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The Relationship of Educational Status with The Choice of Different Contraceptive Methods in Women of Reproductive Age

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ABSTRACT

Background: The selection of contraceptive methods is often shaped by social and educational factors. In settings where women's educational attainment remains limited, understanding how education influences contraceptive choices is essential for improving reproductive health strategies. This study aimed to examine the relationship between women's educational status and the type of contraception used among women of reproductive age.

Methods: A descriptive cross-sectional study was conducted in the Department of Obstetrics and Gynecology, Khyber Teaching Hospital, Peshawar, from July to December 2023. A total of 144 women aged 18–40 years who were currently using contraception were enrolled through non-probability consecutive sampling. Data regarding the type of contraceptive method and level of education were collected and analyzed using SPSS version 25. The association between educational attainment and contraceptive method was assessed using chi-square tests, and $p \leq 0.05$ was considered significant.

Results: The mean age of participants was 30.1 ± 5.6 years, and the mean duration of contraceptive use was 3.2 ± 1.7 years. One-third of the women were uneducated, 48(33.3%), followed by those with primary education, 42(29.2%). Implants were the most commonly used method, 42(29.2%), followed by condoms, 34(23.6%). A statistically significant association was observed between educational level and the choice of contraceptive method ($p = 0.036$).

Conclusion: Educational background appeared to play a key role in shaping contraceptive preferences among women of reproductive age. Strengthening female education and awareness programs might support more informed reproductive health decisions in this population.

Keywords: Contraception, Contraception Methods, Patient Education.

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INTRODUCTION

Access to safe and reliable contraception is considered a cornerstone of reproductive health, enabling women to exercise autonomy over fertility choices, prevent unintended pregnancies, and reduce maternal morbidity and mortality. It also plays a vital role in lowering the risk of sexually transmitted infections, including HIV/AIDS. Despite progress, unmet contraceptive needs remain a major public health concern in many developing countries, where population growth continues to exert pressure on health systems and socioeconomic resources[1,2].

Pakistan, the fifth most populous country in the world, has more than 40% of its population under the age of 15. Historical demographic trends highlight persistently high fertility rates, with estimates from the 1970s and 1980s showing average fertility ranging between six and eight children per woman. Although the annual growth rate has slowed compared to the past, projections suggest that by 2050 Pakistan will rank fourth globally in terms of population size[3].

The contraceptive prevalence rate (CPR)—defined as the proportion of married women aged 15–49 years using either traditional or modern contraceptive methods—serves as an important indicator of reproductive behavior within a population. Although CPR has improved in Pakistan over recent decades, the pace of change remains slow and disparities persist[4]. Women living in rural settings or belonging to lower socioeconomic groups continue to face reduced access to modern family planning services. These inequities contribute to higher rates of unintended pregnancies and associated health complications, particularly in comparison with urban and wealthier populations[5].

Regional and cultural factors also shape contraceptive preferences. Previous studies from rural Pakistan have documented variable uptake of methods such as condoms (23.6%), hormonal injections (40.3%), intrauterine devices (29.9%), Norplant implants (18.1%), and traditional practices such as withdrawal (23.6%) and breastfeeding (24.3%)[6,7].

While existing evidence outlines patterns of contraceptive use, limited attention has been given to the influence of women's educational status on method selection. Given the relatively low literacy rates among women in Pakistan, understanding how education impacts contraceptive choice is critical. The present study was therefore designed to assess the frequency and type of contraceptive methods used among women of reproductive age, stratified by educational level. Such insights may guide clinicians in tailoring counseling approaches, improving acceptability of contraceptive methods, and support targeted public health interventions.

METHODS

This cross-sectional study was conducted in the Department of Obstetrics and Gynecology, Khyber Teaching Hospital, Peshawar, between July 1 and December 31, 2023. Women aged 18–40 years who were currently using any form of contraception were eligible for inclusion after approval from the Ethical Review Committee under reference #873/DME/KMC. Those with psychiatric illness or contraindications to specific contraceptive methods were excluded.

