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# Access and knowledge of contraceptives and unmet need for family planning in Pakistan

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## Abstract

**Background** Family planning facilities provide an extensive choice of assistance that is beneficial for women and the society. It may limit the fatality risk for mothers and babies by reducing the rate of pregnancies and abortions. The Government of Pakistan has been continuously trying to persuade the people about the importance of family planning. The accomplishment of these programs depends upon various aspects associated with the knowledge, availability, and access to contraceptives. This paper has investigated the effect of knowledge and access to contraceptives on the unmet need for family planning (UMNFP) among married women of reproductive age (MWRA) in Pakistan.

**Method** The comprehensive dataset of the Pakistan Demographic and Health Survey 2017-18 has been used to investigate the effect of knowledge and access to contraceptives on UMNFP among MWRA in Pakistan by applying Multivariable Logistic regression.

**Results** The prevalence of UMNFP is higher among MWRA of 25 to 34 years than other age groups. The likelihood of UMNFP decreases with increase in education above the primary level. The prevalence of UMNFP is found higher among women who belong to the poorer wealth quintile than the women of the poorest wealth quintile. The odds of UMNFP are considerably low among women belonging to the richer and richest wealth quintile, compared to the women of the poorest wealth quintile. Women's participation in decision making for not using contraceptives is a significant factor to reduce UMNFP. The odds of UMNFP are higher among those women who have no knowledge and lack of access to contraceptives compared to those who have knowledge and access to contraceptives.

**Conclusions** Both knowledge and access to contraceptives are important factors to determine UMNFP. The government should initiate programs to disseminate knowledge as well as provision of contraceptives for effective family planning.

**Keywords** Knowledge of contraceptives, Access to contraceptives, Unmet need for family planning, Pakistan

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## Background

The government of Pakistan has taken several measures for reducing maternal mortality; the most important is the provision of short-term and long-term family planning (FP) services at basic health care units of the country [1, 2]. A study in India has shown that awareness and knowledge of contraceptives are not enough to implement FP but both factors are major determinants of FP [3]. Unmet need for family planning (UMNFP) can be reduced by executing effective FP programs [4]. There is a significant difference between the demand and actual users of FP services [5]. In low- and middle-income countries (LMICs), 225 million women of reproductive age want to prevent pregnancy by using FP methods, though they are not using any of them [6]. Approximately 45% of women in Asia, North Africa, and Eastern Europe are experiencing this dilemma [7]. In general, UMNFP in Indonesia is nearly 11% [8], 12% in Bangladesh [9], 13% in India [10], 17% in Pakistan [1], 22% each in Ethiopia [11] and Tanzania [12], 24% in Nepal [13], 30% in Guyana [6], and 32% in Peru [14] during the current years.

The situation is more challenging for less or under-developed countries, as their tendency of UMNFP is higher; thereby, understanding its causes and determinants will be beneficial in reducing the UMNFP [15]. In Pakistan, 17% of fertile married women face the issue of UMNFP. However, use of contraceptives are increasing by 1% per year [1].

UMNFP is a central idea in population policy and family planning. The term UMNFP is used to refer to “women who would prefer to limit childbearing or space their next birth, yet reluctant in using any FP method” [16]. It includes women who can express desires for their fertility control by delaying their subsequent birth for at least two years or entirely refraining from childbearing. In the current study, UMNFP is described as “the proportion of married women of reproductive age (MWRA) who are not using any contraceptive methods but would like to postpone the next pregnancy (unmet need for spacing), or who do not want any more children (unmet need for limiting)” [17].

Family planning (FP) and population policy can have different direct and indirect effects which are linked with each other. The direct effects are related with different variables of population dynamics such as fertility, family size, birth spacing and population growth. An effective FP program would lead to reduction in fertility, reduced family size and lower population growth. The indirect effects of FP include different socioeconomic implications of fertility, family size and population growth. These implications may vary across societies but are generally linked with infant mortality, maternal mortality and female labor force participation [1, 18]. Reproductive health and FP programs are significantly helpful to

reduce fecundity, child mortality and to bring improvements in maternal and child health in the LMICs [19–22]. UMNFP is one of the primary reasons behind close birth spacing and childbearing at an early age [23–26]. It is also frequently connected with physical abuse of women, risky abortions, and poor maternal health [15].

