CASE REPORT

Post-Abortal Contraceptive Awareness with Menstrual Irregularities

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ABSTRACT

Background: The post-abortal period represents a critical window for initiating contraception and preventing unintended pregnancies. However, inadequate awareness regarding post-abortal contraceptive options and concerns related to menstrual irregularities often influence acceptance and continuation of contraceptive methods. Understanding this association is essential for improving post-abortal family planning services, preventing unintended pregnancies, reducing maternal morbidity, and minimizing the economic burden on families and health-care facilities.

Objectives: To assess the level of post-abortal contraceptive awareness among women and to evaluate the pattern of menstrual irregularities following abortion in relation to contraceptive use.

Materials and Methods: A hospital-based observational study was conducted among 50 women attending the obstetrics and gynecology outpatient department following spontaneous or induced abortion. The study was carried out over a period of six months, from January 2025 to June 2025. Women of reproductive age who consented to participate were included. Data were collected using a structured interview schedule covering socio-demographic details, awareness of post-abortal contraception, contraceptive practices, and post-abortal menstrual patterns. Descriptive and inferential statistical analyses were planned to evaluate associations between contraceptive awareness, method uptake, and menstrual irregularities.

Results: The study observed varying levels of awareness regarding post-abortal contraceptive methods, with temporary methods being more commonly known than long-acting or permanent options. A proportion of participants reported menstrual irregularities such as delayed cycles, altered flow, and dysmenorrhea following abortion. Uptake of contraception in the post-abortal period showed an association with awareness levels, counseling exposure, and concerns related to menstrual changes. Detailed results are presented in tabular form to illustrate awareness patterns, contraceptive choices, and types of menstrual irregularities.

Conclusion: Post-abortal contraceptive awareness remains suboptimal, and apprehension about menstrual irregularities plays a significant role in contraceptive decision-making. Strengthening post-abortal counseling with focused education on contraceptive methods and expected menstrual changes can improve acceptance and continuity of contraception.

Keywords: Post-abortal contraception, contraceptive awareness, menstrual irregularities, abortion, family planning, reproductive health.

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Background

Abortion, whether spontaneous or induced, is a common reproductive health event among women of reproductive age. The post-abortal period is a particularly sensitive and crucial phase, as ovulation can resume within a short time, placing women at risk of unintended pregnancies if effective contraception is not initiated promptly [1]. Post-abortal family planning is therefore recognized as an essential component of comprehensive reproductive health services, aiming to reduce repeat unintended pregnancies and unsafe abortions [2].

Despite the availability of a wide range of contraceptive methods, post-abortal contraceptive uptake remains inconsistent in many settings. Limited awareness, inadequate counseling, sociocultural beliefs, fear of side effects, and misconceptions regarding contraceptive methods continue to act as barriers [3]. Among these factors, concerns related to menstrual irregularities are frequently reported by women and often influence their willingness to accept or continue a contraceptive method following abortion [4].

Menstrual irregularities such as delayed cycles, excessive or scanty bleeding, irregular spotting, and dysmenorrhea are commonly experienced after abortion. These changes may be physiological and transient; however, when not properly explained, they can be misattributed to contraceptive use, leading to anxiety, poor compliance, or discontinuation of contraception. In many cases, women lack accurate information about the expected post-abortal menstrual pattern and the potential effects of different contraceptive methods on menstruation [5,6].

Effective post-abortal counseling plays a vital role in improving contraceptive awareness and addressing concerns related to menstrual changes. Counseling that provides clear information on available contraceptive options, their benefits, possible side effects, and expected menstrual alterations can empower women to make informed choices. However, gaps in counseling services and limited emphasis on menstrual health often compromise the effectiveness of post-abortal family planning programs [7].

Understanding the level of post-abortal contraceptive awareness and its relationship with menstrual irregularities is essential for identifying gaps in knowledge and practice. Such information can guide healthcare providers in tailoring counseling strategies, improving service delivery, and enhancing contraceptive acceptance during the post-abortal period. Therefore, it is of interest to assess post-abortal contraceptive awareness and to evaluate the pattern of menstrual irregularities among women following abortion.

Aim

To assess post-abortal contraceptive awareness and its association with menstrual irregularities among women following abortion.

