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Effectiveness of Structured Educational Program on Knowledge Regarding Newborn Care among Primi Mothers Attending in ANC OPD of Tertiary Hospital

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ABSTRACT

Background

Newborn care refers to the fundamental care provided to a newborn, including activities such as breastfeeding, maintaining body temperature, and taking precautions to prevent infections and injuries. The main objective of this study is to find the effectiveness of structured educational program on knowledge regarding newborn care among primi mothers attending in ANC OPD of tertiary hospital.

Methods

One group pre-test post-test design was used to assess the effectiveness of structured educational programmed regarding newborn care among primipara mother visiting the obstetric outpatient department of Bharatpur Hospital from August to December, 2024. A non- probability Convenient sampling technique was adopted and selected 60 samples. Interview guideline schedule with 30 items prepared and used for collecting data. Data analyzed in SPSS 20 version and interpreted using descriptive and inferential statistics.

Results

In pre-test 60% belonged to satisfactory knowledge where as in post-test sent percent were belongs to adequate knowledge. Knowledge on New born care was categorized into breast feeding, thermal protection and danger sign of new born. Overall mean score in all three components of newborn care was 21.75±2.68 in pre-test whereas 28.0±1.2 in the post test. The knowledge score after post test was increased in every aspect of domain and most difference found ($p < 0.001$) in Breast feeding score.

Conclusions

Primipara mothers' knowledge were increased after educational intervention. It was recommendation that Increasing the information and education regarding neonatal care for pregnant women especially primipara is required.

Keywords: Educational intervention, knowledge on new-born care, Primi-mothers.

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INTRODUCTION

The first four weeks of a neonate's life are regarded as the "neonatal period," which is one of the most vulnerable life stages and requires intensive care.[1,2] During the initial week after birth, newborns experience notable metabolic and physiological changes. The term "newborn care" refers to the fundamental care provided to a newborn by either the mother or a caregiver, including activities such as breastfeeding, maintaining body temperature, tending to the umbilical cord, caring for the eyes, and taking precautions to prevent infections and injuries. [3] Care provided by the mothers to their newborn depends on experience and knowledge of the mothers regarding newborn care and determines the newborn's heath status.[4]

Globally, 2.4 million newborn deaths occur each year and approximately 6700 newborn deaths every day, which constitute 47% of all pediatric mortality among children under the age of five. Nearly three-quarters of neonatal deaths occur within the first week of life, with around one-third occurring on the day of birth.[5] One of the main issues with babies around the world, particularly in emerging and underdeveloped nations, is neonatal mortality. Although neonatal health has improved noticeably recently, many countries high mortality rates have not changed.[6] Babies who pass away within the first 28 days of birth often have illnesses and disorders that could have been prevented with better prenatal care or early access to competent care and treatment. [7] Sub-Saharan Africa has the highest neonatal mortality rate which accounts for 43% of all newborn deaths followed by central and southern Asia which accounts for 36% of all newborn deaths worldwide.[5] The neonatal mortality rate in Pakistan 42 deaths per 1000 live births, where as in India 27 deaths per 1000 live births.[8,9] According to the Nepal Demographic Health Survey conducted in 2022, there was significant decrease in the child and infant mortality rate, however neonatal mortality remained constant at 21 deaths per 1,000 live births in 2022 as compared to 2016 data.[10]

Newborn care improves the health and well-being of infants born preterm or low birth weight, promotes better bonding between mother and child, facilitates exclusive breastfeeding, which strengthens the baby's immune system, and provides effective thermal control, reducing the risk of hypothermia.[11]

METHODS

A one-group pre-test post-test design was used to assess the effectiveness of a structured educational program on newborn care among primi mothers attending the ANC OPD at Bharatpur Hospital, Chitwan, Nepal, from August to December 2024. Ethical approval for the study was obtained from the Institutional Review Committee of the same institute (Reference number 081/82-07/BHG), and written informed consent was secured from each participant before data collection. The study targeted primi mothers meeting the inclusion criteria, who were recruited using a convenience sampling method. The required sample size was calculated using an appropriate statistical formula, arriving at 53 participants. However, considering a potential refusal rate of 14.28%, data was collected from 60 subjects to ensure adequate representation. The study instrument was divided into two parts: (1) an experimental instrument, which included the intervention protocol, and (2) data collection instruments. The structured educational protocol was designed by the researcher based on study objectives, literature review, and expert consultations. The intervention included multiple steps: assessing inclusion and exclusion criteria, establishing rapport with participants, obtaining written and verbal informed consent, conducting pretesting using a structured questionnaire, and delivering a 30-minute educational session. The educational intervention covered essential topics on newborn care, including exclusive breastfeeding, feeding times, breastfeeding advantages, thermal protection, hypothermia, hyperthermia, and newborn danger signs. The pretest and intervention were conducted in a private setting in the waiting area of the ANC OPD before or after the participants' doctor visits for convenience. The post-test was administered 15 days after the pre-test using the same questionnaire to assess knowledge improvement. Participants were provided with the researcher's contact details for follow-up.