Women's education, lack of awareness about FP methods, lack of access to FP methods, higher cost and low quality of available FP methods, hesitation to use due to fear of side effects, husband's opposition of use, social norms, religious restrictions, and dominance of males in decision making regarding the use of FP are considered as important and crucial determinants of UMNFP [6]. Educated women are expected to have lower likelihood of UMNFP because they are aware of FP methods and are capable of making their own decisions regarding their health, fertility choices, contraceptives use, and employment [1, 18]. A higher tendency of UMNFP is found among the women who are uneducated of younger age, do not have awareness about contraceptives, and reside in rural areas [17, 20, 27, 28]. Whereas a lower tendency of UMNFP is found among women who are educated, have educated partners, and those who belong to a higher socio-economic class of the society [19, 29–34].

Economic and social development of countries and societies determine the level and needs for contraceptives [35, 36]. Furthermore, the use of contraceptives is also affected by different individual level and household level characteristics as well as economic and population policies [37]. The likelihood of UMNFP is affected by the availability of FP techniques, expenditures and cost of FP, cooperation and willingness of women to use FP, their social and economic status and misconceptions about the consequences of the use of FP [38, 39]. Moreover, education of couple, information and awareness regarding FP techniques, family support, age of women, wealth status, dwelling location, knowledge of abortion, and religious restrictions are also associated with usage of FP methods [17, 19, 37, 40–43].

Most of married women of reproductive age are more likely to have unmet need for family planning because of some wrong information regarding fear of side effects of using contraceptives. Even they are willing, they cannot access contraceptives as they cannot use them properly due to less information [17]. Hence, this study investigates the impact of knowledge and accessibility to contraceptives on the UMNFP in Pakistan.

## Methods

### Data source

The Pakistan Bureau of Statistics provided household lists for sampling zones in Pakistan. The sample size was 16,240 households, of which 7,980 households were in urban areas, and 8260 were in rural areas. The two-stage

sampling process was used to ensure the survey indicators were accurate. 580 main sample units (285 in urban areas and 295 in rural areas) were randomly picked in the first stage of sampling, and a static number of 28 households was arbitrarily selected in each cluster in the second stage of sampling using an equal probability systematic sampling process. In 2017-18, a total of 50,495 married women aged 15–49 were interviewed [1]. We were able to evaluate the data from 12,735 women after excluding those who had incomplete data.

### Variables and measurement

To examine the effects of knowledge and access to contraceptives on unmet need for FP, the functional form of the model used was:

UMNFP =  $f(\text{WA}, \text{WED}, \text{WS}, \text{WE}, \text{PDC}, \text{HED}, \text{KC}, \text{KCS}, \text{AC})$ .

The logistic regression equation for the above functional form of the model can be written as.

$\text{Log (odds)} = \text{logit}(P) = \ln(P/1 - P)$ .

$\text{UMNFP} = \text{Logit}(p) = +b_1(\text{WA}) + b_2(\text{WE}) + b_3(\text{WS}) + b_4(\text{WE}) + b_5(\text{PDC}) + b_6(\text{HED}) + b_7(\text{KC}) + b_8(\text{KCS}) + b_8(\text{AC})$ .

Where,

UMNFP = Unmet need for family planning is exists “when married women of reproductive age who are not using any method but would like to postpone the next pregnancy (unmet need for spacing), or who do not want any more children (unmet need for limiting)”. The variable has been constructed by extracting information from PDHS. This information has been used to build a binary variable of UMNFP. It is categorized into two categories women having UMNFP (spacing and limiting) and women not having UMNFP.

