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Mobile communication on post-partum minor health alignments' recovery and family planning seeking care among primiparous

Fatma Aboulkhair Farag
PhD, RN, Assistant Professor of Maternal and Newborn Health Nursing, Faculty of Nursing, Fayoum University-Egypt & PhD, RN, Assistant Professor of Maternal and Neonatal Health Nursing, School of Nursing, Bader University in Cairo-Egypt
Corresponding author email: faf01@fayoum.edu.eg

Amany Arafat Goda
PhD, RN, Assistant Professor of Maternal and Newborn Health Nursing, Faculty of Nursing, Beni-Suef University-Egypt & PhD, RN, Assistant Professor of Maternal and Neonatal Health Nursing, School of Nursing, Bader University in Cairo-Egypt
Email: amanyarafatg@gmail.com

Hoda Sayed Mohamed
PhD, RN, Lecturer Family and Community Health Nursing, School of Nursing, Badr University in Cairo-Egypt
Email: Hoda.Elsayed@buc.edu.eg

Mohamed Nagi Mohesen Omran
Phd, RN, Professor of Obstetrics and gynecology, Faculty of Medicine, Beni Suef University
Email: mnmo75@yahoo.com

Abeer Naser El Din
PhD, RN, Lecturer, Maternal and Newborn Health Nursing, Faculty of Nursing, Beni-Suef University-Egypt
Email: abeerelsadek75@gmail.com

***Abstract*---**Background: Coverage and quality of postnatal care for women and newborns tend to be relatively poor especially with COVID-19 outbreaks and length of stay in the health facility has shortened resulting in limited knowledge and skills of the postnatal homecare as well as family planning seeking care. With the development of communication technology, the maternity nurse becomes able to provide postpartum health teaching for enriching women with information to be able to deal with postpartum minor health alignments and timely family planning seeking care, also

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minimize the risk of infection caused by face-to-face follow up. Aim: The current study aimed to assess the impact of mobile communication on post-partum minor health alignments' recovery and family planning seeking care among primiparous. Design: A quasi- experimental (Intervention /Control)) research design was used. Setting: This study was carried out in Obstetric and Gynecological Inpatient Wards and Labor and childbirth unit at Beni-Suef University Hospitals, Study subjects: A non-probability purposive sample of 119 primiparous mothers who were fulfilling the criteria. Tools: A structured interviewing questionnaire to conceal the data related to socio- demographic characteristics and mother's knowledge about postpartum minor health alignments and family planning seeking care, follow up card and satisfaction Likert scale. Results: The study results showed that there was a highly significant recovery of postpartum minor health alignments and family planning seeking care in the first, second and third week with a few percentages needed referral to health facility among intervention group compared to control group. Furthermore, statistically difference between two group (p =0.001) for intervention group women timely seeking family planning care than control group. In addition, the majority mobile communication group was satisfied with their health teaching and contents taken through it. Conclusion: The mobile communication effective method for postpartum minor health alignments recovery and family planning seeking care among primiparous mothers and the majority of them were satisfied thus the tested hypotheses were accepted. Recommendation: The current study recommended integrating the postpartum online health teaching as an innovative technology method of guidance into the routine maternity care especially during pandemics

***Keywords*---**mobile communication, post-partum, minor health alignments recovery, seeking care.

Introduction

Global strategies, including the Global Strategy for Women's, Children's and Adolescent Health (2016-2030), the Strategy to End Avoidable Maternal Deaths, the All Newborn Action Plan, and other initiatives ensure the importance of services that provide a platform for postpartum and neonatal care for women, including promoting hygienic practices, preventing disease, and detecting and treating problems during the first six weeks after birth (World Health Organization & Special Programme of Research, 2022). Postpartum period or postnatal period is a six-weeks that begins immediately after the delivery of the placenta and continues through the first 6 weeks (42 days) of life (Asadi et al., 2020). Most of the changes of pregnancy, labor, and delivery have resolved and the body has reverted to the non-pregnant state. Despite this, it is the most neglected stage in the lives of mothers and children; during which most deaths occur. So, this period is a critical period for women, newborns, parents, caregivers, and families (El-salam et al., 2020).