The data collection instruments included two sections: socio-demographic characteristics and knowledge assessment regarding newborn care. The socio-demographic section collected data on age, education, occupation, family type, and sources of information through five multiple-choice questions (MCQs). The knowledge assessment section consisted of 30 MCQs covering thermal protection, breastfeeding, and newborn danger signs. Scoring was based on correct responses (1 point) and incorrect responses (0 points), with total scores ranging from 0 to 30. Knowledge levels were categorized as low (below 50%), satisfactory (50-75%), and adequate (above 75%). To ensure the validity and reliability of the study tools, the questionnaire was developed based on literature review and expert consultation. Reliability was tested by pre-testing the tool on 10% of the total sample size, and necessary modifications were made based on the findings.

Ethical norms were strictly maintained throughout the study, with confidentiality ensured by assigning code numbers to participants. Participants retained the right to withdraw at any stage without consequences. The pre-test was conducted through structured interviews, followed by the educational intervention on the same day. The post-test was conducted 15 days later to evaluate knowledge retention. Data was managed using SPSS version 22, where it was checked for completeness, cleaned, edited, and coded for analysis. Both descriptive and inferential statistical methods were used to analyze the data, and findings were presented in tabulated formats. The study adhered to strict ethical guidelines to ensure participant privacy, confidentiality, and voluntary participation.

RESULTS

Table 1 presented the socio-demographic variables of the respondents, including their age, educational qualifications, occupations, family type, and sources of information. Regarding age, more than half (51.7%) of the respondents fall within the 25–30 years age group, followed by 33.3% in the 20–25 years group, while fewer respondents are less than 20 years old (5.0%) or older than 30 years (10.0%).

Table 1. Demographic Characteristic of Respondents (n=60)

Demographic variables	Frequency (%)
Age (in complete year)	
<20	3(5)
20 – 25	20(33.3)
25 – 30	31(51.7)
> 30	6(10)
Educational qualification	
Basic level	8(13.3)
Secondary level	22(36.7)
Higher secondary level	30(50)
Occupation	
House work	30(50)
Job	23(38.3)
Business	4(6.7)
Agriculture	3(5)
Family type	
Nuclear	14(23.3)
Joint	46(76.7)
Sources of information	
Mass media	15(25)
Electronic media	17(28.3)
Interpersonal communication	32(53.3)
Health care professional	22(36.7)
Don't know	14(23.3)

In terms of educational qualifications, half (50.0%) of the respondents have completed higher secondary education, 36.7% have achieved a secondary level education, and 13.3% have only a basic level of education. For occupation, 50.0% of respondents are involved in housework, 38.3% are employed in jobs, 6.7% are engaged in business, and 5.0% work in agriculture.

Regarding family type, the majority of respondents (76.7%) belong to joint families, while 23.3% are part of nuclear families. When considering sources of information, the most frequently cited source is interpersonal communication (53.3%), followed by electronic media (28.3%), health care professionals (36.7%), and mass media (25.0%). A small portion (23.3%) of respondents reported being unsure about their sources of information.

Table 2 revealed that compare the levels of knowledge

Table 2. Pre and Post test level of knowledge (n=60)

Component	Level of knowledge		
	Inadequate	Satisfactory	Adequate
Pre test	1 (1.7%)	36 (60.0%)	23 (38.3%)
Post test	-	-	60 (100%)

regarding new born care among participants before and after a test. A majority (60%) participants displayed satisfactory knowledge, (38.3%) had adequate knowledge and only (1.7%) demonstrate inadequate knowledge during pretest. After the test, all (100 %) of the participants had adequate knowledge.

Table 3 illustrated that effectiveness of educational intervention of knowledge regarding Newborn care among primipara mother were found that the overall knowledge score increased after post intervention. The knowledge score was increased in every aspect of domain and most difference found ($p < 0.001$) in Breast feeding score.