WA = Women's age has been divided into seven age groups of five-year group interval i.e. 15–19, 20–24, 25–29, 30–34, 35–39, 40–44, and 45–49. To avoid a small cell count, the age of women categories were merged into < 25 years, 25–34 years, and ≥ 35 years.

WED = Women's education is categorized into four categories. If a woman has no education = coded as 0; if a woman has primary education = coded as 1; if a woman has secondary education = coded as 2, and coded as 3 if a woman has higher education.

WS = Wealth status of the household was constructed by using household assets and residence characteristics. Every household was given a score for all assets and a summation of the score was taken for every household. Each person was ranked as per scores of the households they resided. The variable was categorized into five quintiles from Poorest to Richest. If a woman belongs to a poorest household = coded as 1, if a woman belongs to a poorer household = coded as 2, if a woman belongs to a middle household = coded as 3, if a woman belongs to the

richer household = coded as 4, and if a woman belongs to the richest household = coded as 5.

WE = Women's employment status has been divided into two categories, i.e., if a woman is currently unemployed = coded as 0, and if a woman is employed = coded as 1.

PDC = A question from measuring the participation in decision-making for not using contraceptives is “Would you say that not using contraception is mainly your decision and mainly your husband's decision”. It is a categorical variable. It has been divided into two categories, i.e., if a woman has decided not to use contraceptives alone or jointly with a husband or someone else = coded as 1, and if someone else has decided not to use contraceptives = coded as 2.

HED = Husband's education is categorized into four categories, i.e., coded as 0, if a husband has no education, coded as 1 if a husband has a primary education, coded as 2, if a husband has a secondary education, and if a husband has higher education then coded as 3.

KC = A question from measuring the knowledge of contraceptives is “Would you say that knowledge of contraceptives.” Knowledge of contraceptives is divided into two categories, i.e., if a woman knows about contraceptives = coded as 1, and if a woman does not know contraceptives = coded as 0.

KCS = Knowledge about the source of contraceptives is measured from the question “Would you say that knowledge about the source of contraceptives.” It is categorized into two categories, i.e., if a woman knows the source of contraceptives = coded as 1, and if a woman does not know the source of contraceptive = coded as 0.

AC = Access to contraceptives is measured from the question “would you say that access of contraceptives.” It is categorized into two categories, i.e., if a woman has no access to contraceptives = coded as 0, and if a woman has access to contraceptives = coded as 1.

Descriptive statistics were calculated using frequency, percentage, and mean with standard deviation for categorical variables. The outcome variable is UMNFP. It was defined by the sum of UMNFP for spacing and limiting. Multivariable logistic regression models were used for inferential analysis to produce covariate-adjusted prevalence rates and 95% CIs. Different categories were merged to avoid a small cell count problem at this level. We included all candidate variables (socio-economic, knowledge, and access to contraceptives) in the model to select the final variables. Where the dependent variable was dichotomous, i.e., having UMNFP (spacing and limiting) and not having UMNFP. All analyses were performed in SPSS v20 [44].

## Results

The socio-economic and demographic determinants of the women are presented in Table 1. Data from 12,735 females were examined. Of these, almost two-thirds of the women were aged between 35 and 49 years old; similarly, two-third of all females (66.0%) and one-third of all husbands (37.0%) had received no education. Almost half of the women (51.1%) belonged to the poorest and poor wealth quintile. Furthermore, 85.5% of the women were currently unemployed. The majority (77%) of the husbands were not against the use of contraceptives. Almost all women (99.7%) had knowledge and source of contraceptives (99.7%). The majority, 98% of the women, had access to contraceptive methods.