The time after birth, a time in which the mother's body, including hormone levels and uterus size, returns to a non-pregnant state. Moreover, post-natal period especially for primiparous is very painful, terrible, and tiring period as perianal pain and discomfort, bleeding, infection, damage to anal sphincter and mucosa, wound opening, rupture expansion, difficulty in sitting and holding one's infant, disruption of maternal-infantile relationships, and reduction of sexual desire *(Talla et al., 2018a).*

In addition, to some problems caused by the rest of the body's organs postpartum minor health alignments arise because of all systems adaptation "after-pains, episiotomy pain, fatigue, breast engorgement, constipation, urinary retention, lactation problems are common postpartum minor discomforts". Which has been confirmed by many previous studies as minor alignments during post-partum, however, the lack of awareness of it by new mothers and the lack of guidance by caregivers may make it one of the main problems for the increasing rates of maternal morbidity and mortality *(Elsebeiy, 2019).*

The current pandemic crisis, with the daily rise of reported cases across the world, changed the routine of healthcare practices as new challenges appeared, these created new ways for delivering obstetric and childbirth healthcare services as digitalization of health care delivery approach *(Li et al., 2021).* It is a set of digital communication that use several tools to create connections and interactions between individuals and groups. Email, blogs, instant messaging, text messages and postings are examples of these technologies as well as programs that allow digital material to be shared in video, audio, or text format *(Space et al., 2018).*

WhatsApp are prominent social media platforms that hold groups and channels for antenatal and postnatal periods that appear to provide visual and textual information about postpartum minor health alignment, neonatal health problems and family planning counselling *(Perrenoud et al., 2022*). Social media has the potential to be broadly embraced in a variety of areas, resulting in a greater public health impact. It has been widely used in promoting maternal and newborn health during the postpartum period through effective interacting teaching, timely availability, and highly retention information rate *(Mbuthia et al., 2019).*

Midwives and nurses can use digital communication tools to contact with postpartum women and provide online health teaching and care guidance to early detect and management of post health problems that they or their newborns face without the risk for visiting obstetric clinic during this current pandemic situation *(Gemperle et al., 2022).* Moreover, midwives and nurses through digital communication exchange knowledge and practices in a trusted relationship, in which the nurse may serve as multiple roles as family planning counselor, an educator and care provider to establish and add experience to primiparous mothers in order to maintain and promote the health and well-being of women and children post birth especially with pandemics *(Id et al., 2020).*

Significance of the Study

Quality of care through the pregnancy, childbirth and the postnatal periods is critical to the actions of global agendas and the achievement of the health-related SDGs. Despite these efforts, the burden of maternal and neonatal mortality and morbidity in the postnatal period is still high. Up to 30% of maternal deaths occur postpartum. Infants face a high risk of dying in their first month after birth, with an average global rate of 17 deaths per 1000 live births in 2019 (World Health Organization & Special Programme of Research, 2022).

Until now coverage and quality of postnatal care for women and newborns tend to be relatively poor, and opportunities to increase well-being of parturient women are lost. Length of stay in the health facility after birth varies especially with Covid-19 Pandemics' widely across Egypt and other countries and substantial proportions of women and newborns receive inadequate postnatal care during the first 24 hours after childbirth. According to the Egypt Demographic and Health Survey (EDHS) 2014 there are 27 neonatal deaths per 1,000 live births, with slightly more than half of these deaths occurring in the first month of life. Maternal mortality was also 52 deaths per 100,000 live births (Zanty, 2014).

Mobil phone communication technology is at the spearhead of innovation in healthcare is becoming increasingly evident that has been shown to profoundly influence women's health outcomes especially in rural settings with limited access to care, are most vulnerable to maternal mortality and other pregnancy-related morbidities. Our aim in current study was to prove the impact of mobile communication on post-partum minor health alignments' recovery and family planning seeking care among primiparous.

Aim of the Study

This study aimed to assess the impact of mobile communication on post-partum minor health alignments' recovery and family planning seeking care among primiparous.

Through

- Comparing the effectiveness of mobile communication versus traditional teaching on post-partum minor health alignments' recovery among primiparous.
- Comparing the effectiveness of mobile communication teaching and versus traditional teaching on timely seeking family planning care among primiparous.
- Comparing the satisfaction level with using mobile communication teaching versus traditional teaching among primiparous.

Hypotheses of the Study

- Postpartum primiparous mothers show more recovery of minor health alignments and timely seeking family planning care after using the Mobil communication teaching than traditional teaching

- Postpartum primiparous mothers show more satisfaction with Mobil communication teaching than traditional teaching.

Operational Definitions

Mobile communication teaching is defined as instructions given to postpartum primiparous mothers about postpartum minor health alignments and family planning using mobile phone direct calls, WhatsApp application messages, interactive materials photos, videos and answering questions. And traditional health teaching is giving the health teaching through self-instructional Arabic language booklet.