Current studies showed that compare the levels of knowledge regarding newborn care among primipara mothers before and after a test. A majority (60%) participants displayed satisfactory knowledge, (38.3%) had adequate knowledge and only (1.7%) demonstrate inadequate knowledge on pretest. After the test, all (100 %) of the participants had adequate knowledge. The pretest mean and standard deviation was (21.75±2.68.) and the post test mean and standard deviation was (28.0±1.2). The study showed that there was a significant difference in the knowledge level after educational intervention.

Table 3. Distribution of Participants According to Knowledge of Newborn care

Variables	Mean Score ±SD		Paired difference mean ±SD	t-value	P value
Knowledge	Pre-test	Post-test	-2.95±1.83	-12.45	<0.001
Breast Feeding	4.45±1.51	7.40±0.82	-1.983±1.524	-10.08	<0.001
Thermal Protection	4.48±1.49	6.47±0.623	-1.317±1.396	-7.31	<0.001
Danger Signs	12.82±1.157	14.13±0.873	-1.317±1.396	-7.31	<0.001
Overall score	21.75±2.68	28.0±1.2	-6.25±2.94	-16.45	<0.001

DISCUSSION

In the present study the overall socio demographic characteristics of the participants revealed that 51% of the respondents were between the age group of 25-30 years among 60 samples, almost half of them i.e.50% were studies on higher secondary level. A total of 76% of them belonged to nuclear family. After the educational intervention (100 %) of them had adequate knowledge on new born care which was statistically significant as per $p<0.0001$. Unlike the study conducted by Bangalore maximum participants were from 20-25 age group (60%) and >30 years were the minimum participants (6.66%). Maximum participants were under graduates (60%) and secondary education and post graduates were 20% each. Maximum participants belonged to nuclear family (57%).

Whereas the study conducted by Telangana among 30 mothers. The pre-test, showed that, 23(77%) had average knowledge, 4(13%) had below average knowledge and 3(10%) had above average knowledge regarding newborn care. In post-test, 16(53%) had average knowledge and 14(47%) had above average knowledge none of them had below average knowledge regarding newborn care. The pretest mean and standard deviation was (15.2 ±3.75). And the post-test mean and standard deviation was (20.6± 2.7).[37]

Whereas a study conducted in selected villages of Haryana. The study found that the majority of primigravida women had inadequate knowledge about personal hygiene maintenance, thermoregulation, breastfeeding, immunization, and umbilical cord care. However, the results showed that overall knowledge improved significantly after the structured teaching program, indicating its effectiveness. Such educational programs have the potential to enhance knowledge and raise awareness among primigravida women about effective newborn care. The pretest knowledge score of primigravida mothers before the structured teaching program was 36%, which increased to 64% in the post-test. [35]

Unlike a study was conducted at Indira Gandhi Children Hospital in Bangalore. The findings revealed that prior to the program, only 40% (16 mothers) had average knowledge, while the remaining 60% (24 mothers) had low knowledge. However, after the program, there was a notable improvement in knowledge. In the post-test, 30% (12 mothers) demonstrated good knowledge, while 70% (28 mothers) showed average knowledge. This suggests that the Structured Teaching Program had a positive impact on improving the knowledge of infant care among primipara mothers. [36]

CONCLUSIONS

The effectiveness of educational intervention on knowledge regarding newborn care among primipara mother were found that the overall knowledge score was increased after educational intervention. The knowledge score was increased in every aspect of domain and most difference found ($p < 0.001$) in Breast feeding score.

Limitations

One group pretest and posttest research design were carried out without using a control group for comparison therefore, a causal relationship between the variables was not determined, and a convenience sampling technique was used to select the sample. Personal factors that could contribute to level of awareness were not considered. Due to limited resource and self-developed tool were used, which may require further validity. The number of samples wasn't enough to represent the large population of family members.

