ORIGINAL ARTICLE

Contraceptive Awareness, Utilization, and Unintended Pregnancy Among Currently Pregnant Women: A Cross-Sectional Study in a North Indian District

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ABSTRACT

Background: India holds 14.3% of the total worldwide burden of unintended pregnancy. This shows, even with a decline in the reproduction rates, there is a high percentage of ignorance in the population about contraception knowledge, access, and efficacy. **Materials and Methods:** This study recruited 435 ever-married pregnant women through probability proportional to size (PPS) sampling, in which the cross-sectional research was carried out. The data were then collected through a structured questionnaire administered through a face-to-face interview. The pregnancy intention was assessed using the London Measure of Unplanned Pregnancy (LMUP). **Results:** The prevalence of unintended pregnancies stood at 34%. Those without knowledge concerning contraceptive methods showed greater odds of unintended pregnancy (AOR: 1.72; 95% CI: 1.02-2.66). Out of the total interviewed, 89.4% mentioned being informed about modern contraceptives, contrary to just 37.3% who knew that combined use of condoms and oral contraceptive pills improves effectiveness. Out of the women who have ever used contraception (45.3%), 56.9% were using a method during the conception month, while 32.1% attributed the pregnancy to a method failure. The use of condoms (AOR: 8.78) and oral contraceptive pills (AOR: 4.31) was significantly associated with unintended pregnancy. **Conclusion:** There are significant gaps regarding contraceptive knowledge, correct usage, and partner support.

KEYWORDS

Unintended Pregnancy; Contraception; Contraceptive Failure; Reproductive Health; India

INTRODUCTION

Whereas planned and desired pregnancies are viewed as glorious events and milestones in a woman's life, unintended pregnancy, with either mistimed (earlier than desired) or unwanted (never intended) pregnancies, poses a significant global public health issue. It has directly impacted maternal and child outcomes negatively and often reflects the gaps in access to and effective usage of contraceptive services. (1)

It is estimated by the United Nations Population Fund (UNFPA) that 121 million unintended pregnancies occur worldwide every year. (2) India, with a total fertility rate decline from 3.39 in 1992-1993 to 1.99 in 2020-2021, is still responsible for 14.3% of the global burden of unintended pregnancies. (3) According to the National Family Health Surveys (NFHS), this proportion has decreased over the years, going down from 13% (NFHS-3) to 9% (NFHS-4), bringing forth the fact that there still remains an issue in public health. (4)

In Uttar Pradesh, one of the most populated states in India, an estimated 14% of women reported their latest pregnancy as unintended. Based on estimates from 2015, of the 10 million pregnancies in the state, nearly 4.9 million had the status of being unintended. (5)

The unmet family planning need in India has reduced from 20.6% in 1993 to 9.4% in 2021; yet, the existence of unwanted pregnancies primarily suggests the existence of unmet needs, including method failure, inconsistent use, and lack of knowledge. (6,7)

Aims & Objectives: To evaluate the burden of unwanted pregnancy and its association with the awareness and use of contraceptives in currently pregnant ever-married women in Aligarh, North India.

MATERIAL & METHODS

Study type & Study design: This is a community-based cross-sectional design on unintended pregnancy and its association with various factors related to contraception.

Study setting: The Rural Health Training Centre (RHTC) and Urban Health Training Centre (UHTC) under Jawaharlal Nehru Medical College (JNMC), Aligarh Muslim University (AMU), Aligarh. The area of study comprised an urban population of 11,863 (in Firdaus Nagar, Nagla Quilla, Patwari Nagla) and a rural population

of 20,331 (in Jawan, Chhota Jawan, Garhiya Bhojpur, Sumera, Tejpur), with 161 participants from urban areas and 274 from rural areas.

Study population: The study population comprised currently pregnant, ever-married women aged 18 years and above residing in the study areas.

Study duration: The duration of study was between August 2022 and July 2024.

Sample size calculation: A total of 435 currently pregnant women, selected using the Probability Proportional to Size sampling technique. Sample size was determined using the prevalence of 14% unintended pregnancies within Uttar Pradesh and adjusted for 10% non-response and 5% loss to follow-up. (8)

Inclusion criteria: Currently pregnant, ever-married women aged 18 years and above residing in the study areas.

