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Effect of Nurse-Led Postpartum Contraceptive Counseling on Contraceptive Knowledge Among Postpartum Women in a Tertiary Care Hospital, Lahore: A Quasi-Experimental Study

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ABSTRACT

Background: Postpartum family planning prevents unintended and closely spaced pregnancies, yet many women leave hospital without accurate knowledge of modern contraceptive methods. Evidence on structured, nurse-led counseling from Pakistani tertiary hospitals is limited. **Objectives:** To assess contraceptive knowledge, attitude and practice among postpartum women and to evaluate the effect of structured nurse-led postpartum contraceptive counseling on contraceptive knowledge (primary outcome), attitude and practice/intention (secondary outcomes). **Methods**: A quasi-experimental one-group pre-test/post-test study was conducted among 58 married postpartum women recruited by purposive sampling within 48 hours of delivery at Government Teaching Hospital Shahdara, Lahore. Knowledge (12 items), attitude (14 items) and practice (7 items) were measured with an adapted structured questionnaire before counseling and at 6 weeks postpartum. Counseling was delivered face to face before discharge by a researcher using a standardized guide and an English and Urdu flip chart. Data were analyzed in SPSS using descriptive statistics and paired-samples t-tests. **Results**: All 58 women completed both assessments. Mean knowledge increased from 5.60 ± 2.80 to 9.12 ± 2.26 out of 12 ($p < .001$; Cohen's $d = 1.32$). Good knowledge rose from 27.6% to 77.6%, and poor knowledge fell from 46.6% to 6.9%. Mean attitude rose from 41.88 ± 12.98 to 50.66 ± 10.42 out of 70 ($d = 1.00$), and mean practice/intention from 17.57 ± 6.10 to 27.47 ± 4.46 out of 35 ($d = 2.18$); both $p < .001$. Overall, 94.8% reported that counseling helped them decide about contraception. **Conclusion**: Structured nurse-led counseling was followed by large, statistically significant gains in contraceptive knowledge, attitude and reported practice. Because there was no control group and practice was self-reported, the findings indicate association rather than proven causation; a controlled multi-center study with verified method uptake is recommended.

Introduction

Postpartum family planning helps women avoid unintended and closely spaced pregnancies and is a core component of maternal and child health care. The period after childbirth is an important opportunity to offer contraception, because women are already in contact with health services, yet unmet need remains high. In Nepal, for example, unmet need for modern contraception among postpartum women was 54% at one year after birth (Puri et al., 2021). A systematic review of strategies to improve postpartum contraception compared with routine maternal care likewise called for further work to integrate effective interventions into maternal and child health systems (Hu et al., 2023), and antenatal contraceptive discussion has been associated with higher postpartum contraceptive planning and uptake (Cooper et al., 2024).

Counseling is one of the main channels through which women receive information. In a national longitudinal study in Ethiopia, family planning counseling was received by only about one in five women during antenatal care, one in four before discharge and one in four at child immunization, and counseling before discharge was associated with higher modern contraceptive uptake (Mruts et al., 2022). The mode of delivery also matters: in Ghana, uptake was 51.0% among women who received one-to-one counseling compared with 12.6% among those counseled in groups (Asah-Opoku et al., 2023). Studies from India and Sri Lanka have examined postpartum women's knowledge, attitude and practice regarding immediate postpartum contraception (Pal et al., 2022), the effect of focused antenatal counseling on acceptance of the postpartum intrauterine device (Najan et al., 2023), and the location and quality of counselling in relation to its acceptance (Karra et al., 2017). Trials that integrated counseling into routine maternal care have reported benefits in different settings, including a cluster randomized trial in Shanghai (Yin et al., 2024) and a cluster randomized trial in Puducherry, India, in which 66.7% of women in the intervention arm accepted a contraceptive method at six weeks postpartum compared with 21% in the control arm (Susmitha et al., 2025).

In Pakistan, the contraceptive prevalence rate has remained within 30–35% since 2007 (Wasim et al., 2026). Evidence from Sindh indicates that integrating family planning into maternal and child health services increased the uptake of modern methods (Memon et al., 2025), that postnatal counseling by Lady Health Workers was associated with higher uptake (Memon et al., 2024), and that utilization of maternal and child health services was associated with early postpartum modern contraceptive uptake nationally (Asim et al., 2025). In Karachi, client-centered counseling with facilitation led 60.3% of the married women reached to accept a modern method (Fazal et al., 2023). A systematic review of postpartum family planning in low- and middle-income countries further showed that spousal discussion, joint decision-making and partner approval are relevant to uptake (Khurram et al., 2025), which is important in a setting where husbands often influence reproductive choices.