Materials and Methods

Study Design

A quasi-experimental (intervention and control group) design was used in this study.

Study Setting

This study was conducted at Obstetric and Gynecological Inpatient wards and Labor and Delivery unit at Beni-Suef University Hospitals, Beni-Suef city, Beni-Suef governorate, Egypt. The Obstetric and Gynecological Inpatient Wards consist of three wards with 30-35 beds in each. Labor and Delivery unit consists of the examination room, room for parturient women, postpartum room and operating room for delivery which involves six delivery tables. Beni Suef University Hospitals supply free services for women during pregnancy, labor, and postpartum periods.

Sample Type

A non-probability purposive sample was used.

Study Subjects

One hundred and thirty primiparous mothers with were recruited from the previously mentioned setting to share in this study according to the following:

Inclusion Criteria

The current study recruited subjects with the following criteria (primiparous after non complicated normal vaginal delivery and healthy newborn, age 18 – 35 years old, full-term pregnancy. read and write, having an android mobile phone with internet availability and using WhatsApp application and did not receive previous instruction regarding post-partum care.

Exclusion Criteria

Mothers who had medical, obstetric, or psychological problems.

Sample Size Calculation

Based on statistics from previous study of *(Chen et al., 2020)* who explored the effects of providing postpartum maternity and infant guidance at home by online consultation mode under the situation of COVID-19 pandemic, considering level of significance of 5%, and power of study of 80%, the sample size was estimated according to the following formula: Sample size = [(Z1-α/2)2.P(1P)]/d2 Where, Z1-α/2 = is the standard normal variate, at 5% type 1 error ($p<0.05$) it is 1.96. P = the expected proportion in population based on earlier studies. d = absolute error or precision. So, Sample size = [(1.96)2. (0.9863). (1-0. 9863)]/ (0.02)2 =129.8. Based on the above formula, 130 primiparous mothers were recruited and selected randomly for either control or intervention group. But the statistical analysis was done on one hundred nineteen (119) primiparous mothers, where four (4) women were withdrawn due to problems with the phone, so the intervention group became sixty-two (62). And for unknown reasons, seven (7) women withdrew from the control group to become fifty-seven (57).

Tools of Data Collection

Three tools were used for data collection

Tool I: A Structured Interviewing Questionnaire

It was developed by the researchers after extensive review of the literatures. It included two parts:

Part One: It covered data related to socio-demographic characteristics as telephone Mobil number, age, educational level, employment, and residence.
Part Two: It concerned with mother's knowledge regarding postpartum minor health alignments and family planning seeking care. It was developed by the researchers after reviewing the related literatures to identify the mother's knowledge level regarding the minor health alignments during the early postpartum period**.** It consists of Twenty-three (23) questions about maternal knowledge about postpartum minor health alignments and seven (7) questions about family planning seeking care. Correct answer was scored one while incorrect answer was scored zero. The largest score was thirty and the minimum score was zero. The total knowledge score was as follows: ≥75% of the total knowledge score is good, from 50% to <75% is fair and less than 50% is knowledge poor score**.**

Tool II: Follow Up Card

It was developed by the researchers after reviewing the related literatures to assess recovery of postpartum minor health alignments in the first, second and third week and those who need to visit health facility, in addition to family planning seeking care at 6th week post-partum.

Tool III: Satisfaction Likert Scale

It was developed by the researchers after reviewing *literatures (El Ayadi et al., 2022)* to assess woman's satisfaction regarding Mobil health teaching and traditional teaching. It consists of three points Likert Scale, start from score one for disagree, score two for undecided, score three for agree. Total score categorized as satisfied: 75 – 100 %, neutral: 50 – <75 % and dissatisfied: 1 – <50 %.

Validity of the Tools

The questionnaires were translated into Arabic language before introducing to the primiparous women. The content validity of the developed tools was reviewed by a panel of 3 experts in the maternity nursing specialty before using it to ensure that the questions were consistently conveyed and carried the anticipated meaning they were prepared for.

Reliability of the Tools

Cronbach alpha coefficients for internal consistency of knowledge about postpartum minor health alignments and family planning seeking care was (0.886), it was (0.919) for follow up sheet and (0.877) for the satisfaction Likert scale, hence the questionnaires were found to be highly reliable.

Pilot Study

A pilot study was conducted on 10% (13 primiparous mothers) of the total study samples to evaluate the objectivity and applicability of the study tools and the feasibility of research process as well as to estimate the time needed to answer them. The mothers in the pilot study were included in the study sample.