Exclusion criteria: women below 18 years, having complicated pregnancies, or not giving consent.

Data collection: It was performed through face-to-face interviews using a pretested, standardised questionnaire. The questionnaire contained information on socio-demographics, contraception-related variables, and the pregnancy intention status. Pregnancy intention score on the basis of the London Measure of Unplanned Pregnancy (LMUP), a score of 0–9 is designated as unintended and 10–12 as planned. (9)

Ethical issues & informed consent: Ethical approval (Approval No. IECJNMC-825/24.09.2022) was obtained from the Institutional Ethics Committee. All participants were informed about the study, and written informed consent was obtained. Confidentiality of the information was strictly maintained, and health education and counselling were provided to all participants.

Data analysis: Data were analysed using IBM SPSS version 20.0. On contraceptive-related variables, multicollinearity was tested through the Variance Inflation Factor (VIF). Variables Ever use of contraception (VIF = 10.254), contraceptive use for prevention of unplanned pregnancy (VIF = 6.489) and Types of contraceptive method: condom (VIF = 5.147) displayed high multicollinearity (VIF > 5) and were therefore eliminated from the final analysis to ensure model stability. Descriptive statistics were used to provide a summary of the data, and associations between contraception-related variables and unintended pregnancy were assessed using binary logistic regression.

RESULTS

The study comprised 435 ever-married women who were currently pregnant. A significant portion of these participants 272 (62.5%) fell within the age range of 18 to 25 years, with a notable majority living in rural areas 274 (63%). The distribution of religious affiliations among the women was nearly balanced, with 228 (52.4%) identifying as Hindus and 207 (47.6%) as Muslims. A significant portion of the participants identified as belonging to the OBC category, accounting for 210 (48.3%), while 129 (29.7%) were found to be illiterate. A significant portion of households (53.8%) consisted of more than six members, and according to the Modified B.G. Prasad classification (2023), 307 (70.6%) of participants belonged to either the lower middle or lower social class.

The overall prevalence of unintended pregnancy was 148 (34.0%) out of 435 women. Among women who were aware of modern contraceptive methods, 126 (32.4%) experienced unintended pregnancies. Notably, among those who were using modern contraceptives, the prevalence of unintended pregnancy was 65 (58%).

As far as awareness about contraceptive methods was concerned, 389 (89.4%) women reported being aware of contraception, and 403 (92.6%) were aware of the fertile window in the menstrual cycle (Table 1). Among those who were aware (n=389), 381 (97.9%) had knowledge about permanent sterilization. However, as shown in Table 3, knowledge regarding the effectiveness of contraceptive methods was comparatively limited: only 145 (37.3%) women knew that using condoms and pills together increases effectiveness, 75 (19.3%) were aware that oral contraceptive pills are not 100% effective, and only 27 (6.9%) knew that injectables provide protection for three months. Among the various methods, condoms were the most widely known (387 women, 99.5%) method, whereas knowledge about contraceptive implants was least, with only 33 women (8.5%) being aware of them (Table 2).

Less than half of the participants had ever used contraception, and among users, a substantial proportion reported use during the conception period. A notable proportion relied on traditional methods, had recently changed methods, or reported contraceptive failure, indicating gaps in effective and consistent contraceptive use (Table 4). Among the non-users, the most common reason for not using contraception was opposition from the husband (Table 5).

Multivariable logistic regression showed that women unaware of contraceptive methods had significantly higher odds for unintended pregnancies (AOR=1.72, 95% CI: 1.02-2.66, p=0.03) as compared to aware ones. Conversely, those aware of the effectiveness of combined condoms and pills were less likely to have unintended pregnancies (AOR=0.74, p=0.04) as were those who knew injectables were effective for 3 months (AOR=0.36, p=0.02).

Among the women who used contraception in the month of conception (n=112), unintended pregnancy significantly associated with the use of condoms (AOR=8.78, p<0.001); and OCPs (AOR=4.31, p<0.001). The use of traditional methods only also had a significant association (AOR=3.12, p=0.02). The most prominent association emerged for self-reported contraceptive failure, placing it at AOR=56.7(p<0.001). The analysis of IUCD use was hampered because of its low frequency (n=1) and likely reflected random variation.