Nurses are well placed to provide this counseling, because they are in frequent contact with women on the postnatal ward. However, much of the Pakistani evidence concerns community settings, university students or integrated programs (Kumar et al., 2024; Memon et al., 2025), and few studies have measured the effect of a structured nurse-led counseling session on the knowledge, attitude and practice of women in a public tertiary care hospital before discharge. This study addressed that gap in Lahore.

Objectives of the Study

- To assess the knowledge, attitude and practice of contraceptive methods among postpartum women.
- To assess the effect of nurse-led postpartum contraceptive counseling on contraceptive knowledge, and on attitude and practice among postpartum women.

Methodology

A quantitative, quasi-experimental one-group pre-test/post-test design was used. Participants completed a baseline questionnaire (pre-test), received structured nurse-led contraceptive counseling, and completed the same questionnaire at the 6-week postnatal follow-up visit (post-test). The The study was conducted in the postnatal unit of Government Teaching Hospital Shahdara, Lahore, Punjab, Pakistan, a public tertiary care hospital providing obstetric and postnatal services. Eligible women were married, aged 18 to 45 years, within 48 hours of delivering a live newborn, medically stable, willing to participate, and able to understand Urdu or English. Women who had undergone permanent sterilization, had a condition preventing participation, could not give informed consent, had already received the same counseling during the current stay, or were transferred or discharged before the assessment was completed were excluded.

Participants were recruited by non-probability purposive sampling until the required number was reached. The sample size was calculated using a formula for comparing two proportions, with a baseline knowledge proportion of 11.8% and an expected post-intervention proportion of 31.8% (a 20-percentage-point improvement), a one-sided significance level of 5% and 80% power. This gave 52 women, which was increased by 10% for possible non-response to 58. Data were collected with a structured

questionnaire in Urdu and English. It had four sections: (A) sociodemographic and obstetric information; (B) knowledge, 12 yes/no/don't know items, with a correct answer scored 1; (C) attitude, 14 five-point Likert items, with two negatively worded items reverse-scored so that higher scores indicate a more favorable attitude; and (D) practice, 7 five-point items from "never" to "always". Knowledge was classified as poor (50% or less of the maximum score), moderate (above 50% to 65%) or good (above 65%). A seven-item section (D1) completed at the post-test only asked women to evaluate the counseling session (yes/no/not sure). Internal consistency in this sample was acceptable i.e. KR-20 for knowledge was 0.70 (pre-test) and 0.66 (post-test), and Cronbach's alpha was 0.95 and 0.93 for attitude and 0.88 and 0.82 for practice.

After the pre-test, each woman received structured, face-to-face nurse-led counseling from the researcher in a private area of the postnatal ward before discharge. The same standardized counseling guide, supported by an English and Urdu visual flip chart, was used for every participant. The content covered the meaning and benefits of postpartum family planning and healthy birth spacing; return of fertility after childbirth; modern methods and the lactational amenorrhea method (LAM); side effects, common misconceptions and when to seek advice; and informed choice based on personal preference, reproductive intentions and medical eligibility.

After administrative permission and informed consent, the pre-test was completed, counseling was delivered, and the post-test was administered at the 6-week postnatal follow-up visit. Questionnaires were checked for completeness, coded with unique identification numbers without names, entered and analyzed using SPSS Statistics version 25. Participant characteristics were summarized as frequencies and percentages, and knowledge, attitude and practice scores as means and standard deviations. The normality of the paired differences was checked with the Shapiro–Wilk test. Pre-test and post-test scores were compared with paired-samples t-tests. A p value below .05 was considered statistically significant.

Results

All 58 recruited women completed both the pre-test and the post-test (100% retention). Most participants were younger than 30 years (38; 65.5%), and 48 (82.8%) were housewives. Forty-seven women (81.0%) were breastfeeding, 36 (62.1%) lived in urban areas and 33 (56.9%) lived in joint families. Thirty women (51.7%) had one living child, 35 (60.3%) were multiparous (para 2–3), and 23 (39.7%) had delivered by caesarean section. Only 20 women (34.5%) had ever used a contraceptive method (31 method selections: condom 7, injectable 5, IUCD 5, pills 4, withdrawal 4, other 4, implant 2), and 20 (34.5%) had received family planning counseling before, most often from a doctor (9 of 29 selections) or nurse/midwife (5). The remaining 38 women (65.5%) had neither used contraception nor received counseling (Table 1).