Ethical considerations

An ethical approval letter was attained from Research Ethics Committee, Faculty of Nursing, Beni-Suef University, and approval was obtained from the director of Beni-Suef University Hospitals to conduct the study. A written consent was obtained from every mother involved in the study after clarification of the aim and approach of the study. All mothers were reassured about the confidentiality of the collected data. In addition, the right to withdraw from the study was allowed.

Procedure

The current study was conducted from November 2021 to April 2022. The researchers attended the previously mentioned setting 3 days per week, (Saturday, Sunday, and Monday) from 9 a.m. to 2 p.m. until the calculated sample size of women was obtained. The study was conducted through four phases; preparatory, assessment, implementation, follow up and outcome evaluation.

Preparatory Phase

The tools for data collection were prepared after a massive reviewing of literature then the contents of health guidance about postpartum minor health alignments and family planning seeking care were designed. The Educational Medias (videos, attractive pictures, and WhatsApp application group was designed to contact with women as intervention group, joining and accepting the friend request on it is considering as an acceptance to join the study. In addition, the Arabic booklet was prepared to disseminate it to control group.

Assessment Phase

The researchers interviewed primiparous mothers, introduced themselves to them, and explained the aim of the research work. Once eligibility for participation was confirmed, the researchers took the participant's written consent to share in the study. Data about socio-demographic characteristics was collected by using a structured interview questionnaire. Mothers were assessed for their knowledge of postpartum minor health alignments and family planning seeking care before intervention at hospital for two group (intervention – control).
The two groups (intervention – control) were assessed for the presence of postpartum minor health alignments throughout the first 3 weeks after delivery via phone calling by researchers and if they need any further referral to any health care facilities. And at 6th week for assessing family planning seeking care.

Implementation Phase

The control group were received Arabic booklet, while the study groups the researchers added them to the designed WhatsApp group and pushed information about postpartum minor health alignments and family planning seeking care (as postpartum perineal pain, episiotomy pain, after pains, urinary incontinence, breast engorgement, cracked nipples, constipation, urinary retention, Perineal discomfort, fatigue) and family planning seeking care as (time for initiation and types).

The content of this information was displayed by using interactive visualized and animated instructions. The mobile communication health teaching with these features allows mothers to see, hear and interact with researchers and with each other throughout the weeks of postpartum. After the consultation, women were asked to repeat the main points of their current problem. The plan for the mothers was discussed with them and adjusted according to the actual situation.

Follow Up and Outcome Evaluation Phase

At the end of 3rd week of postpartum follow up, the researchers called the participants to assess whether their minor health alignments were recovered and whether they needed to visit a health facility. And at 6th week family planning seeking care were assessed. Moreover, knowledge level among participants post intervention in both groups were assessed for both groups. Finally, both groups assessed regarding their satisfaction with used methods for health teaching.

Data Analysis

Statistical analyses were performed using SPSS for windows version 20.0 (SPSS, Chicago, IL). All continuous data were normally distributed and were expressed in Mean ± Standard Deviation (SD). Categorical data were expressed in number and percentage. For inferential statistics (Friedman test, T-test & Chi-square) were used to examine the differences and similarities between the study groups. Cronbach's alpha test was performed to test for the internal consistency of the tools used in the study. Statistical significance was set at $p<0.05$.

Results and Discussions

Table (1): Socio-demographic Characteristics of the Studied Groups N= 119.

Socio-demographic Characteristics	Intervention N=62 NO. (%)	Study N=57 NO. (%)	X^2	P- Value
Age (Mean ±SD)	27.31±5.35	26.78±5.56	t. test 3.32	0.187
Residence				
- Urban	35(56.5)	31(54.4)	6.56	0.102
- Rural	27(43.5)	26(45.6)		
Employment				
- Working	39(62.9)	33(57.9)	3.88	0.511
- Not working	23(37.1)	24(42.1)		
Educational level				
- Read and write	8(12.9)	7(12.3)	4.53	0.116
- Elementary school	15(24.2)	13(22.8)		
- Middle school	25(40.3)	24(42.1)		
- University	14(22.6)	13(22.8)		

Table (1): Shows that there were not statistically differences in the Scio demographic characteristics among participants in two groups (intervention /control) and the mean of age is (27.31±5.35) / (26.78±5.56) years respectively. More than half of the participants are from urban. And the most of participants were working (62.9%)/ (57.9%) respectively. Nearly two fifth (40.3%)/ (42.1%) respectively had middle school educational level.