Objectives

1. To determine the level of awareness regarding post-abortal contraceptive methods among women.
2. To assess the pattern and types of menstrual irregularities experienced in the post-abortal period.
3. To identify the contraceptive methods accepted by women following abortion.
4. To evaluate the association between contraceptive awareness and uptake of post-abortal contraception.
5. To examine the relationship between post-abortal contraceptive use and reported menstrual irregularities.
6. To assess the role of educational status and working status on acceptance of post-abortal contraception by working and non-working women.

Materials and Methods

Study Design and Setting

A hospital-based observational cross-sectional study was conducted in the Department of Obstetrics and Gynecology of a tertiary care teaching hospital. The study focused on women attending post-abortal follow-up services in the outpatient department.

Study Duration

The study was carried out over a period of six months, from January 2025 to June 2025.

Study Population

The study population comprised women of reproductive age who had undergone spontaneous or induced abortion and presented for post-abortal follow-up care during the study period.

Sample Size Calculation

The sample size was calculated using the standard formula for estimating a single proportion:

$n = Z^2 \times p \times q / d^2$

Where:

n = required sample size

Z = standard normal deviate at 95% confidence level (1.96)

p = estimated proportion of post-abortal contraceptive awareness

$q = 1 - p$

d = allowable error

In the absence of precise local data, the proportion (p) was assumed to be 50% to obtain the maximum sample

size. The allowable error was set at 14%.

$n = (1.96)^2 \times 0.5 \times 0.5 / (0.14)^2$

$n \approx 49$

Thus, the calculated sample size was approximately 49, which was rounded off to 50 participants for the study.

Sample Size

A total of 50 women were included in the study.

Inclusion Criteria

1. Women of reproductive age who had undergone spontaneous or induced abortion.
2. Women attending the hospital for post-abortal follow-up within six weeks of abortion.
3. Women who were willing to participate and provided informed consent.

Exclusion Criteria

1. Women with known pre-existing menstrual disorders prior to abortion.
2. Women with diagnosed endocrine disorders affecting menstrual patterns.
3. Women who were unwilling to participate or unable to provide informed consent.
4. Lactating women.

Data Collection Tool and Procedure

Data were collected using a structured and pre-tested interview schedule developed for the study. The tool included sections on socio-demographic characteristics, obstetric and abortion-related details, awareness of post-abortal contraceptive methods, receipt of contraceptive counseling, acceptance of contraception, and post-abortal menstrual patterns. Interviews were conducted face-to-face in a private setting to ensure confidentiality and to facilitate accurate data collection.

Study Variables

Primary variables included the level of post-abortal contraceptive awareness, acceptance of contraceptive methods, and the presence and type of menstrual irregularities following abortion. Secondary variables included age, parity, type of abortion, and exposure to post-abortal counseling.

Statistical Analysis

Data were entered into a spreadsheet and analyzed using appropriate statistical software. Descriptive statistics such as frequencies and percentages were used to summarize categorical variables. Associations between post-abortal contraceptive awareness, contraceptive uptake, and menstrual irregularities were assessed using suitable inferential statistical tests. A p value of less than 0.05 was considered statistically significant.

Ethical Considerations

Ethical clearance was obtained from the Institutional Ethics Committee prior to the initiation of the study. Written informed consent was obtained from all participants after explaining the purpose and procedures of the study. Confidentiality and anonymity of participants were maintained throughout the study period.

Results

The present study included a total of 50 women who attended the post-abortal follow-up clinic during the study period from January 2025 to June 2025. The results are presented to describe the socio-demographic profile of participants, their level of post-abortal contraceptive awareness, contraceptive acceptance, and the pattern of menstrual irregularities experienced following abortion.

Table 1: Distribution of participants according to socio-demographic characteristics (n = 50)

Table 1 describes the socio-demographic profile of the study participants.

Variable	Category	Number (n)	Percentage (%)
Age (years)	18–25	18	36.0
	26–30	17	34.0
	31–35	10	20.0
	>35	5	10.0
Educational status	Illiterate	6	12.0
	Primary	11	22.0
	Secondary	19	38.0
	Higher secondary and above	14	28.0
Parity	Primigravida	15	30.0
	Multigravida	35	70.0
Type of abortion	Spontaneous	28	56.0
	Induced	22	44.0

Table 2: Level of awareness regarding post-abortal contraceptive methods (n = 50)

Table 2 shows the distribution of participants based on

their awareness of post-abortal contraceptive methods.