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Conflict of interest: None

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REFERENCES

1. K.c N, Shrestha B, Bhattarai A, Paudel S, Subedi N. Pattern of morbidity and mortality among neonates admitted to neonatal intensive care unit in tertiary care centre, western Nepal. J Gandaki Med Coll-Nepal. 2021 Jul 3;14(1):24–8. [Google Scholar]
2. Ali Abd El-Salam A, Mohammed El-Maghawery Eldeeb A, Salah Eldin Mohamed Saleh A. Effect of Instructional Program on Primipara Mothers' Knowledge Regarding Neonatal Care. Am J Nurs Res. 2019 Mar 14;7(3):256–61. [Google Scholar]
3. Revathy MV. A study to assess the effectiveness of educational intervention on newborn care among antenatal mothers at selected hospitals, Puducherry. 2020. [Google Scholar]
4. Bhattarai M, Gurung R, Gurung S, Poudel S, Mahato J, Katel K, et al. Knowledge and Practice on Neonatal Care Among Postnatal Mothers in A Selected Teaching Hospital, Kaski District, Nepal. Int J Soc Sci Manag. 2021 Jan 25;8(1):279–84. [Google Scholar]
5. Newborn Mortality [Internet]. [cited 2023 May 16]. [Link]
6. Rao P, Joshi S, Giram A. TRANSCON 2022 B. Asian Journal of Transfusion Science. 2023 May;17:2. [Google Scholar]
7. Newborn health [Internet]. [cited 2023 Jan 11]. [Link]
8. Dawood Z, Majeed N. Assessing neo-natal mortality trends in Pakistan: an insight using equity lens. Arch Public Health. 2022 Jan 4;80(1):7. [Google Scholar]
9. Neonatal mortality - UNICEF DATA [Internet]. [cited 2023 May 21]. [Link]
10. Nepal Demographic Health Survey 2022. Ministry of Health and Population, Nepal; New ERA; and ICF. [Google Scholar]
11. Early Essential Newborn Care [Internet]. [cited

2023 Jan 31]. [Link]

12. Raza SA, Avan BI. Eliminating Maternal and Neonatal Tetanus and Promoting Clean Delivery Practices Through Disposable Clean Birth Kits. Front Public Health [Internet]. 2019 [cited 2023 May 21];7. [Google Scholar]
13. Mallick L, Yourkavitch J, Allen C. Trends, determinants, and newborn mortality related to thermal care and umbilical cord care practices in South Asia. BMC Pediatr. 2019 Jul 22;19(1):248. [Google Scholar]
14. Dessalegn N, Dagnaw Y, Seid K, Wolde A. Umbilical Cord Care Practices and Associated Factor Among Mothers of Neonates Visiting Mizan-Tepi University Teaching Hospital Southwest Ethiopia 2021. Pediatr Health Med Ther. 2022 Jun 7;13:227–34. [DOI]
15. Subhashini L, Sarin J, Shankar R. Effectiveness of Video Assisted Teaching on Breastfeeding Knowledge andPractice of Mothers of Preterm Baby. RGUHS J Nurs Sci [Internet]. 2018 [cited 2023 Jan 28];8(2). [DOI]
16. Dewangan S. A pre experimental study to assess the effectiveness of planned teaching program regarding essential new born care on knowledge of post natal mothers in selected hospital of Durg Chhattisgarh. Int J Appl Res. 2021 Apr 1;7(4):107–12. [Link]
17. Ayele AD, Tenaw LA, Kassa BG, Mihretie GN, Belay HG, Teffera AG, et al. Knowledge and practice of essential newborn care and associated factors among women in Ethiopia: systematic review and meta-analysis. Reprod Health. 2022 Aug 4;19(1):172. [Google Scholar]
18. Nepal Demographic Health Survey 2016 Ministry of Health and Population, Nepal; New ERA; and ICF. [Google Scholar]
19. National_Neonatal_Health_Strategy.pdf [Internet]. [cited 2023 Feb 1]. [Link]
20. Rai G, Shrestha M, Pokharel N, Bhandari S. Effectiveness of Educational Intervention on Knowledge Regarding Newborn Care among Nurses Working in Maternity Units of B. P. Koirala Institute of Health Sciences, Nepal. Int J Nurs Res. 2020 Mar 25;6(1):15–9. [DOI]
21. Godati M, Lavanyauriti, Rani R. Effectiveness of Structured Teaching Programme Knowledge and Practice of Post Natal Mothers Regarding Essential New Born Care. ARC J Nurs Healthc. 2016;2(3):10–6. [DOI]
22. Adhikari S, Lama M. Prevalence and Associated Factors for Cesarean Section among Women at a Tertiary Care Hospital, Nepal. Journal of Karnali Academy of Health Sciences. 2024 May 31;7(1) [DOI]
23. Pavithra T, Sujitha MS. The Effectiveness of Structured Teaching Programme on Essential Newborn Care among Postnatal Mothers. 2019;06(11). [Google Scholar]
24. Sakelo AN, Assefa N, Oljira L, Assefa ZM. Newborn Care Practice and Associated Factors among Mothers of One-Month-Old Infants in Southwest Ethiopia. Int J Pediatr. 2020 Oct 20;2020:e3897427. [DOI]
25. Panthi S, Nepal M. Awareness Regarding Care of Newborn among Post Natal Mothers in Teaching Hospital Lalitpur. Int J Health Sci Res. 2022 Nov 18;12(11):222–8. [Google Scholar]
26. Anish M, K A, Williams S. A Descriptive Study to assess the Knowledge of Postnatal mothers regarding Newborn care in a selected hospital at Mysuru, Karnataka with a view to Develop Information Pamphlet. Asian J Nurs Educ Res. 2018 Aug 7;8(3):411–4. 63fa1d777aada5.88094231.pdf [Link]
27. Renubala Devi Y, Randhawa RK, Chaudhary P. Knowledge and Practice Regarding Breastfeeding among Primipara Mothers of Obstetrics Ward, Birganj, Nepal. Int J Health Sci Res. 2022 Jan 5;12(1):57–60. [DOI]
28. Zhou J, Hua W, Zheng Q, Cai Q, Zhang X, Jiang L. Knowledge about neonatal danger signs and associated factors among mothers of children aged 0–12 months in a rural county, Southwest of China: a cross-sectional study. BMC Pregnancy Childbirth. 2022 Apr 21;22(1):346. [Google Scholar]
29. Degefa N, Diriba K, Girma T, Kebede A, Senbeto A, Eshetu E, et al. Knowledge about Neonatal Danger Signs and Associated Factors among