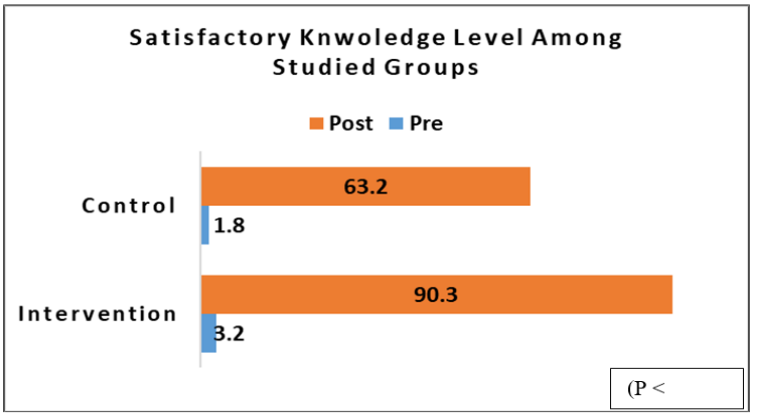

Figure (1): Satisfactory Knowledge Level (Pre/Post) Using Health Teaching Methods among Studied Groups N=119

Figure (1): Illustrates the effectiveness of the teaching methods used in obtaining a satisfactory level of knowledge among the participants before and after the intervention. The level of satisfactory knowledge before using communications was 3.2% compared to 90.3% after the intervention. While the level of knowledge was satisfactory before the traditional health teaching methods (1.8%) compared to 63.2% post intervention. There was a highly statistically significant increase in the total knowledge scores among the two studied groups pre /post intervention (P < 0.001).

Table (2 a.): Post-Partum Minor Health Alignments' Recovery among Primiparous Studied Groups N= 119

Recovery condition	First Week		Second Week		Third Week		Friedman test	P value
	Intervention N=62 No. (%)	Control N=57 No. (%)	Intervention N=62 No. (%)	Control N=57 No. (%)	Intervention N=62 No. (%)	Control N=57 No. (%)		
After-pains								
Recovered	24(38.7)	15(26.3)	50(80.7)	37(64.9)	100	54(94.7)	66.2	<0.001
Not Recovered	38(61.3)	42(63.7)	12(19.3)	20(35.1)	0(0.0)	3(5.3)		
Perineal Discomfort								
Recovered	20(32.3)	14(24.6)	41(66.1)	30(52.6)	55(88.7)	47(82.5)	69.5	<0.001
Not Recovered	42(67.7)	43(75.4)	21(33.9)	27(47.4)	7(11.3)	10(17.5)		
Constipation								
Recovered	8(12.9)	4(7.0)	13(21.0)	9(15.8)	43(69.4)	27(47.4)	82.2	<0.001
Not Recovered	54(87.1)	53(93.0)	49(79.0)	48(84.2)	19(30.6)	30(52.6)		
Fatigue								
Recovered	41(66.1)	31(54.4)	48(77.4)	36(63.2)	56(90.3)	48(84.2)	80.3	<0.001
Not Recovered	21(33.9)	26(45.6)	14(22.6)	21(36.8)	6(9.7)	9(15.8)		
Burning in Urination								
Recovered	35(56.5)	19(33.3)	46(64.2)	34(59.6)	57(91.9)	50(87.7)	77.5	<0.001
Not Recovered	27(43.5)	38(66.7)	16(25.8)	23(40.4)	5(8.1)	7(12.3)		
Legs Edema								
Recovered	43(69.4)	36(63.2)	50(80.6)	46(80.7)	59(95.2)	52(91.2)	66.2	<0.001
Not Recovered	19(30.6)	21(36.8)	12(19.4)	11(19.3)	3(4.8)	5(8.8)		

Table (2 b.): Post-Partum Minor Health Alignments' Recovery among Primiparous Studied Groups N=119