Awareness level	Number (n)	Percentage (%)
Adequate awareness	21	42.0
Moderate awareness	17	34.0
Inadequate awareness	12	24.0

Figure 1 depicts the distribution of study participants based on their level of post-abortal contraceptive awareness, showing that adequate awareness was present in the highest proportion of women, followed by moderate and inadequate awareness. Figure 1 depicts the distribution of study participants based on their level of post-abortal contraceptive awareness, showing that adequate awareness was present in the highest proportion of women, followed by moderate and inadequate awareness.

Figure 1: Post-abortal contraceptive awareness levels among participants (n = 50)

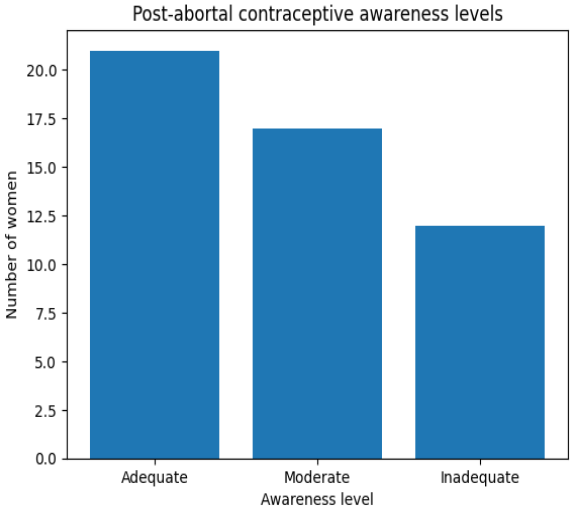

Table 3: Awareness of specific post-abortal contraceptive methods (n = 50)

Table 3 depicts the awareness of individual contraceptive methods among the participants.

Contraceptive method	Number aware (n)	Percentage (%)
Oral contraceptive pills	38	76.0
Barrier methods	34	68.0
Intrauterine contraceptive device	26	52.0
Injectable contraceptives	19	38.0
Emergency contraception	15	30.0
Permanent methods	11	22.0

Table 4: Acceptance of post-abortal contraception among participants (n = 50)

Table 4 illustrates the acceptance of contraceptive methods in the post-abortal period.

Contraceptive acceptance	Number (n)	Percentage (%)
Accepted contraception	32	64.0
Did not accept contraception	18	36.0

Figure 2 shows the proportion of women who accepted and did not accept contraception in the post-abortal period.

Figure 2: Post-abortal contraceptive acceptance among participants (n = 50)

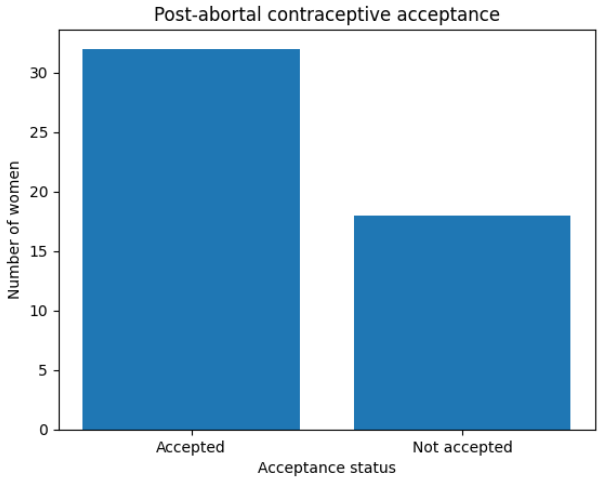

Table 5: Type of contraceptive methods accepted post-abortion (n = 32)

Table 5 shows the distribution of different contraceptive methods accepted by participants who opted for contraception.

Contraceptive method	Number (n)	Percentage (%)

Oral contraceptive pills	12	37.5
Barrier methods	9	28.1
IUCD	7	21.9
Injectable contraceptives	4	12.5

Table 6: Pattern of menstrual irregularities following abortion (n = 50)

Table 6 presents the types of menstrual irregularities reported by the study participants.