Table 1: Awareness About Contraceptive Methods (n = 435)

Variable	Response	Frequency (n)	Percentage (%)
Knowledge about contraceptive methods	Yes	389	89.4
	No	46	10.6
Knowledge about timing of menstrual cycle	Yes	403	92.6
	No	32	7.4

Table 2: Types of Methods Known and Sources of Information (n = 389)

Variable	Frequency (n)	Percentage (%)
Types of contraceptive methods known		
Condoms	387	99.5
Pills (OCP)	366	94.0
IUCD	247	63.5
Injectables	78	20.0
Implants	33	8.5
Source of information		
Health workers	378	95.8
Mass media	307	78.9
Other	41	10.5

Table 3: Knowledge About Contraceptive Methods (n = 389)

S. No.	Variable	Response	Frequency (n)	Percentage (%)
	Knowledge about permanent sterilization	Yes	381	97.9
		No	8	2.1
	Aware that condom and pills together are effective	Yes	145	37.3
		No	244	62.7
	Aware that OCPs do not guarantee 100% prevention	Yes	75	19.3
		No	314	80.7
	Knowledge that injectables are effective for 3 months	Yes	27	6.9
		No	362	93.1
	Consider OCP still effective when 2 or 3 doses are missed	Yes	23	5.9
		No	366	94.1

Table 4: Practices related to contraceptive use and Perceived Contraceptive failure

Variable	Frequency (n)	Percentage (%)
Ever used contraceptive methods (n=435)		
-Yes	197	45.3
-No	238	54.7
Use of contraceptives during the month of conception (n=197)		
-Yes	112	56.9
-No	85	43.1
Recently changed method (n=112)		
-Yes	17	15.2
-No	95	84.8
Using only traditional methods (n=112)		
-Yes	20	17.9
-No	92	82.1
Types of contraceptive methods use during the month of conception (n = 112)		
Barrier methods (condoms)	88	78.6
Oral contraceptive pills (OCP)	48	42.9
Intrauterine contraceptive device (IUCD)	01	0.9
Injectable contraceptives/ Implants	0	0.0
Pregnancy due to perceived contraceptive failure (n=112)		
-Yes	36	32.1
-No	76	67.9

Table 5: Reasons for Non-Use of Contraceptive Methods

Variable	Frequency (n)	Percentage (%)
Reasons for not using contraception (n = 238)		
Unaware	46	19.3
Fear of side effects	27	11.3
Husband opposed	142	59.7
Other personal reasons	23	9.7

Table 6: unintended pregnancy and contraceptive awareness (n=435)

S. No.	Variable	UIP (+) (n=148)	UIP (-) (n=287)	Crude OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
1	Knowledge about contraceptive methods						
	– Yes	126	263	Ref		Ref	
	– No	22	24	1.91 (1.03–3.54)	0.03	1.72 (1.02–2.66)	0.03
2	Knowledge about timing of menstrual cycle						
	– Yes	134	269	Ref		Ref	
	– No	14	18	1.56 (0.75–3.24)	0.23	1.59 (0.99–2.84)	0.18

Table 7: Association of Knowledge Variables with Unintended Pregnancy (n=389)

S. No.	Variable	UIP (+) n=126	UIP (–) n=263	Crude OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
1	Knowledge about permanent sterilization						
	– Yes	124	257	1.45 (0.29–7.27)	0.65*	1.41 (0.27–6.71)	0.96*
	– No	2	6	Ref		Ref	
2	Aware that condom and pills together are effective						
	– Yes	38	107	0.63 (0.40–0.99)	0.04	0.74 (0.48–0.95)	0.04
	– No	88	156	Ref		Ref	
3	Aware that OCPs do not guarantee 100% prevention						
	– Yes	18	57	0.61 (0.34–1.07)	0.08	0.60 (0.34–1.03)	0.07
	– No	108	206	Ref		Ref	
4	Knowledge that injectables are effective for 3 months						
	– Yes	3	24	0.24 (0.07–0.82)	0.02	0.36 (0.17–0.90)	0.02

S. No.	Variable	UIP (+) n=126	UIP (–) n=263	Crude OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
	– No	123	239	Ref		Ref	
5	Consider OCP still effective when 2 or 3 doses are missed						
	– Yes	4	19	0.42 (0.14–1.26)	0.13	0.40 (0.11–1.26)	0.12
	– No	122	244	Ref		Ref	

