.
26. Mueck, A. O., Seeger, H., & Rabe, T. (2010). Hormonal contraception and risk of endometrial cancer: a systematic review. *Endocrine-related cancer*, 17(4), R263-R271.
27. Williams, W. V. (2017). Hormonal contraception and the development of autoimmunity: a review of the literature. *The Linacre Quarterly*, 84(3), 275-295.
28. Williams, W. V. (2017). Hormonal contraception and the development of autoimmunity: a review of the literature. *The Linacre Quarterly*, 84(3), 275-295.
29. Dhont, M. (2010). History of oral contraception. *The European Journal of Contraception & Reproductive Health Care*, 15(sup2), S12-S18.
30. Chauhan, A., & Prabha, V. (2023). " Mapping Male Contraception Research: An In-depth Scopus Study across International and Indian Contexts.