Menstrual pattern	Number (n)	Percentage (%)
Regular cycles	21	42.0
Delayed cycles	12	24.0
Irregular cycles	9	18.0
Heavy menstrual bleeding	5	10.0
Scanty menstruation	3	6.0

Figure 3 illustrates the pattern of menstrual changes experienced by women in the post-abortal period, including regular cycles and various forms of menstrual irregularities.

Figure 3: Pattern of menstrual irregularities following abortion (n = 50)

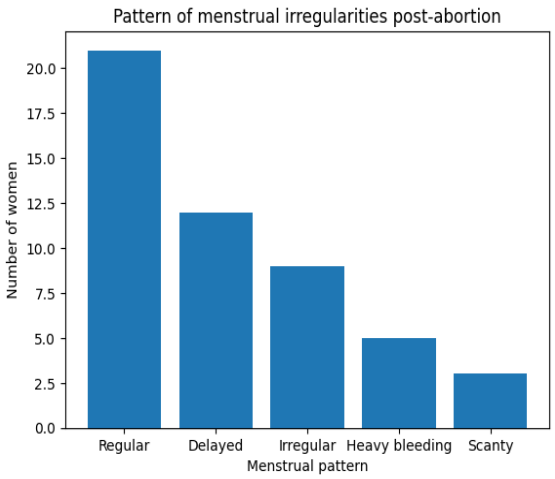

Table 7: Association between post-abortal contraceptive use and menstrual irregularities (n = 50)

Table 7 compares menstrual patterns among women who accepted and did not accept contraception.

Menstrual pattern	Accepted contraception n (%)	Did not accept n (%)
Regular cycles	16 (50.0)	5 (27.8)
Any irregularity	16 (50.0)	13 (72.2)
Total	32 (100.0)	18 (100.0)

Table 8: Post-abortal contraceptive acceptance according to working status (n = 50)

Table 8 shows the distribution of acceptance of post-abortal contraception among working and non-working women.

Working status	Accepted (n)	Not accepted (n)	Total (n)
Working	14	4	18
Non-working	26	6	32
Total	40	10	50

Figure 4: Contraceptive acceptance among working and non-working women

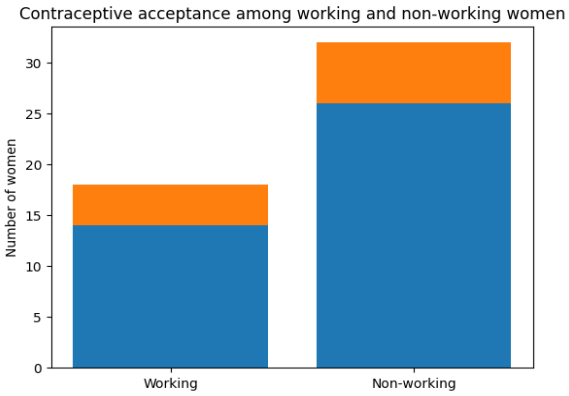

Figure 3. Contraceptive acceptance among working and non-working women.

This figure 4 depicts the number of women who accepted and did not accept post-abortal contraception, stratified by occupational status.

Table 9: Post-abortal contraceptive acceptance according to educational status (n = 50)

Table 9 shows acceptance of post-abortal contraception across different education levels.

Educational status	Accepted (n)	Not accepted (n)	Total (n)
Illiterate	6	4	10
Primary	**10**	**3**	**13**
Secondary	14	2	16
Higher secondary and above	10	1	11
Total	40	10	50

Figure 5: Contraceptive acceptance by education level

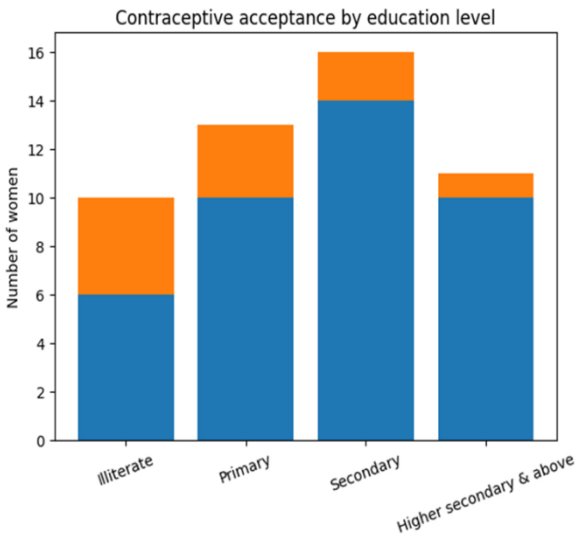

Figure 4. Contraceptive acceptance by education level.