Table 1: Sociodemographic and Obstetric Characteristics of Participants (N = 58)

Variable	Category	n	%
Age (years)	18–24	21	36.2
	25–29	17	29.3
	30–34	12	20.7
	35–39	5	8.6
	40 or above	3	5.2
Education	No formal education	6	10.3
	Primary	6	10.3
	Middle	10	17.2
	Secondary/Matric	14	24.1
	Intermediate	10	17.2
	Graduate or above	12	20.7
Occupation	Housewife	48	82.8
	Private employee	5	8.6
	Self-employed/business	3	5.2
	Government employee	1	1.7
	Other	1	1.7
Currently breastfeeding	Yes	47	81.0
	No	11	19.0
Residence	Urban	36	62.1

Variable	Category	n	%
	Rural	22	37.9
Family type	Joint	33	56.9
	Nuclear	25	43.1
Living children	1	30	51.7
	2	16	27.6
	3	9	15.5
	4 or more	3	5.2
Parity	Primipara (para 1)	11	19.0
	Multipara (para 2–3)	35	60.3
	Para 4–5	9	15.5
	Grand multipara (para 6+)	3	5.2
Mode of delivery	Normal vaginal	35	60.3
	Caesarean section	23	39.7
Previous contraceptive use	Yes	20	34.5
	No	38	65.5
Previous family planning counseling	Yes	20	34.5
	No	38	65.5

Mean knowledge rose from 5.60 (SD = 2.80) to 9.12 (SD = 2.26) out of 12. The number of correct answers increased on all 12 items (Table 2). The largest gains were for the availability of injectable contraceptives (27 to 49 women), vasectomy as a permanent method (12 to 33) and the LAM (19 to 39), and the smallest (11 women each) were for condoms preventing pregnancy and contraceptive implants. After counseling, fewer than 60% of women still answered correctly for vasectomy (33; 56.9%) and tubal ligation (32; 55.2%). Women with good knowledge increased from 16 (27.6%) to 45 (77.6%), and those with poor knowledge fell from 27 (46.6%) to 4 (6.9%) (Table 3). The knowledge scores of two women were lower at post-test than at pre-test.

Table 2: Participants with a Correct Answer on Each Knowledge Item, Pre-Test and Post-Test

#	Knowledge item	Pre-test n (%)	Post-test n (%)	Gain (n)
1	Knows about modern methods of contraception	31 (53.4)	50 (86.2)	+19
2	Pregnancy possible before first menstrual period returns	36 (62.1)	52 (89.7)	+16
3	Condoms can be used to prevent pregnancy	37 (63.8)	48 (82.8)	+11
4	Condoms can reduce the risk of sexually transmitted infections	33 (56.9)	49 (84.5)	+16
5	Oral contraceptive pills are a modern method	31 (53.4)	49 (84.5)	+18
6	Injectable contraceptives are available as a method	27 (46.6)	49 (84.5)	+22
7	IUCD/Copper-T is a method of contraception	28 (48.3)	44 (75.9)	+16
8	Contraceptive implants are a modern method	30 (51.7)	41 (70.7)	+11
9	Emergency contraceptive pills can prevent pregnancy after unprotected intercourse	24 (41.4)	43 (74.1)	+19
10	Breastfeeding can prevent pregnancy when LAM conditions are met	19 (32.8)	39 (67.2)	+20
11	Male sterilization (vasectomy) is a permanent method	12 (20.7)	33 (56.9)	+21
12	Female tubal ligation is a permanent method	17 (29.3)	32 (55.2)	+15

Table 3: Knowledge Level Before and After Counseling

Knowledge level	Pre-test n (%)	Post-test n (%)
Poor (≤50%)	27 (46.6)	4 (6.9)
Moderate (>50–65%)	15 (25.9)	9 (15.5)
Good (>65%)	16 (27.6)	45 (77.6)

Mean attitude rose from 41.88 (SD = 12.98) to 50.66 (SD = 10.42) out of 70. The number of women giving a positive response increased on all 14 statements, by 5 to 15 women per statement (Table 4). The largest rise was for disagreeing that fear of side effects makes them reluctant to use contraception (20 to 35 women). The number who felt comfortable discussing contraception with their husband or partner rose from 21 to 33. The smallest rise was for the statement that modern methods can prevent unintended pregnancy after childbirth (24 to 29).