Recovery condition	First Week		Second Week		Third Week		Friedman test	P value
	Intervention N=62 No. (%)	Control N=57 No. (%)	Intervention N=62 No. (%)	Control N=57 No. (%)	Intervention N=62 No. (%)	Control N=57 No. (%)		
				Cracked Nipple				
Recovered	26(41.9)	19(33.3)	39(62.9)	31(54.4)	56(90.3)	46(80.7)	84.4	<0.001
Not Recovered	36(58.1)	38(66.7)	23(37.1)	26(45.6)	6(9.7)	11(19.3)		
				Breast Engorgement				
Recovered	59(95.2)	49(86.0)	56(90.3)	50(87.7)	61(98.4)	54(94.7)	65.5	<0.01
Not Recovered	3(4.8)	8(14.0)	6(9.7)	7(12.3)	1(1.6)	3 (5.3)		
				Mastitis				
Recovered	61(98.4)	56(98.2)	60(96.8)	52(91.2)	61(98.4)	54(94.7)	83.2	<0.001
Not Recovered	1(1.6)	1(1.8)	2(3.2)	5(8.8)	1(1.6)	3 (5.3)		
				Decreased Milk Production				
Recovered	28(45.2)	32(56.1)	44(71.0)	38(66.7)	55 (88.7)	47(82.5)	77.5	<0.001
Not Recovered	34 (54.8)	25 (43.9)	18(29.0)	19(33.3)	7(11.3)	10 (17.5)		
				Hemorrhoids				
Recovered	52(83.9)	40(70.2)	57(91.9)	46(80.7)	60(96.8)	50(87.7)	79.5	<0.001
Not Recovered	10(16.1)	17(29.8)	5(8.1)	11(19.3)	2(3.2)	7(12.3)		

Table (2 a &b): Illustrate that, there was a highly significant recovery of postpartum minor health alignments were listed in the two tables among intervention than control group through first three weeks partum (P<0.001).

Figure (2): Health Facilities Referrals Needed Among Studied Groups N=119

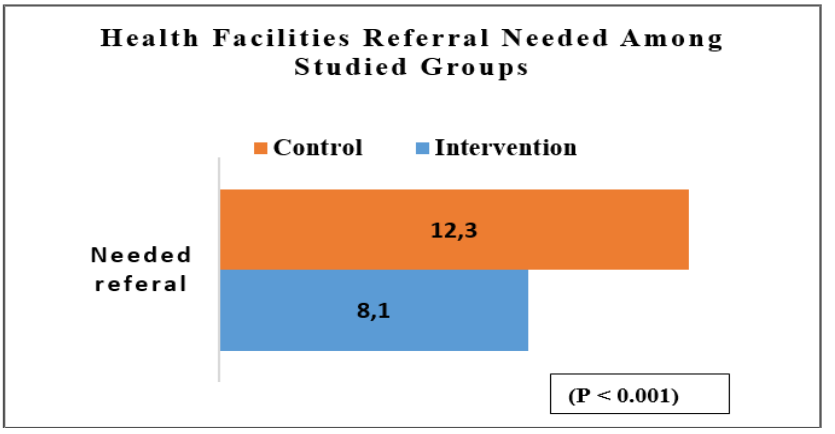

Figure (2): Illustrates the effectiveness of teaching methods between the two studied groups on reducing women's need and referring them to medical examination. The percentage of women who needed referral to health care facilities who used mobile communication education was less than those who used traditional teaching methods (8.1% & 12.3% respectively) with significant difference as (P < 0.001).

Figure (3): Satisfaction Level with Used Health Teaching Methods Among Studied Groups N=119

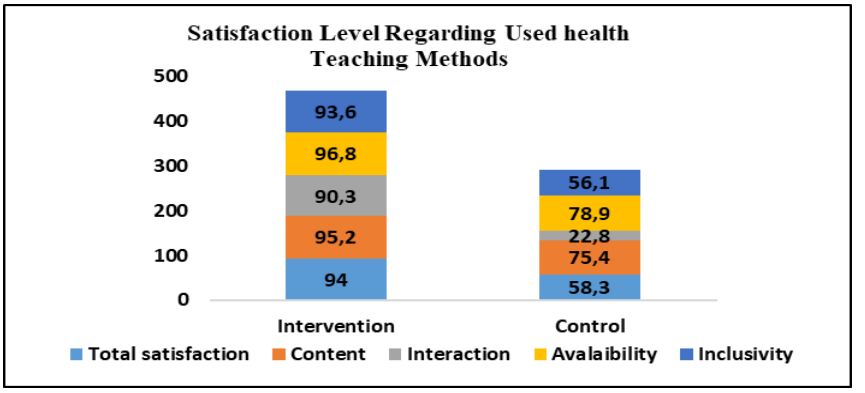

Figure (3) shows that, the majority of the (intervention group) women (94.0%) were satisfied with mobile communication health teaching compared with 58.3% women from traditional teaching (control group). And percentages of women expressed their satisfaction with used methods as scientific content taken, interaction, availability and inclusivity were 95.2%, 90.3%, 96.8%and 93.6% respectively among intervention group compared with (75.4%, 22.8%, 78.9% & 56.1% respectively).