This figure 5 shows the distribution of acceptance and non-acceptance of post-abortal contraception across different education levels.

Table 1 shows that the majority of the study participants belonged to the 18–30 years age group, accounting for 35 women (70.0%), indicating that abortions and post-abortal care were more commonly sought by younger women. Most participants had secondary or higher secondary education (66.0%), and a higher proportion were multigravida (70.0%), reflecting prior pregnancy experience. Spontaneous abortions were more frequent than induced abortions, observed in 28 women (56.0%). **Table 2** indicates that 21 women (42.0%) had adequate awareness regarding post-abortal contraceptive methods, while 17 women (34.0%) had moderate awareness. However, a notable proportion of 12 women (24.0%) demonstrated inadequate awareness, highlighting existing gaps in knowledge despite contact with health services.

Table 3 demonstrates that awareness was highest for oral contraceptive pills, reported by 38 women (76.0%), followed by barrier methods known to 34 women (68.0%). Awareness of long-acting methods such as IUCDs was present in only 26 women (52.0%), while injectable contraceptives and permanent methods were known to 19 women (38.0%) and 11 women (22.0%), respectively, indicating limited awareness of long-term options. **Table 4** shows that post-abortal contraceptive acceptance was observed in 32 women (64.0%), whereas 18 women (36.0%) did not accept any contraceptive method. This finding suggests that nearly one-third of women remained unprotected against unintended pregnancy during the post-abortal period. **Table 5** reveals that among the 32 women who accepted contraception, oral contraceptive pills were the most commonly chosen method, used by 12 women (37.5%). Barrier methods were accepted by 9 women (28.1%), while IUCDs were chosen by 7 women (21.9%). Injectable contraceptives were the least preferred, used by 4 women (12.5%). **Table 6** shows that only 21 women (42.0%) reported regular menstrual cycles following abortion. Menstrual irregularities were reported by 29 women (58.0%), with delayed cycles being the most common abnormality, affecting 12 women (24.0%), followed by irregular cycles in 9 women (18.0%). Heavy menstrual bleeding and scanty menstruation were reported by 5 women (10.0%) and 3 women (6.0%), respectively. **Table 7** indicates that menstrual irregularities were more frequent among women who did not accept post-abortal contraception, with 13 women (72.2%) reporting some form of irregularity, compared to 16 women (50.0%) among those who accepted contraception. Regular menstrual cycles were more commonly observed in women who accepted contraception (50.0%) than in those who did not (27.8%), suggesting a possible association between contraceptive acceptance and better menstrual regulation. **Table 8** shows that among the 18 working women, 14 accepted post-abortal contraception, giving an acceptance rate of 77.8%, while 4 women (22.2%) did not accept any method. Among the 32 non-working women, 26 accepted contraception, corresponding to an acceptance rate of 81.3%, whereas 6 women (18.7%) did not accept contraception. Overall, acceptance was observed in 40 out of 50 women (80.0%), while 10 women (20.0%) did not accept any method. The acceptance rate was slightly higher among non-working women compared to working women, although both groups showed a high level of uptake of post-abortal contraception. This table indicates that occupational status did not markedly limit acceptance, but minor differences in uptake patterns were observed between working and non-working women. **Table 9** demonstrates that among illiterate women, 6 out of 10 accepted post-abortal contraception, resulting in an acceptance rate of 60.0%, while 4 women (40.0%) did not accept any method. In the primary education group, 10 out of 13 women accepted contraception, giving an acceptance rate of 76.9%, with 3 women (23.1%) not accepting. Among women with secondary education, 14 out of 16 accepted contraception, corresponding to the highest acceptance rate of 87.5%, while 2 women (12.5%) did not accept. In women with higher secondary education and above, 10 out of 11 accepted contraception, yielding an acceptance rate of 90.9%,

and only 1 woman (9.1%) did not accept. Overall, this table shows a clear trend of increasing acceptance of post-abortal contraception with rising educational level, indicating that higher educational status is associated with better uptake of contraceptive methods.

