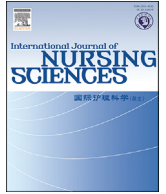


HOSTED BY



Contents lists available at ScienceDirect

International Journal of Nursing Sciences

journal homepage: <http://www.elsevier.com/journals/international-journal-of-nursing-sciences/2352-0132>

Special Issue: Midwifery and Women's Health

Community-based educational intervention on necklace method as a natural family planning amongst reproductive age group women in India

Jyothi Ramesh ^{a,*}, Ramesh Chandrababu ^b^a Udupi College of Nursing, Holy Family Education Trust, Manipal, Karnataka, 576104, India^b Manipal College of Nursing, Manipal Academy of Higher Education, Manipal, Karnataka, 576104, India

ARTICLE INFO

Article history:

Received 22 February 2017

Received in revised form

2 October 2017

Accepted 25 December 2017

Available online 9 January 2018

Keywords:

Family planning services

Health promotion

Women

ABSTRACT

Objective: To assess the effectiveness of a community-based educational intervention on necklace method as a natural family planning amongst reproductive age group women. This approach helps women decide on their reproductive health choices and avoid ill health, impact and long-term consequences of unwanted pregnancy that lead to unsafe abortion.

Methods: A total of 120 women were selected using non-probability purposive sampling technique. The knowledge and practice of participants were assessed using the structured knowledge questionnaire and practice checklist followed by a community-based educational intervention to participants, which covered aspects such as meaning, purposes and criteria; steps of the procedure; and advantages and disadvantages of the necklace method. The methods of teaching were lecture cum discussion and demonstration. The collected data were analysed using SPSS version 21.

Results: The levels of knowledge ($t = 14.571, P = 0.023$) and practice ($t = 14.571, P = 0.026$) significantly improved after administering the community-based educational intervention. Knowledge and practice positively correlated with each other ($P < 0.05$).

Conclusions: Nurses play a vital role in educating women and creating awareness regarding modern and safe family planning methods. These methods are effective and essential to avoid unwanted pregnancy and thus greatly impact the health of women.

© 2018 Chinese Nursing Association. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Unintended pregnancy is a major global concern of health, especially reproductive health, and contributes to the socio-economic problem amongst individuals and societies [1]. This concern may lead to major problems to women and their families, such as unsafe abortion, delayed antenatal care, poor maternal psychological health and developmental outcomes for children, decreased quality of mother–child relationship, violence and physical abuse against women, babies prone to low birth weight and increased maternal mortality and morbidity [2]. Unintended pregnancy is a worldwide social and health issue and includes untimely and unwanted pregnancies. Around 80 million (30%) pregnancies every

year are unintended. Unintended pregnancy results in the great degree of health and economic threat to children, women, men and families [3].

In developing countries, unintended pregnancy has been reduced; however, its magnitude is still high [4]. Adverse pregnancy and maternal outcomes are mainly due to unintended pregnancy along with mortality and morbidity related to unsafe abortion [3]. Around 210 million pregnancies occur worldwide; more than one-third (nearly 75–80 million) of these pregnancies are unintended and more than half of these unintended pregnancies undergo unsafe abortion annually [5]. Unintended pregnancies are a vital factor of social stratification and account for a large amount of social, financial, physical and emotional problems for women and their families [6].

The report on women's health by the Institute of Medicine in 2010 revealed that unintended pregnancies are an area of developing research because of the increased number of unintended pregnancies; around half of them are still high and static for a

* Corresponding author.

E-mail address: joeram06@yahoo.com (J. Ramesh).

Peer review under responsibility of Chinese Nursing Association.

period of two decades. Limiting or preventing these types of pregnancy will not only aid women in accomplishing the aim of reproduction but also lessens the impact of pregnancy outcomes for mother, children and families and reduces financial burdens to societies [7].

In developing countries, such as India, unintended pregnancy is a vital health problem because of its relation with various social and health factors. Lowering the number of unintended pregnancy exerts a great impact on social, health and demographic variables. Limiting unwanted fertility may be an important factor in reducing maternal and child mortality [8].