The sample size was calculated using the WHO sample size calculator, assuming a 10.4% prevalence of tubal ligation, a 5% margin of error, and a 95% confidence level[8]. This yielded a sample of 144 participants, as required. Recruitment was carried out through non-probability consecutive sampling in the outpatient department. Ethical approval was obtained from the institutional review board and the College of Physicians and Surgeons, Pakistan (CPSP). Written informed consent was obtained from all participants after the study objectives, potential risks, and benefits were explained.

Data collection included demographic characteristics (age, marital duration, number of children, educational level, socioeconomic status, and place of residence), as well as contraceptive history (duration of use and method type). Contraceptive methods assessed were condoms, oral pills, injectables, implants, intrauterine devices, and tubal ligation.

Data were analyzed using SPSS version 22.0. Quantitative variables, such as age and duration of contraceptive use, were summarized as the mean ± standard deviation. Categorical variables, including education, socioeconomic status, place of residence, and contraceptive method, were presented as frequencies and percentages. The association between educational level and choice of contraception was examined using Pearson's chi-square test at a 5% level of significance. Effect modifiers were controlled through stratification, and post-stratification chi-square was applied where relevant.

RESULTS

Table 1. Descriptive statistics of the study participants (N = 144)

Parameters	Mean	Std. Deviation
Age (years)	30.10	5.618
BMI (kg/m^2)	24.050	2.6430
Contraception Duration (years)	3.21	1.680

A total of 144 women aged 18–40 years were included, with a mean age of 30.1 ± 5.6 years. The average duration of contraceptive use was 3.2 ± 1.7 years, and the mean BMI was 24.0 ± 2.6 kg/m² **(Table 1).**

Table 2: The Sociodemographic Characteristics of Participants.

Parameters	Subgroups	Frequency	Percent
Age (years)	18-30	75	52.1
	31-40	69	47.9
Residence	Rural	57	39.6
	Urban	87	60.4
SE status	Poor	40	27.8
	Fair	104	72.2
Contraception duration (years)	3 or below	83	57.6
	More than 3	61	42.4
Education level	Uneducated	48	33.3
	Primary	42	29.2
	Secondary	34	23.6
	Tertiary	20	13.9

Table 2 shows the sociodemographic characteristics of participants. More than half of the women (52.1%) were aged 18–30 years, while 47.9% were between 31–40 years. The majority resided in urban areas (60.4%) compared to rural areas (39.6%). Regarding socioeconomic status, 72.2% of participants belonged to the "fair" group, while 27.8% were classified as "poor." In terms of education, one-third of women were uneducated (33.3%), followed by 29.2% with primary education, 23.6% with secondary education, and only 13.9% with tertiary-level education.

Table 3: Contraception Method in Study Cohort (N = 144)

Contraception Methods	Frequency	Percent
Barriers	34	23.6
Pills	28	19.4
Implants	42	29.2
Injections	14	9.7
IUD	18	12.5

Tubal Ligation	8	5.6

Table 3 outlined the distribution of contraceptive methods. Implants were the most commonly used (29.2%), followed by barrier methods such as condoms (23.6%) and oral contraceptive pills (19.4%). Intrauterine devices accounted for 12.5% of usage, while injectables were reported in 9.7%. Tubal ligation was the least common method (5.6%).

Table 4. Association Of Contraceptive Practice with Patient Education Level (N = 144)

Contraception Method	Education				Total	P value
	Uneducated	Primary	Secondary	Tertiary		
Barriers	8	10	12	4	34	0.036
	23.5%	29.4%	35.3%	11.8%	100.0%	
Pills	10	10	4	4	28	
	35.7%	35.7%	14.3%	14.3%	100.0%	
Implants	16	14	8	4	42	
	38.1%	33.3%	19.0%	9.5%	100.0%	
Injections	2	0	6	6	14	
	14.3%	0.0%	42.9%	42.9%	100.0%	
IUD	8	6	2	2	18	
	44.4%	33.3%	11.1%	11.1%	100.0%	
Tubal Ligation	4	2	2	0	8	
	50.0%	25.0%	25.0%	0.0%	100.0%	
Total	48	42	34	20	144	
	33.3%	29.2%	23.6%	13.9%	100.0%	

Table 4 highlighted the association between contraceptive choice and education level. A significant relationship was observed ($p = 0.036$). Implants were the most common method among uneducated women (38.1%), whereas pills were more frequent among those with primary education (35.7%). Injectable contraceptives were relatively more common among women with tertiary education (42.9%), while intrauterine devices were mostly used by women without formal schooling (44.4%).