Figure 1 demonstrates that although a considerable proportion of women had adequate awareness, nearly one-fourth of participants still had inadequate knowledge regarding post-abortal contraception. **Figure 2** indicates that nearly two-thirds of the participants accepted a contraceptive method post-abortion, while a significant proportion remained without contraception. **Figure 3** shows that menstrual irregularities were common following abortion, with delayed and irregular cycles being the most frequently reported abnormalities. **Figure 4** illustrates the distribution of post-abortal contraceptive acceptance among working and non-working women. Among working women, 14 out of 18 (77.8%) accepted contraception, while 4 (22.2%) did not accept any method. Among non-working women, 26 out of 32 (81.3%) accepted contraception, whereas 6 (18.7%) did not accept. Overall, acceptance was high in both groups, with a slightly higher uptake observed among non-working women. This figure suggests that occupational status did not act as a major barrier to post-abortal contraceptive acceptance, although minor differences in uptake were observed between the two groups. **Figure 5** depicts the pattern of post-abortal contraceptive acceptance across different educational levels. Acceptance was lowest among illiterate women, with 6 out of 10 (60.0%) accepting contraception, and progressively increased with higher levels of education. Women with primary education showed an acceptance rate of 76.9% (10 out of 13), those with secondary education had an acceptance rate of 87.5% (14 out of 16), and women with higher secondary education and above showed the highest acceptance rate of 90.9% (10 out of 11). This figure demonstrates a clear positive association between educational level and acceptance of post-abortal contraception, indicating that higher education is linked to better uptake of contraceptive methods.

Discussion

The present study assessed post-abortal contraceptive awareness and its relationship with menstrual irregularities among women attending post-abortal follow-up services. The findings highlight important gaps in awareness, variations in contraceptive acceptance, and the influence of menstrual concerns on post-abortal contraceptive practices.

The socio-demographic profile of the participants indicates that abortions and post-abortal care were more commonly observed among younger women, particularly those aged 18–30 years, with a predominance of multigravida women [8]. This pattern suggests that despite prior pregnancy experience, a substantial proportion of women continue to face challenges related to effective family planning. The higher occurrence of spontaneous abortions compared to induced abortions reflects routine obstetric presentations in tertiary care settings [9].

The level of post-abortal contraceptive awareness observed in the study was moderate overall, with less than half of the participants demonstrating adequate awareness. Although most women had some knowledge of temporary contraceptive methods, awareness regarding long-acting and permanent methods was comparatively limited. This imbalance in knowledge may contribute to the preferential use of short-term methods and missed opportunities for promoting more effective, long-acting contraceptive options during the post-abortal period [10,11].

Contraceptive acceptance following abortion was observed in nearly two-thirds of the participants. While this reflects a reasonable uptake, the remaining proportion of women who did not accept any method represents a significant unmet need for contraception [12]. Oral contraceptive pills and barrier methods were the most commonly accepted options, likely due to their familiarity, perceived reversibility, and ease of use. In contrast, lower acceptance of IUCDs and injectable contraceptives may be attributed to fear of side effects, misconceptions, and inadequate counseling regarding these methods [13].

Menstrual irregularities were commonly reported following abortion, with more than half of the participants experiencing some form of menstrual disturbance. Delayed and irregular cycles were the most frequent complaints. These findings are consistent with the physiological hormonal changes following abortion; however, inadequate counseling may lead women to perceive these changes as abnormal or harmful. Concerns related to altered bleeding patterns often influence contraceptive decision-making and contribute to method refusal or discontinuation [14].

An important observation of the study was the higher prevalence of menstrual irregularities among women who did not accept post-abortal contraception. Women who opted for contraception reported relatively better menstrual regularity compared to those who did not.