The necklace method, which is also known as the standard day method, is a fertility-based family planning technique. The Institute for Reproductive Health at Georgetown University developed a visual tool called CycleBeads (Fig. 1) to follow the necklace method. This approach considers fertile days, during which the women menstrual cycle starts many days before ovulation and terminates a few hours after ovulation. Fertile days are days 8–19 of the cycle for women whose menstrual cycle is in between 26 and 32 days [9].

This study was conducted to educate, counsel and motivate the reproductive age group women regarding a modern, natural and safe contraceptive method that is 95% effective in bringing wanted pregnancy by determining fertile and infertile days. This method helps women decide on their reproductive health choices and avoid ill health, impact and long-term consequences of unwanted pregnancy that lead to unsafe abortion. The proposed approach may generate positive changes in pregnancy planning as it is natural, safe, free of side effects and cost effective. The method can also empower women in India and other Asian countries, such as China, Bangladesh and Sri Lanka.

This study aimed to assess the effectiveness of a community-based educational intervention on necklace method as a natural family planning amongst reproductive age group women.

2. Methods and materials

2.1. Design and setting

An evaluative research approach and a quasi-experimental design with pre and post intervention measurements were adopted. The study was conducted in rural community areas of Bangalore, Karnataka, India.

2.2. Participants

The sample of the study consisted of 120 reproductive age group women. A purposive sampling technique was utilised to select participants with the following inclusion criteria: reproductive age group women of ages between of 19 and 45, a menstrual cycle in the range of 26–32 days and no any other methods of family planning method being followed.

2.3. Instruments

A well-structured knowledge questionnaire and a practice checklist were prepared by the researchers, and content validation was conducted by a panel of subject experts. The knowledge questionnaire consisted of 25 items regarding general aspects of family planning and the necklace method. The practice checklist had an option of yes or no regarding the practical application of CycleBeads, moving the rubber string from one bead to another during the fertile days and need to have coitus, colour codes and hand hygiene. Kannada version (local language) was used to collect data. The tool was developed in English language. Subsequently, translation–retranslation was performed to ensure the language validity.

2.4. Psychometrics (validity and reliability)

The content validity index (CVI) and the estimated scale–CVI scores for the knowledge questionnaire and practice checklist were 0.97 and 0.96, respectively. The reliability of the tools was checked by test–retest method. The estimated reliability values of the tools were 0.80 and 0.79 for the knowledge questionnaire and practice checklist, respectively. These values revealed the high reliability of the tools.

2.5. Ethical considerations

Administrative permission was obtained from the concerned authority, the Medical Director of Sulikere Village, Bangalore, India. The study was approved by the Ethics Review Committee of Padmashree College of Nursing and Rajiv Gandhi University of Health Sciences, Bangalore (No. PCON/N076). The study was fully explained to all participants, and informed consent was obtained prior to inclusion in the study.

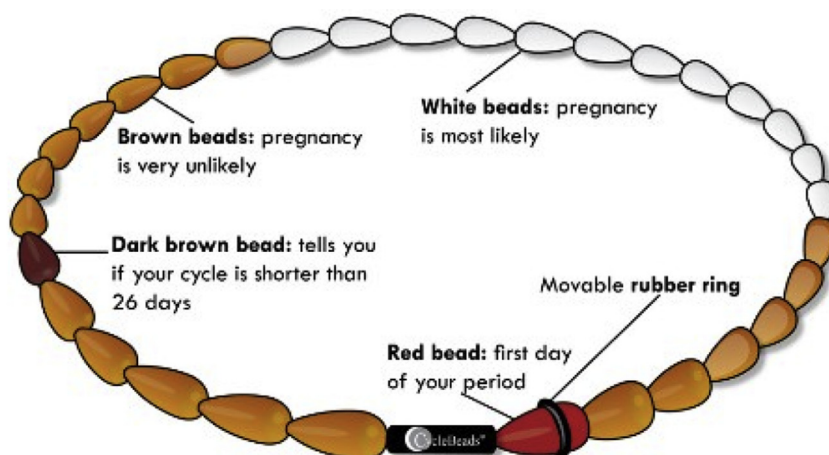


Fig. 1. CycleBeads.