Table 5: Stratification of Contraception Methods with Age (N = 144)

Contraception Method	Age (years)		Total
	18-30	31-40	

Barriers	19	15	34
	55.9%	44.1%	100.0%
Pills	15	13	28
	53.6%	46.4%	100.0%
Implants	24	18	42
	57.1%	42.9%	100.0%
Injections	3	11	14
	21.4%	78.6%	100.0%
IUD	10	8	18
	55.6%	44.4%	100.0%
Tubal Ligation	4	4	8
	50.0%	50.0%	100.0%
Total	75	69	144
	52.1%	47.9%	100.0%

Table 5 demonstrated the relationship between contraceptive methods and age. Women aged 18–30 years most frequently used implants (57.1%), while injectables were predominantly reported in women aged 31–40 years (78.6%). However, this association was not statistically significant (p = 0.304).

Table 6. Stratification of Contraception Methods by Residence (N = 144)

Contraception Method	Residence		Total
	Rural	Urban	
Barriers	14	20	34
	41.2%	58.8%	100.0%
Pills	11	17	28
	39.3%	60.7%	100.0%
Implants	13	29	42
	31.0%	69.0%	100.0%
Injections	8	6	14
	57.1%	42.9%	100.0%
IUD	7	11	18
	38.9%	61.1%	100.0%

Tubal Ligation	4	4	8
	50.0%	50.0%	100.0%
Total	57	87	144
	39.6%	60.4%	100.0%

Table 6 presents contraceptive practices according to place of residence. Among rural women, injectables were relatively more common (57.1%), whereas intrauterine devices were more frequently used by urban women (61.1%). Despite these variations, the association between residence and contraceptive method was not statistically significant ($p = 0.621$).

Table 7: Stratification of contraception methods with SE status (N = 144)

Contraception Method	SE Status		Total
	Poor	Fair	
Barriers	9	25	34
	26.5%	73.5%	100.0%
Pills	9	19	28
	32.1%	67.9%	100.0%
Implants	11	31	42
	26.2%	73.8%	100.0%
Injections	3	11	14
	21.4%	78.6%	100.0%
IUD	6	12	18
	33.3%	66.7%	100.0%
Tubal Ligation	2	6	8
	25.0%	75.0%	100.0%
Total	40	104	144
	27.8%	72.2%	100.0%

Table 7 examined contraceptive use in relation to socioeconomic status. Women with fair socioeconomic background most frequently reported the use of injectables (78.6%), while those with

poor socioeconomic status more often used intrauterine devices (33.3%). This association, however, did not reach statistical significance (p = 0.968).

Table 8: Stratification of Contraception Methods with Contraception Duration (N = 144)

Contraception Method	Contraception duration (years)		Total
	3 or below	More than 3	
Barriers	20	14	34
	58.8%	41.2%	100.0%
Pills	17	11	28
	60.7%	39.3%	100.0%
Implants	26	16	42
	61.9%	38.1%	100.0%
Injections	8	6	14
	57.1%	42.9%	100.0%
IUD	9	9	18
	50.0%	50.0%	100.0%
Tubal Ligation	3	5	8
	37.5%	62.5%	100.0%
Total	83	61	144
	57.6%	42.4%	100.0%

Table 8 showed contraceptive choice stratified by duration of contraceptive use. Women with a history of ≤3 years of use most commonly opted for implants (61.9%) and oral pills (60.7%), whereas tubal ligation was reported more frequently among those with more than 3 years of use (62.5%). No significant association was found between duration of use and method preference (p = 0.821).