*Fisher`s exact two-sided P-value

Table 8: Unintended pregnancy among current contraceptive users (n=112)

S. No.	Variable	UIP (+) (n=65)	UIP (-) (n=47)	Crude OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
1	Barrier methods (condoms)						
	– Yes	60	28	8.14 (2.76–24.04)	<0.001	8.78 (2.99–11.71)	<0.001
	– No	5	19	Ref		Ref	
2	Oral contraceptive pills (OCP)						
	– Yes	37	11	4.32 (1.88–9.97)	<0.001	4.31 (1.82–9.82)	<0.001
	– No	28	36	Ref		Ref	
3	Intrauterine contraceptive device (IUCD)#						
4	Recently changed contraceptive method						
	– Yes	11	6	1.39 (0.48–4.08)	0.54	1.89 (0.38–3.67)	0.49
	– No	54	41	Ref		Ref	
5	Using only traditional methods						
	– Yes	16	04	3.50 (1.09–11.31)	0.03	3.12 (1.44–11.07)	0.02
	– No	49	43	Ref		Ref	
6	Pregnancy due to contraceptive failure (self-reported perception)						
	– Yes	35	1	56.6 (6.89–435.1)	<0.001*	56.7.0 (11.52–279.3)	<0.001*
	– No	29	47	Ref		Ref	

*Fisher`s exact two-sided P-value. # IUCD excluded due to very low frequency (likely due to chance)

DISCUSSION

This study demonstrated a significant level of awareness of contraceptive methods among pregnant women, with 389 (89.4%) indicating knowledge of contraception and 403 (92.6%) recognising the timing of the menstrual cycle. Condoms (387, 99.5%) and oral contraceptive pills (366, 94.0%) were the most recognised methods, predominantly disseminated via health practitioners (378, 95.8%) and media (307, 78.9%). This pattern of extensive general knowledge coupled with restricted method-specific understanding corresponds with the observations of Frost et al. (2012) and Peach et al. (2021), who indicated that a wide-ranging awareness frequently coexists with inadequate comprehension of appropriate application and effectiveness. (10, 11)

Despite the elevated overall awareness, there were substantial deficiencies in method-specific knowledge. Almost all respondents, 381 (97.9%), were aware of permanent sterilisation; however, only 27 (6.9%) recognised that injectable contraceptives were effective for three months, and only 75 (19.3%) understood that oral contraceptive pills did not ensure 100% protection. Likewise, merely 145 individuals (37.3%) acknowledged that the concurrent use of condoms and tablets enhances efficacy. These shortcomings indicate inadequate contraceptive literacy, aligning with global research that associates misinformation and limited comprehension with inconsistent usage (Wang et al., 2015; Strong et al., 2023). (12, 13) These knowledge limitations may lead to improper method use, cessation, or perceived inadequacy.

Fewer than half of the women, 197 (45.3%), had ever used contraception, and only 112 (56.9%) of this group reported using it during the conception month. Among current users, barrier methods were prominent at 88 (78.6%), followed by oral contraceptive pills (OCPs) at 48 (42.9%), while long-acting reversible contraceptives (LARCs), such as intrauterine contraceptive devices (IUCDs), were infrequently utilised at 01 (0.9%). This percentage indicates a pronounced inclination towards short-term, user-dependent approaches, akin to patterns noted in Ali et al. (2012) in Pakistan and Barden-O'Fallon et al. (2021) in sub-Saharan Africa. Method switching was minimal at 17 (15.2%), while dependence on old methods was significant at 20 (17.9%). Furthermore, 36 individuals (32.1%) indicated conception resulting from perceived contraceptive failure, highlighting deficiencies in behaviour and providing information on consistent and accurate usage. (14, 15)

Among non-users (n = 238), the primary cause was spousal opposition, cited by 142 individuals (59.7%), followed by lack of awareness at 75 individuals (19.3%) and fear of negative effects at 27 individuals (11.3%). The findings underscore persistent sociocultural obstacles to women's reproductive autonomy, aligning with Bellizzi et al. (2019) and Somefun et al. (2021), who identified male partner disapproval and apprehension regarding side effects as significant impediments to contraceptive use in South Asian and African settings. (16, 17)