2.6. Procedure

The knowledge and practice of participants were assessed using the structured knowledge questionnaire and practice checklist followed by a community-based educational intervention to participants, which covered aspects such as meaning, purposes and criteria; steps of the procedure; and advantages and disadvantages of the necklace method. The methods of teaching were lecture cum discussion and demonstration. The lecture on necklace method was provided to participants along with discussion for any clarifications. Then, a demonstration on the use of CycleBeads was performed to ensure full understanding of the necklace method. After one week of the educational intervention, a post-test was conducted. The levels of knowledge and practice were categorised into adequate (<50), moderate (51–75) and inadequate.

2.7. Data analysis

The collected data were analysed using descriptive and inferential statistics. The Statistical Package for Social Sciences (SPSS) version 21 was utilised for the analysis. Descriptive statistics were used to describe the characteristics of participants, paired *t*-test was used to evaluate the effect of community-based education, correlation coefficient was used to determine the relationship amongst outcome variables and a chi-square test was used to assess the association between outcome and demographic variables.

3. Results

3.1. Sample characteristics

The total number of participants was 120 reproductive age group women. Amongst the participants, 70 (58.3%) were in the age group of 19–45; 69 (57.5%) had delivered once, and the majority (70, 58.3%) had one child; most participants (51, 42.5%) completed secondary education; 82 (72.5%) were housewives; 55 (45.8%) had an income of 3000–5000 Indian rupee; 89 (74.1%) were Hindus; 120 (100%) had no previous knowledge about the necklace method (Table 1).

3.2. Knowledge and practice of the necklace method

The levels of knowledge and practice of participants revealed that, in the pre-test, all the participants (100%) had inadequate knowledge and poor practice. By contrast, in the post-test, 22 participants (19%) had a moderate level of knowledge and 98 participants (81%) had an adequate level of knowledge. With respect to practice, 36 participants (30%) had an average practice and 84 participants (64%) had a good practice.

3.3. Effect of community-based education

The mean difference (mean = 5.36, SD = 2.60) between pre- and post-test knowledge levels revealed enhancement in knowledge, whilst the mean difference (mean = 4.84, SD = 2.05) between the pre- and post-test practice levels showed good practice of necklace method after administering the educational intervention. The levels of knowledge ($t = 14.571$, $P = 0.023$) and practice ($t = 11.961$, $P = 0.026$) were statistically significant (Table 2). A positive correlation ($r = 0.636$, $P < 0.05$) was found between knowledge and practice and outcome variables. By contrast, no association was found between knowledge and practice and any of the demographic variables.

Table 1

Demographic characteristics of reproductive age group women ($n = 120$).

Demographics	<i>n</i>	%
Age in years		
19–25	70	58.3
26–35	46	38.3
36–45	4	3.3
Parity		
One	69	57.5
Two	51	42.5
Three	–	–
Number of children		
One	70	58.3
Two	50	41.6
Three	–	–
Education		
Primary	27	22.5
Secondary	51	42.5
Higher secondary	40	33.3
Degree	2	1.6
Occupation		
Housewife	87	72.5
Labourer	10	8.3
Agriculturist	23	19.1
Family income		
3000–5000	55	45.8
5001–7000	47	39.1
7001 and above	18	15
Religion		
Hindu	89	74.1
Christian	21	17.5
Muslim	10	8.3
Previous knowledge		
Yes	–	–
No	120	100

4. Discussion

Community health nurses and nurse midwives can encourage couples to follow this modern method to help them decide on their reproductive health choices in bringing wanted pregnancies. These health practitioners can commence by educating, counselling, motivating and creating awareness on the benefits of the method and warning couples about the impact of unwanted pregnancy on various aspects of women health (such as physical, physiological, psychological and financial aspects) and its long-term consequences to children, families and societies.

The knowledge of women on the necklace method in the rural areas was low before the community-based educational intervention but significantly increased after the intervention. This finding was in line with that of a previous study conducted in India [10] and might be due to that participants had devoted great effort in learning the necklace method by their active participation.

The practice of necklace method amongst rural women was inadequate before the educational intervention but significantly increased after the intervention. This result might be due to increased knowledge on proper use of the necklace method as a result of educational intervention.