Table (3): Post-Partum Family Planning Seeking Care among Studied Groups at 6 weeks Postpartum N=119

Socio-demographic Characteristics	Intervention N=62 NO. (%)	Study N=57 NO. (%)	X^2	P- Value
Initiation of Contraceptive:				
- Yes	55(88.7)	46(80.7)	47.32	0.001
- No	7(11.3)	11(19.3)		
Initiation Time /Weeks: (Mean ±SD):	4±1.1	6±0.3	t. test 73.7	0.001
Methods Selected:	N=55	N= 46		
- LAM	7(12.7)	8(17.4)	37.9	0.001
- IUD	12(21.8)	6(13.0)	35.2	<0.001
- Hormonal	N=29(52.7)	N=27(58.7)		
▪ Pills:	N=20(68.9)	N=19(70.4)		
▪ Progestin only	12(60.0)	9(47.4)		
▪ Combined	8(40.0)	10(52.6)	4.58	0.114
▪ Injections	6(20.7)	6(22.2)		
▪ Implant	1(3.4)	0(0.0)		
▪ Suppository	2(6.9)	2(7.4)		
▪ Patches	0(0.0)	0(0.0)		
- Others	N=7(12.7)	N=5(10.9)	3.64	0.112

-	Male Condoms	5(71.4)	5(100.0)	13.3	0.021
-	Withdrawal	2(28.6)	0(0.0)		

Lactation amenorrhea method (LAM) - Intra Uterine Device (IUD)

Table (3): illustrates that, there was a highly significant difference in family planning seeking care at 6th week postpartum among intervention versus control group (P=0.001) as 88.7% of women from intervention group had timely seeking for family planning than 80.7% among control group. The mean of week for visiting the health facility among intervention / control was 4th ±1.1/6th ±0.3 respectively. And among the used family planning methods the statistically differences were found between two groups as intervention group women were used IUD more than control. Controversy LAM was the higher percentage use among control group women than intervention as (12.7)/ (17.4) respectively. While no differences among both group regarding using hormonal and other methods.

Discussion

Postnatal care are important contributing factors to improving maternal and neonatal health and well-being. Moreover, it is a critical component of the full continuum of perinatal care. Mobile phone–based health approaches (mobile health communication) offer innovative opportunities to overcome logistical barriers to postnatal care access and positively affected maternal and neonatal health outcomes*(El Ayadi et al., 2022).*

The present study aimed to assess the impact of mobile communication on post-partum minor health alignments' recovery and family planning seeking care among primiparous. This aim was accomplished through the present study findings which revealed that, there was a highly significant recovery of postpartum minor health alignments in the first, second and third post-partum week. As well as timely family planning seeking care at 6th week and only few percentages needed referral to health facility among two health teaching methods as Mobile communication teaching (Intervention group) compared with traditional teaching by Arabic booklet (Control group).

As regarding to the socio-demographic characteristics, the current study results revealed that there was not any statistically differences between the two groups (intervention – control) characteristics. This result confirmed that the efficiency of the health teaching method, whether direct phone communication or the traditional teaching, is not affected by any personal differences between the two groups. The present study findings revealed that, there was a highly statistically significant improvement in both studied group level of knowledge regarding postpartum minor health alignments and family planning seeking care post intervention than pre intervention. This result confirms that health education, whatever the method, is important for women in the postpartum period.

The previous result is corresponding with *(Sittek et al., 2021)* in *comparing postpartum educational modalities and their effect on information retention*, the researchers found that, Patient education, in any regard, has been repeatedly demonstrated to benefit patients' knowledge base and informed decision making.

The results of the study also revealed that the higher percentages of women who had satisfactory level of knowledge were among the women who used the mobile communication than the percentages of those who used the traditional teaching method. The researchers found this result is duo to the remembering and retention of reading information is less than interactive information.

This finding was consistent with(EL-RAZEK, 2015) in her study *Enhancement of Mother's Self-Care Practices for Relieving Minor Discomfort During Post-Partum Period,* who stated that using interactive methods as videos, photos and answering questions are very important and effective in raising self-care awareness regarding care of post-partum minor discomfort. Similarly,*(Kiratrai & Zangmusherpa, 2022)* study to investigate effectiveness of planned teaching programme on knowledge regarding breast engorgement among primigravida mothers, they found that knowledge level of the studied sample on the management of breast engorgement was improved with highly significant difference between pre and posttest scores.