A deficiency in understanding contraceptive methods markedly elevated the likelihood of unwanted pregnancy (AOR = 1.72; p = 0.03). Despite the lack of a statistically significant link regarding menstrual-cycle knowledge (AOR = 1.59; p = 0.18), the trend indicates that fertility awareness may influence pregnancy planning. These findings align with Peach et al. (2021) and Strong et al. (2023), who identified a correlation between insufficient fertility and contraceptive knowledge and an increased risk of unwanted pregnancy. (11, 13)

Women who knew that using both condoms and pills together made them more effective had a much lower risk of getting pregnant (AOR = 0.74; p = 0.04). Knowing how long injectables last also helped protect them (AOR = 0.36; p = 0.02). In contrast, misconceptions—such as the belief that oral contraceptive pills remain effective after missing two or three doses—were prevalent (94.1%) and may have led to contraceptive failure. These findings reflect widespread evidence that precise, method-specific knowledge enhances correct usage and reduces failure rates (Rosenberg et al., 1995; Wang et al., 2015). (18,12) The absence of a significant correlation with sterilisation knowledge may indicate its widespread awareness and minimal importance to the present pregnant population.

Of the current contraceptive users, 112 (58%) indicated that their present pregnancy was unintended. The use of condoms was linked to an eightfold elevation in risk (AOR = 8.78), followed by oral contraceptive pills (AOR = 4.31) and conventional techniques (AOR = 3.12). The heightened risks align closely with established typical-use failure rates for user-dependent approaches, as documented by Sundaram et al. (2017). The low utilisation of LARC in our population likely resulted in an elevated incidence of failure-related unplanned pregnancies. Furthermore, women who self-reported pregnancy resulting from contraceptive failure exhibited significantly elevated adjusted risks (AOR = 56.7; p < 0.001), suggesting both actual method failure and potential inconsistent or improper usage. Comparable patterns have been noted in low- and middle-income countries, where inadequate counselling and approaches susceptible to user error are prevalent (Ali et al., 2012; Barden-O'Fallon et al., 2021). (19, 14, 15)

Among 435 currently pregnant, ever-married women, 148 (34.0%) experienced unwanted pregnancies, primarily due to inadequate awareness, uneven utilisation of short-acting methods, and cultural opposition to contraception. These findings align with Bellizzi et al. (2019), who documented significant population-attributable risks associated with non-use and traditional practices in South Asia. (16)

Conclusion

The study demonstrates a substantial burden of unintended pregnancy among currently pregnant women, despite high overall awareness of contraception. Method-specific knowledge gaps, short-term user-dependent method usage as the main approach, effectiveness misconceptions, and partner opposition which represents a sociocultural barrier collectively create a critical issue in this situation. The findings demonstrate the requirement for better contraceptive counselling practices, which should teach proper method usage and provide access to effective methods so that unintended pregnancies can be decreased.

Recommendation

Reproductive health programs require stronger development through better method-specific contraceptive counselling and improved contraceptive usage and better understanding of long-acting reversible methods. Male partner involvement in community-based programs and healthcare workers conducting behaviour change communication work together to remove sociocultural barriers which lead to unplanned pregnancies.

Limitation of the Study

This study has several important limitations. As it included only currently pregnant women, it was not possible to calculate method-specific contraceptive failure rates; all participants had conceived despite using contraception, inherently biasing the sample. Data were self-reported, introducing potential recall and social desirability bias, particularly in attributing pregnancies to contraceptive failure. The exceptionally high odds for perceived failure may reflect subjective attribution rather than true method failure. Additionally, the cross-sectional design limits causal interpretation.

Relevance of the Study

The research study demonstrates that pregnant women have knowledge of contraceptives yet fail to use them correctly, which results in unintended pregnancies because of method failures and mistaken beliefs and social and cultural obstacles. It also demonstrates that reproductive health programs need better counselling services together with promotion of efficient contraceptive methods to achieve their goals.

Authors Contribution

All authors have contributed equally.

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Conflict of Interest

There are no conflicts of interest.

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Declaration of Generative AI and AI Assisted Technologies in the Writing Process

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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