Table 2 shows the results of multivariable logistic regression. The UMNFP was lower in women who belong to the less than 25 years age group and at least 35 years age group compared to women 25–34 years. Women with at least an elementary education had a higher risk of UMNFP than women without any educational background. The chance of having UMNFP was significantly higher among women who belong to poor wealth quintile than those women who belong to poorest wealth quintile. Likewise, It was lower among women who reside in richer and richest wealth quintiles than those women

who reside in poorest wealth quintile. The likelihood of UMNFP was higher in women who were not employed than those who were employed. The prevalence of UMNFP was higher in women whose husbands had at least had primary education than those with no education. The likelihood of UMNFP was lower among women who participated in decision-making for not using contraceptives than those who did not participate for not using contraceptives. Lastly, the odd ratios of UMNFP were higher in women who did not know the source of contraceptives and had no access to contraceptive methods.

## Discussions

Empirical finding suggest that MWRA who are 25 to 34 years old have a greater prevalence of UMNFP as compared to other age groups. The probability of UMNFP declines as education above primary school level. The prevalence of UMNFP is found higher among women who belong to the poorer wealth quintile than the women of the poorest wealth quintile. The odds of UMNFP are considerably low among women belonging to the richer and richest wealth quintile, compared to the women of the poorest wealth quintile. Women's participation in decision making for not using contraceptives is a

**Table 1** Description of socio-economic and demographic characteristics of women ( $n = 12,735$ )

| Socio-economic and Demographic Characteristics                |                  | No Unmet Need<br>Frequency (%) | Unmet Need<br>Frequency (%) | Total<br>Frequency (%) |
|---|------------------|--------------------------------|-----------------------------|------------------------|
| Women's Age   | < 25 years       | 304 (2.4)                      | 435 (3.4)                   | 739 (5.8)              |
|   | 25–34 years      | 1,318 (10.4)                   | 2,390 (18.8)                | 3,708 (29.2)           |
|   | 35 years         | 4,564 (35.8)                   | 3,724 (29.2)                | 8,288 (65.0)           |
| Women's Education   | No education     | 4,163 (32.7)                   | 4,278 (33.6)                | 8,441 (66.3)           |
|   | Primary          | 734 (5.8)                      | 860 (6.8)                   | 1,594 (12.5)           |
|   | Secondary        | 850 (6.7)                      | 915 (7.2)                   | 1,765 (13.9)           |
|   | Higher           | 439 (3.4)                      | 496 (3.9)                   | 935 (7.3)              |
| Wealth Status of Household                                    | Poorest          | 1,560 (12.2)                   | 1,780 (14.0)                | 3,340 (26.2)           |
|   | Poorer           | 1,364 (10.7)                   | 1,811 (14.2)                | 3,175 (24.9)           |
|   | Middle           | 1,203 (9.4)                    | 1,286 (10.1)                | 2,489 (19.5)           |
|   | Richer           | 1,004 (7.9)                    | 866 (6.8)                   | 1,870 (14.7)           |
|   | Richest          | 1,055 (8.3)                    | 806 (6.3)                   | 1,861 (14.6)           |
| Women's Employment Status                                     | No               | 5,321 (41.8)                   | 5,562 (43.7)                | 10,883 (85.5)          |
|   | Yes              | 865 (6.8)                      | 987 (7.8)                   | 1,852 (14.5)           |
| Participation in Decision Making for Not Using Contraceptives | No participation | 4,914 (38.6)                   | 4,899 (38.5)                | 9,813 (77.1)           |
|   | Participation    | 1,272 (10)                     | 1,650 (13.0)                | 2,922 (22.9)           |
| Husband's Education   | No education     | 2,327 (18.3)                   | 2,385 (18.7)                | 4,712 (37.0)           |
|   | Primary          | 810 (6.4)                      | 959 (7.5)                   | 1,769 (13.9)           |
|   | Secondary        | 1,970 (15.5)                   | 2,112 (16.6)                | 4,082 (32.1)           |
|   | Higher           | 1,079 (8.5)                    | 1,093 (8.6)                 | 2,172 (17.1)           |
| Reason for Not Using: Knowledge of Contraceptives             | Knowledge        | 6,179 (48.5)                   | 6,518 (51.2)                | 12,697 (99.7)          |
|   | No knowledge     | 7 (0.1)                        | 31 (0.2)                    | 38 (0.3)               |
| Reason for Not Using: Knowledge of Source                     | Knowledge        | 6,177 (48.5)                   | 6,519 (51.2)                | 12,696 (99.7)          |
|   | No knowledge     | 9 (0.1)                        | 30 (0.2)                    | 39 (0.3)               |
| Reason for Not Using: Access to Contraceptives                | Access           | 6,134 (48.2)                   | 6,349 (49.9)                | 12,483 (98.0)          |
|   | No Access        | 52 (0.4)                       | 200 (1.6)                   | 252 (2.0)              |