This may reflect the stabilizing effect of certain hormonal contraceptives on menstrual cycles, as well as the role of counseling in setting appropriate expectations regarding post-abortal menstrual changes [15].

Overall, the findings emphasize the need for comprehensive post-abortal counseling that integrates contraceptive education with clear explanations about expected menstrual patterns following abortion. Addressing misconceptions, reassuring women about temporary menstrual changes, and promoting informed choice can significantly improve post-abortal contraceptive uptake and continuity. Strengthening these aspects of post-abortal care has the potential to reduce unintended pregnancies and improve reproductive health outcomes.

Conclusion

The study highlights that post-abortal contraceptive awareness among women remains moderate, with notable gaps particularly in knowledge regarding long-acting and permanent contraceptive methods. Although a majority of women accepted contraception in the post-abortal period, a considerable proportion remained unprotected, increasing the risk of unintended pregnancies. Menstrual irregularities were commonly reported following abortion and were more frequent among women who did not accept contraception, indicating that concerns related to menstrual changes play a significant role in contraceptive decision-making. Strengthening post-abortal counseling with focused education on contraceptive options and clear explanations of expected menstrual patterns can enhance informed choice, improve contraceptive uptake, and support better reproductive health outcomes.

Limitations of the Study

The study was conducted with a relatively small sample size of 50 participants, which may limit the generalizability of the findings. The cross-sectional design restricts the ability to establish causal relationships between contraceptive use and menstrual irregularities. Information on menstrual patterns and contraceptive awareness was based on self-reporting, which may be subject to recall bias. The study was conducted in a single tertiary care center, and findings may not reflect patterns in community or primary care settings.

Recommendations

There is a need to strengthen post-abortal family planning services with structured and standardized counseling protocols. Healthcare providers should emphasize education on long-acting and reversible contraceptive methods and address misconceptions related to menstrual irregularities. Counseling sessions should include clear information about expected post-abortal menstrual changes to reduce anxiety and improve contraceptive acceptance. Follow-up services should be encouraged to monitor menstrual patterns and support continued contraceptive use. Further studies with larger sample sizes and longitudinal designs are recommended to better understand the long-term relationship between post-abortal contraception and menstrual health.

References

1. Papiernik E, Rozenbaum H. Contraception et fertilité ultérieure. Revue générale sur la réversibilité de la contraception orale [Contraception and subsequent fertility. General review on the reversibility of oral contraception]. J Gynecol Obstet Biol Reprod (Paris). 1975 Jul-Aug;4(5):635-46. French. PMID: 1206203.
2. Newton J, Elias J, Johnson A. Immediate post-termination insertion of Copper 7 and Dalkon Shield intrauterine contraceptive devices. J Obstet Gynaecol Br Commonw. 1974 May;81(5):389-92. doi: 10.1111/j.1471-0528.1974.tb00485.x. PMID: 4832320.
3. Taim BC, Ó Catháin C, Renard M, Elliott-Sale KJ, Madigan S, Ní Chéilleachair N. The Prevalence of Menstrual Cycle Disorders and Menstrual Cycle-Related Symptoms in Female Athletes: A Systematic Literature Review. Sports Med. 2023 Oct;53(10):1963-1984. doi: 10.1007/s40279-023-01871-8. Epub 2023 Jun 30. Erratum in: Sports Med. 2023 Oct;53(10):1985. doi: 10.1007/s40279-023-01893-2. PMID: 37389782.
4. Martin D, Sale C, Cooper SB, Elliott-Sale KJ. Period Prevalence and Perceived Side Effects of Hormonal Contraceptive Use and the Menstrual Cycle in Elite Athletes. Int J Sports Physiol Perform. 2018 Aug 1;13(7):926-932. doi: 10.1123/ijspp.2017-0330. Epub 2018 Jul 27. PMID: 29283683.
5. MacMillan C, Olivier B, Viljoen C, van Rensburg DCJ, Sewry N. The Association Between Menstrual Cycle Phase, Menstrual Irregularities, Contraceptive Use and Musculoskeletal Injury Among Female Athletes: A Scoping Review. Sports Med. 2024 Oct;54(10):2515-2530. doi: 10.1007/s40279-024-02074-5. Epub 2024 Aug 31.