The present study findings revealed that, there was a highly significant recovery of the minor health alignments in the first, second and third post-partum week with only few percentages needed referral to health facility than control group. This could be interpreted by the mobile communication enabled primiparous post-partum to find quick solutions to treat simple problems, in addition the interaction with each other, which also led to this. Postpartum primiparous mothers could acquire knowledge and skills and solve their problems properly after receiving the online guidance and online follow-up visits.

The results of the current study indicated that there was a highly significant recovery in the minor health alignments in the first, second and third week after birth with only a small percentage requiring referral to the health facility compared to the control group. This can be explained by the fact that mobile communications enabled the women after childbirth to find quick solutions to address their minor problems, in addition to interacting with each other during the WhatsApp group made them share their experience and share solutions and constructive thinking, which led to the acquisition of knowledge and skills and solving their problems correctly after receiving mobile communication teaching than reading the booklet.

This result was in accordance with study conducted by *(Bornstein et al., 2020)*to analyze the effectiveness of giving postpartum maternity and infant counseling at home using an online consultation mode during COVID-19 pandemic. They concluded that after providing the online consultation and online follow-up visits, maternal and infant problems were solved for the majority of cases and only few cases were advised to consult relevant specialties or recommended to visit hospital.

Additionally, *(Talla et al., 2018b)* study to investigate the efficacy of health education on women experience of minor discomfort during puerperium concluded that, after applying health education sessions during three consecutive weeks of assessment, more than three quarters of the subjects reported relieve in

their episiotomy pain, urinary retention, after pains, breast engorgement and constipation while few subjects informed about getting worse.

Regarding family planning seeking care there was a highly significant difference in family planning seeking care at 6th week postpartum among intervention versus control group as majority of women from intervention group had timely seeking for family planning than control group. And among the used family planning methods the statistically differences were found between two groups as intervention group women were used IUD more than control. Controversy LAM was the higher percentage use among control group women than intervention. While no differences among both group regarding using hormonal and other methods.

The researcher found that findings duo to mobile communication could be used to help women meet their contraceptive needs, remind them about timely initiation of a contraceptive method, provide a simple way to answer any queries during method use, and encourage continuation of a contraceptive method. On the same line, a study conducted by *(Id et al., 2020)* to assess the effect of a mobile phone-assisted postpartum family planning service on the use of long-acting reversible contraception: a randomized controlled trial. They mentioned that using mobile phone reminders as part of the postpartum service increases the proportion of women who attends family planning clinics and initiates contraception, including a Long-Acting Reversible Contraception (LARC) methods, as well as the proportion who continue its use for the first six months postpartum.

Furthermore, a study conducted by*(Shaaban et al., 2020)* who analyze a short message service (SMS) increases postpartum care-seeking behavior and uptake of family planning of mothers in peri- urban public facilities in Kenya. The researcher stated that a simple, low-cost SMS interventions targeted to particular time points in the postpartum continuum can support women to increase knowledge around danger signs, to seek care for danger signs, and to initiate postpartum family planning.

The present study findings showed that, the majority of the (intervention group) women were satisfied with mobile communication health teaching compared with women from traditional teaching. The researchers assumed this result was duo Interacting and answering questions when available, and sharing experiences is a more interactive method of teaching than reading. Similarly,*(El-salam et al., 2020)* study indicated that, most of mothers and their family members were satisfied with the online consultant service in their study regarding Effectiveness *of Video Assisted Teaching Program on Postpartum Minor Discomforts of Primipara Mothers*. In the same line with the present study findings, *(Hassan et al., 2020)*who reported that, the majority of the mothers was satisfied with information given to them for relieving minor health alignments and neonatal problems during postpartum period and was motivated to utilize it again for future pregnancy.

Conclusion

It was obvious from the present study findings that, the mobile communication teaching aided as method for recovery postpartum minor health alignments and enhance timely family planning seeking care among primiparous mothers and the majority of women were satisfied with their teaching with these methods as interactive scientific contents taken, timely, and inclusivity through it thus the tested hypotheses were accepted.

Recommendations

Findings motivate the following recommendations

- Utilization of mobile communication health teaching among primiparous postpartum mothers to reduce postpartum minor health alignments and family planning seeking care.
- Applying the mobile communication health teaching in continuum of perinatal care.
- Integrating innovative method of counseling into the routine maternity care especially during outbreaks.

Further studies

- More research is needed to explore factors that affect applying mobile communication health teaching through continuum of perinatal care.

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