**Table 2** Results of Multivariable Logistic Regression

| Determinants   |                  | PR         | P     | 95% CI         |
|--|------------------|------------|-------|----------------|
| Women's Age  | < 25 years       | 0.786      | 0.000 | 0.667 to 0.925 |
|  | 25–34 years      |            |       | <b>Ref</b>     |
|  | 35 years         | 0.474      |       | 0.437 to 0.515 |
| Women's Education  | No Education     | <b>Ref</b> |       |                |
|  | Primary          | 1.433      | 0.000 | 1.209 to 1.697 |
|  | Secondary        | 1.194      |       | 1.063 to 1.341 |
|  | Higher           | 1.177      |       | 1.044 to 1.326 |
| Wealth Status of Household                                     | Poorest          | <b>Ref</b> |       |                |
|  | Poorer           | 1.121      | 0.000 | 1.012 to 1.241 |
|  | Middle           | 0.894      |       | 0.798 to 1.000 |
|  | Richer           | 0.701      |       | 0.617 to 0.796 |
|  | Richest          | 0.576      |       | 0.499 to 0.666 |
| Women's Employment Status                                      | Unemployed       | <b>Ref</b> |       |                |
|  | Employed         | 1.095      | 0.084 | 0.988 to 1.214 |
| Participation in Decision Making for Not Using Contraceptives  | Participation    | <b>Ref</b> |       |                |
|  | No Participation | 1.228      | 0.000 | 1.127 to 1.339 |
| Husband's Education  | No Education     | <b>Ref</b> |       |                |
|  | Primary          | 1.171      | 0.053 | 1.043 to 1.314 |
|  | Secondary        | 1.140      |       | 1.036 to 1.255 |
|  | Higher           | 1.132      |       | 0.715 to 1.307 |
| Reason for Not Using: Knowledge of Contraceptives              | Knowledge        | <b>Ref</b> |       |                |
|  | No Knowledge     | 3.550      | 0.003 | 1.534 to 8.219 |
| Reason for Not Using: Knowledge about Source of Contraceptives | Knowledge        | <b>Ref</b> |       |                |
|  | No Knowledge     | 2.389      | 0.031 | 1.083 to 5.268 |
| Reason for Not Using: Access to Contraceptives                 | Access           | <b>Ref</b> |       |                |
|  | No Access        | 3.632      | 0.000 | 2.654 to 4.971 |

significant factor to reduce UMNFP. The odds of UMNFP are higher among those women who have no knowledge and lack of access to contraceptives compared to those who have knowledge and access to contraceptives.

Women's education is negatively related to UMNFP. Women with primary education are more likely to have overall UMNFP, but a continuous decline in UMNFP can be seen with higher education. The odds ratio revealed that UMNFP was greater in women with no information regarding contraceptive methods. These women do not know any preventative methods, thereby, do not need something they are not aware of [17].

The prevalence rate is higher for women who have no accessibility to any FP method. Access to contraceptives remains a predicament issue in low-middle income countries [45]. Several studies have shown that a sizeable part of the population in rural areas faces a significant problem in getting professional quality family planning services at low cost [42, 43, 46]. In countries where preventatives are not adopted owing to the high unavailability, necessary investments should be made to increase the convenience of contraceptives. Apart from access, it is also essential that health care professionals be trained to give information on available contraceptive methods and make sure that people can opt for the method that suits their personal needs [47, 48]. Although, it should

be pointed out that some women face many difficulties [49, 50] while trying to meet their needs for reproductive health.