PMID: 39215933; PMCID: PMC11467081.

6. Nédélec E, Foli E, Shultz SJ, Swinton PA, Dolan E, Enright K, Piasecki J, Matthews JJ, Sale C, Elliott-Sale KJ. Effect of menstrual cycle phase, menstrual irregularities and hormonal contraceptive use on anterior knee laxity and non-contact anterior cruciate ligament injury occurrence in women: a protocol for a systematic review and meta-analysis. BMJ Open Sport Exerc Med. 2021 Oct 29;7(4):e001170. doi: 10.1136/bmjsem-2021-001170. PMID: 34745647; PMCID: PMC8559120.
7. Wandresen G, Sgarbi F, Nisihara R. Management of contraceptives and menstrual complaints in patients with Down syndrome. Gynecol Endocrinol. 2019 Feb;35(2):103-108. doi: 10.1080/09513590.2018.1501017. Epub 2018 Oct 16. PMID: 30324830.
8. Bahamondes L, Valeria Bahamondes M, Shulman LP. Non-contraceptive benefits of hormonal and intrauterine reversible contraceptive methods. Hum Reprod Update. 2015 Sep-Oct;21(5):640-51. doi: 10.1093/humupd/dmv023. Epub 2015 Jun 1. PMID: 26037216.
9. Jahanfar S, Mortazavi J, Lapidow A, Cu C, Al Abosy J, Ciana H, Morris K, Steinfeldt M, Maurer O, Bohang J, Anjali Oberoi R, Ali M. Assessing the impact of hormonal contraceptive use on menstrual health among women of reproductive age - a systematic review. Eur J Contracept Reprod Health Care. 2024 Oct;29(5):193-223. doi: 10.1080/13625187.2024.2373143. Epub 2024 Jul 15. PMID: 39007750.
10. Mendoza N, Sanchez-Borrego R. Classical and newly recognised non-contraceptive benefits of combined hormonal contraceptive use in women over 40. Maturitas. 2014 May;78(1):45-50. doi: 10.1016/j.maturitas.2014.02.017. Epub 2014 Mar 12. PMID: 24656220.
11. Cheng J, Santiago KA, Abutalib Z, Temme KE, Hulme A, Goolsby MA, Esopenko CL, Casey EK. Menstrual Irregularity, Hormonal Contraceptive Use, and Bone Stress Injuries in Collegiate Female Athletes in the United States. PM R. 2021 Nov;13(11):1207-1215. doi: 10.1002/pmrj.12539. Epub 2021 Feb 3. PMID: 33340255; PMCID: PMC8262270.
12. Schaumberg MA, Jenkins DG, Janse de Jonge XAK, Emmerton LM, Skinner TL. Three-step method for menstrual and oral contraceptive cycle verification. J Sci Med Sport. 2017 Nov;20(11):965-969. doi: 10.1016/j.jsams.2016.08.013. Epub 2016 Aug 26. PMID: 28684053.
13. Magalhaes J, Ferreira-Filho ES, Soares-Junior JM, Baracat EC. Uterine volume, menstrual patterns, and contraceptive outcomes in users of the levonorgestrel-releasing intrauterine system: A cohort study with a five-year follow-up. Eur J Obstet Gynecol Reprod Biol. 2022 Sep;276:56-62. doi: 10.1016/j.ejogrb.2022.06.029. Epub 2022 Jul 2. PMID: 35809459.
14. Day ME, Stimpson SJ, Rodeghier M, Ghafuri D, Callaghan M, Zaidi AU, Hannan B, Kassim A, James AH, DeBaun MR, Sharma D. Contraceptive Methods and the Impact of Menstruation on Daily Functioning in Women with Sickle Cell Disease. South Med J. 2019 Mar;112(3):174-179. doi: 10.14423/SMJ.0000000000000949. PMID: 30830232.
15. Canto de Cetina TE, Luna MO, Cetina Canto JA, Bassol S. Menstrual pattern and lipid profiles during use of medroxyprogesterone acetate and estradiol cypionate and NET-EN (200 mg) as contraceptive injections. Contraception. 2004 Feb;69(2):115-9. doi: 10.1016/j.contraception.2003.09.015. PMID: 14759615.