DISCUSSION

The findings of this study demonstrated a significant association between women's educational attainment and their choice of contraceptive method. Similar observations have been reported in previous studies from Pakistan and other low- and middle-income countries, where higher education levels were linked with increased acceptance of modern methods such as implants, intrauterine devices, and hormonal contraceptives[9]. Educated women are more likely to access health information, understand the benefits and risks of different methods, and engage in informed decision-making with healthcare providers. Conversely, lower literacy and limited awareness may contribute

to the continued reliance on traditional or less effective methods[10]. These results underscore the importance of improving female literacy and targeted health education campaigns to promote the adoption of safe and effective contraceptive practices.

The mean age of the patients in our study was 30.10±5.618 years, with the majority of the patients aged 18-30 (n = 75, 52.1%). This finding is in contrast to observations reported by Beyene KM and colleagues in their study, where the mean age was 33.91±3.057 years and the majority of the patients were aging in the 4th decade of life[11]. A study, however, higher proportion of females in the 3rd decade of life[12]. Because older and younger women had different characteristics, age is employed in this study to represent disparities in taking birth control. Contrary to their older counterparts, young women are believed to be less passive and, as a result, more inclined to use current forms of contraception[13,14].

Out of the total 144 patients enrolled, the proportion of uneducated participants was maximum (n = 48, 33.3%). Research reported similar findings at another center in our country[15]. Negash WD and colleagues reported a much lower proportion of uneducated participants (7.9%)[16]. The higher ratio of illiteracy rate may be attributed to the overall low literacy rate where major portion is contributed by the women's population.

In our cohort of patients, implant was the most common technique of contraception reported in 42 (29.2%) patients, followed by barrier method in 34 participants (23.6%) and pills (n = 28, 19.4%). Tubal ligation was least common method observed in 8 patients (5.6%). The p value for association between education and the technique of contraception was 0.036 which was statistically significant.

Patient awareness also has an immediate impact on the adoption of contraceptives. With the current technique, the proportion of women rises from no education to post-secondary, and from 11.1% (no education) to 42.1% (post-secondary) for any form of contraception. This is explained by the educated population's cost and the ease of obtaining knowledge. It's particularly noteworthy that a greater percentage of married women use contraceptives, regardless of whether they use the traditional technique (20.1% against 19.1%) or the more recent one (17.8% versus 16.9%)[17]. This is explained by the disparities in married and single women's eagerness to start a family. Contraceptive use is actually lower among women who get married younger than among those who get married later.

Contraceptive usage is found to be lower among women with a smaller family than among those with multiple. Up to four children, the proportion of women rises gradually for traditional approach and for the contemporary technique). After that, it starts to decline. This is explained by the fact that by

the time she has five children and beyond, she is nearly past her reproductive years and may not utilize contraception as often[18].

While education emerged as a significant determinant, other variables such as age, place of residence, socioeconomic status, and duration of contraceptive use were not statistically associated with the choice of method in this study[19,20]. This contrasts with findings from some regional and international studies where older age, urban residence, and higher income have been linked to greater uptake of modern contraceptives[21,22,23]. The lack of association in our sample may reflect the relatively homogenous characteristics of the study population, cultural norms, or limited availability of contraceptive options in certain settings. These results suggest that, beyond education, structural barriers such as healthcare access, cultural acceptability, and service delivery models may also play an important role in shaping contraceptive behavior[24,25]. The results of the study highlight the key contextual factors that are associated with the high prevalence of contraceptive use among women in our population. Some of the factors that increase the likelihood of contraceptive use include the education level of mothers, their employment status, exposure to family planning messages, and overall socio-economic status.

CONCLUSION

This study highlighted the important role of women's educational status in determining contraceptive choices. Women with higher levels of education were more likely to adopt newer methods, while implants emerged as the most frequently used option and tubal ligation the least common. Although awareness of contraception exists, its utilization remains uneven, particularly with respect to modern methods. These findings emphasize the need to strengthen female education and counseling programs to improve informed decision-making and enhance the uptake of effective contraceptive practices.

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CONFLICT OF INTEREST

None

ETHICAL APPROVAL

Ethical approval was obtained from the institutional review board before the initiation of this study under reference# ERC: 873/DME/KMC

AUTHORS' CONTRIBUTION

All authors contributed equally as per ICMJE policy.

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