Table 4: Participants with a Positive Attitude Response on Each Statement, Pre-Test and Post-Test

#	Attitude statement	Pre-test n (%)	Post-test n (%)	Gain (n)
1	Postpartum women should use contraception to space pregnancies	22 (37.9)	34 (58.6)	+12
2	Spacing is beneficial for the health of mother and child	20 (34.5)	32 (55.2)	+12
3	Modern methods can prevent unintended pregnancy after childbirth	24 (41.4)	29 (50.0)	+5
4	Comfortable discussing contraception with husband/partner	21 (36.2)	33 (56.9)	+12
5	Nurses can provide useful information about postpartum contraception	20 (34.5)	33 (56.9)	+13
6	Counseling helps women make informed decisions	20 (34.5)	33 (56.9)	+13
7	Would consider a modern method after proper counseling	19 (32.8)	33 (56.9)	+14
8	Fear of side effects makes me reluctant to use contraception (reverse-scored)	20 (34.5)	35 (60.3)	+15
9	Husband/partner's opinion influences my decision (reverse-scored)	20 (34.5)	31 (53.4)	+11
10	Cultural beliefs may influence women's use of contraception	17 (29.3)	30 (51.7)	+13
11	Religious beliefs may influence women's decisions	19 (32.8)	33 (56.9)	+14
12	Contraceptive use contributes to family health and well-being	18 (31.0)	32 (55.2)	+14
13	Counseling by a health professional helps correct misconceptions	20 (34.5)	33 (56.9)	+13
14	Women should routinely receive counseling before discharge	22 (37.9)	32 (55.2)	+10

Note. Positive response = agree or strongly agree. For the two negatively worded statements, a positive response = disagree or strongly disagree.

Mean practice/intention rose from 17.57 (SD = 6.10) to 27.47 (SD = 4.46) out of 35. The number of women reporting good practice (usually or always) increased on all seven items, by 26 to 35 women per item (Table 5). Women who reported using or intending to use a modern method rose from 12 (20.7%) to 38 (65.5%), and those who discussed options with their husband or partner from 10 (17.2%) to 39 (67.2%).

Table 5: Participants with Good Practice (Usually or Always) on Each Item, Pre-Test and Post-Test

#	Practice item	Pre-test n (%)	Post-test n (%)	Gain (n)
1	Seek information from a health professional when I need advice	7 (12.1)	40 (69.0)	+33
2	Discuss contraceptive options with husband/partner	10 (17.2)	39 (67.2)	+29
3	Use or intend to use a modern method to prevent unintended pregnancy	12 (20.7)	38 (65.5)	+26
4	Use contraception consistently when I do not want to become pregnant	12 (20.7)	41 (70.7)	+29
5	Seek professional advice before changing or stopping a method	12 (20.7)	42 (72.4)	+30
6	Visit or plan to visit a facility for postpartum family planning services	13 (22.4)	40 (69.0)	+27
7	Follow the health professional's instructions about my chosen method	8 (13.8)	43 (74.1)	+35

Paired-samples t-tests showed statistically significant increases in all three outcomes (Table 6). The knowledge gain of 3.52 points (95% CI 2.82–4.22) corresponded to a large effect (d = 1.32). The paired knowledge differences were approximately normally distributed (Shapiro–Wilk p = 0.352), and the same held for attitude and practice.

Table 6: Pre-Test and Post-Test Scores Compared by Paired-Samples t-Test

Outcome	Pre-test M (SD)	Post-test M (SD)	t(57)	p	d
Knowledge	5.60 (2.80)	9.12 (2.26)	−10.06	<.001	1.32
Attitude	41.88 (12.98)	50.66 (10.42)	−7.58	<.001	1.00
Practice/intention	17.57 (6.10)	27.47 (4.46)	−16.57	<.001	2.18

Note. M = mean; SD = standard deviation; CI = confidence interval; d = Cohen's d. Degrees of freedom = 57 for all tests.

All 58 women (100%) confirmed that they had received counseling from the nurse. Between 82.8% and 94.8% answered yes to each of the remaining questions: 55 women (94.8%) said the counseling helped them decide about contraception, 54 (93.1%) felt comfortable discussing contraception with the nurse, and 51 (87.9%) said it improved their knowledge (Table 7).