Unmet need is quite linked with women's age. FP and unmet need mean delaying or spacing births at a young age, while in old age, it refers to stopping or limiting births. The tendency of unmet need is at its extreme in the late thirties and decreases in the forties. But the statement about the chances of unmet need being highest in the thirties is not statistically proven, although unmet need decreases with an increase in age. As the desired number of children is attained until the late thirties, most women would wish to go for family planning at this age.

It is why the tendency of unmet needs is highest in this age. In contrast, young women would want space between pregnancies; therefore, a tendency to delay subsequent pregnancies will likely be higher. Previous studies support our results [27, 30, 51–54].

An uneducated woman tends to be more affected by UMNFP than educated women as educated women are more aware and have better access to FP services. Similarly, educated women have more authority in decision-making for using contraceptives. Due to the easy access to modern contraceptives, wealthy women suffer less from UMNFP than poor women. The following studies support our results [27, 30, 55–57]. In the same way,



employed women have better authority on decision-making for using FP services, hence having fewer chances of having UMNFP than unemployed women. Also, the husband's education is highly associated with mutual decision-making; therefore, it helps in reducing UMNFP [17, 58–60]. FP programs should be integrated with employment, education, etc. according to the national policies formulated in light of the results of this paper. To bring a positive change in the employment and economic status of the country, the government should take measures to improve the literacy and employment rate of the population, especially girls. With effective government policies, enough women's employment opportunities can be provided, which could help solve the problem of UMNFP.

The prevalence of UMNFP is higher in those women whose husbands or someone else have decided not to use contraceptives. This is noteworthy because all women should have the freedom to choose whether or not to have children. This also emphasizes the need to empower women since this will enable them to exercise sovereignty over their lives and bodies and make informed contraception decisions [61–65].

The reported findings are based on the responses of women between the ages of 15 and 49 who took part in the survey. Furthermore, the socioeconomic factors, beliefs, and perceptions of males about family planning services can have a significant impact on family planning decisions. This can be mostly true in a male-dominated culture like Pakistan. In the future, it may be beneficial to investigate the importance of these factors in terms of the occurrence of unmet need for family planning services. Furthermore, it is necessary to investigate the factors that contribute to regional variances in the total UMNFP.

## Conclusions

Based on these findings, enhancing women's education is essential for tackling UMNFP. Educated women are not only more likely to utilize family planning but also make informed reproductive choices. Expanding contraceptive access and launching targeted public awareness campaigns are critical for reducing UMNFP. Additionally, creating more job opportunities for women and dismantling social and cultural barriers to employment will significantly empower women and strengthen their decision-making capabilities. Engaging religious leaders in advocating for family planning can transform societal attitudes and drive widespread adoption of contraceptive practices.

## Abbreviations

|       |  |
|-------|--|
| FP    | Family planning                        |
| PDHS  | Pakistan demographic and health survey |
| UMNFP | Unmet need for family planning         |
| LMICs | Low- and middle-income countries       |
| MWRA  | Married women of reproductive age      |

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## Author contributions

MFA, MA, HGA, TI, and ZL substantially contributed by developing the conceptual framework and design of the study. MFA, SA, and GA substantially contributed through the acquisition and analysis of the data. MFA, MA, HGA, TI, SA, GA and ZL were involved in drafting and critically revising the article.

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## Data availability

We have used the secondary data of PDHS 2017–18. Available at: [https://dhsprogram.com/data/dataset/Pakistan\\_Standard-DHS\\_2017.cfm?\\_ag=0](https://dhsprogram.com/data/dataset/Pakistan_Standard-DHS_2017.cfm?_ag=0).

## Declarations

### Ethics approval and consent to participate

This paper is based on secondary data which is collected from Pakistan Demographic and Health Survey 2017–18.

### Consent for publication

Not applicable.

### Competing interests

The authors declare no competing interests.

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