Knowledge and practice positively correlated with each other. Therefore, education and creating awareness regarding birth control methods could solve the major reproductive health issue of unintended pregnancy to keep families and societies happy. Accordingly, the rapid growth of population rate could be reduced.

Unwanted pregnancies mainly occur because of unmet needs of family planning, socio-cultural diversities and lack of support from partners and family members. The necklace method is a modern natural family planning technique. This approach is 95% effective in preventing unwanted pregnancy, improves access to family planning by being available beyond health system, addresses concerns

Table 2
Effectiveness of community-based educational intervention ($n = 120$).

Outcome variables	Pre-test mean	Post-test mean	Difference mean Mean \pm SD	<i>t</i>	<i>P</i>
Knowledge	8.20	13.56	5.36 \pm 2.60	14.571	0.023
Practice	5.22	10.06	4.84 \pm 2.05	11.961	0.026

of women and critical knowledge gap on family planning and contributes to empowering women.

Although the proposed teaching method was successful in improving knowledge amongst women, its effectiveness in preventing unwanted pregnancies should be further evaluated. Future studies should measure actual unwanted pregnancy rates for users of the method and determine the usage duration of the method by participants to determine if the teaching method resulted in the permanent change in behaviour and practice.

5. Conclusion

The proposed community-based educational intervention was very effective in improving the knowledge and inculcating practice of the necklace method as a natural family planning programme, especially in the rural setting. This method is natural, safe, educational and women empowering and helps women decide on their own reproductive health choices and avoid unintended pregnancies. Accordingly, various health aspects of women can be positively impacted.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflicts of interest

The authors declare no conflicts of interest.

Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.ijnss.2017.12.009>.

References

- [1] Yazdkhasti M, Pourreza A, Pirak A, Abdi F. Unintended pregnancy and its adverse social and economic consequences on health system: a narrative review article. *Iran J Public Health* 2015;44:12–21.
- [2] Eliason S, Baiden F, Yankey BA, Awusabo-Asare K. Determinants of unintended pregnancies in rural Ghana. *BMC Pregnancy Childbirth* 2014;14:261. <https://doi.org/10.1186/1471-2393-14-261>.
- [3] Ikamari L, Izugbara C, Ochako R. Prevalence and determinants of unintended pregnancy among women in Nairobi, Kenya. *BMC Pregnancy Childbirth* 2013;13:69. <https://doi.org/10.1186/1471-2393-13-69>.
- [4] Dutta M, Shekhar C, Prashad L. Level, trend and correlates of mistimed and unwanted pregnancies among currently pregnant ever married women in India. *PLoS One* 2015;10. <https://doi.org/10.1371/journal.pone.0144400>.
- [5] Ali SA, Ali SA. Unmet need for contraception and unintended pregnancies among women of reproductive age group: a situation analysis. *El Med J* 2014;2:259. <https://doi.org/10.18035/emj.v2i3.242>.
- [6] Smith-Greenaway E, Sennott C. Death and desirability: retrospective Reporting of unintended pregnancy after a child's death. *Demography* 2016;53: 805–34. <https://doi.org/10.1007/s13524-016-0475-9>.
- [7] Steinberg JR, Rubin LR. Psychological aspects of contraception, unintended pregnancy, and abortion. *Policy Insights from Behav Brain Sci* 2014;1:239–47. <https://doi.org/10.1177/2372732214549328>.
- [8] Dixit P, Ram F, Dwivedi LK. Determinants of unwanted pregnancies in India using matched case-control designs. *BMC Pregnancy Childbirth* 2012;12:84. <https://doi.org/10.1186/1471-2393-12-84>.
- [9] Arévalo M, Jennings V, Sinai I. Efficacy of a new method of family planning: the Standard Days Method. *Contraception* 2002;65:333–8. [https://doi.org/10.1016/S0010-7824\(02\)00288-3](https://doi.org/10.1016/S0010-7824(02)00288-3).
- [10] Venkatesan LD. Effectiveness on knowledge of necklace method as a natural family planning among reproductive age group mothers. *Indian J Clin Pract* 2014;25:675–7.