Table 7: Participants' Evaluation of the Counseling Session

Statement	Yes n (%)	No n (%)	Not sure n (%)
Received counseling from the nurse on modern methods	58 (100.0)	0 (0.0)	0 (0.0)
Nurse explained the available methods	50 (86.2)	0 (0.0)	8 (13.8)
Nurse explained benefits and possible side effects	50 (86.2)	2 (3.4)	6 (10.3)
Nurse allowed me to ask questions	48 (82.8)	3 (5.2)	7 (12.1)
Felt comfortable discussing contraception with the nurse	54 (93.1)	3 (5.2)	1 (1.7)
Counseling improved my knowledge	51 (87.9)	1 (1.7)	6 (10.3)
Counseling helped me make a decision	55 (94.8)	2 (3.4)	1 (1.7)

Discussion

This study evaluated a single structured nurse-led counseling session for postpartum women in a public tertiary hospital in Lahore. Knowledge, attitude and reported practice all improved significantly at six weeks, with a large effect for knowledge (d = 1.32), the primary outcome.

Baseline knowledge was limited, 46.6% of women were in the poor category, and only 20.7% knew that vasectomy is a permanent method. This was despite one-third of the women having used contraception or been counseled before, which suggests that earlier contact was either limited or not structured enough to leave women with complete and accurate knowledge. The gap fits the national picture of low and stagnant contraceptive use (Wasim et al., 2026) and of limited counseling coverage reported elsewhere (Mruts et al., 2022).

The gain in knowledge is consistent with studies of counseling or education in other settings. In Puducherry, structured counseling with audiovisual aids raised awareness of postpartum contraception from 33.3% to 87.2% in the intervention arm, and contraceptive acceptance at six weeks was 66.7% compared with 21% in the control arm (Susmitha et al., 2025). Among university students in Pakistan, a health education lecture significantly improved knowledge, perceived benefits and intended contraceptive use (Kumar et al., 2024), and a health education method improved knowledge and attitude among women in Iran compared with the routinely used method (Mahamed et al., 2012). Other studies have examined the same outcomes of knowledge, attitude and intention after postpartum counseling in The Gambia (Sey-Sawo et al., 2023) and after an educational booklet among primiparae in Saudi Arabia (Alruwaili & Badr, 2024). Our findings add a Lahore tertiary-hospital estimate to this evidence base. Comparison of effect sizes across studies is limited by differences in design, instruments and populations.

The item-level results show where counseling worked best. The largest gains were on topics that were part of the counseling content, namely injectables, permanent methods and the LAM, which supports the view that the improvement followed the information delivered. The smallest gains were for condoms, which women already knew at baseline (37 correct answers), and for implants. Knowledge of permanent methods remained below 60% after counseling, and four women remained in the poor category. A single session therefore did not correct every misconception for every woman. Counseling at more than one-time point was associated with the greatest reduction in unmet need in six tertiary hospitals in Nepal (Puri et al., 2021), and written material or a reinforcement contact may add value for permanent methods and the LAM.

Attitude improved significantly, with the largest change in the proportion of women who no longer felt reluctant because of fear of side effects. This is a plausible effect of counseling that explains side effects and corrects misconceptions. Women also became more comfortable discussing contraception with their husbands, which matters because spousal discussion and joint decision-making are linked with postpartum family planning uptake (Khurram et al., 2025). The rise in agreement that culture

and religion influence contraceptive decisions (17 to 30 and 19 to 33 women) should be read as greater awareness of these influences rather than a more favorable attitude, and it indicates that counseling should address religious concerns directly, in line with Pakistani work on religion and family planning (Mir & Shaikh, 2013).

Practice showed the largest change (d = 2.18), and the proportion who used or intended to use a modern method rose from 20.7% to 65.5%. Counseling has been followed by contraceptive acceptance in other Pakistani and international settings, including 60.3% acceptance after client-centered counseling in Karachi (Fazal et al., 2023) and higher uptake after one-to-one counseling in Ghana (Asah-Opoku et al., 2023). Our practice scale, however, combined behavior and intention, it was self-reported, and the post-test was collected by the nurse who delivered the counseling. The very large effect may therefore partly reflect intention and social desirability, and actual method use was not verified from clinic records. The findings should be described as improved reported practice and intention, not confirmed uptake.

Women rated the session highly, with 94.8% saying that it helped them make a decision and 93.1% feeling comfortable discussing contraception. The lowest rating (82.8%) was for being allowed to ask questions, suggesting that more time for questions could improve the session. A private setting, a standardized guide and an Urdu flip chart may have contributed to engagement.

A few recommendations are given in light of the study findings. Structured nurse-led contraceptive counseling should be introduced before discharge as part of routine postpartum care, and nurses should be trained in counseling skills and in all modern methods. Counseling should be reinforced with a follow-up contact or written material, and partners should be involved where women wish. A larger, controlled, multi-center study with longer follow-up that records the method chosen and used, confirmed from clinic records, is recommended.

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