Mothers Attending Immunization Clinic at Arba Minch General Hospital, Southern Ethiopia: A Cross-Sectional Study. BioMed Res Int. 2019 Aug 6;2019:e9180314. [DOI]

30. Shah I, Paudyal L, Soti H, Gautam NS. Descriptive Cross-sectional Study on Mothers' Knowledge Regarding Prevention of Neonatal Hypothermia. J Univers Coll Med Sci. 2022 Aug 9;10(01):62–6. [DOI]
31. Musabyemariya E, Mukamana D, Muteteli C, Uwizeyimana P, Chironda G, Rajeswaran L. Neonatal Hypothermia: Mothers' Knowledge and Practice at a Provincial Hospital in Rwanda. Rwanda J Med Health Sci. 2020 Sep 7;3(2):152–66. [DOI]
32. Minakhi K, Niyati D, Purnima S, Bhaktiswarupa S. Effectiveness of comprehensive newborn care package program on knowledge and practice among primi postnatal mothers at selected hospital Odisha. 2022;26(2). [Link]
33. Majumder S, Najnin Z, Ahmed S, Bhuiyan SU. Knowledge and attitude of essential newborn care among postnatal mothers in Bangladesh. J Health Res. 2018 Jan 1;32(6):440–8. [Google Scholar]
34. Devakirubai AP, Shaikh F, Jukaria M, Sukumaran N, Rai S, Rajashree TR. Effectiveness of nurse led educational intervention on knowledge regarding new-born care among hospitalized primi-mothers. International Journal of Nursing Education and Research. 2024;12(1):41-4.[DOI]
35. Ra c. Study to evaluate the effectiveness of an educational interventional module on new-born care among primi gravida mothers attending antenatal clinics at selected maternity hospital at asramam, kollam dist, kerala state.[Google Scholar]
36. Jadhav J. A Study to assess the effectiveness of Structured Teaching Programme on knowledge and practice of Infant care among Primipara mothers in Indira Gandhi Children Hospital at Bangalore. Int J Nurs Educ Res. 2018;6(3):271. [DOI]
37. Latha P. Effectiveness of STP on Newborn Care among Primi Mothers at Govt. Hospital, Bhadrachalam, Telangana. NNJ. 2015;4(4):24-7. [Google Scholar]
38. Shah I, Paudyal L, Soti H, Gautam NS. Descriptive Cross-sectional Study on Mothers' Knowledge Regarding Prevention of Neonatal Hypothermia. J Univers Coll Med Sci. 2022 Aug 9;10(01):62–6. [DOI]
39. Venu AS, Kumar PRN, Prashanth HM, Sridhara KM. A Study to Assess the Effectiveness of Planned Teaching Programme on Knowledge regarding Common Minor Neonatal Problems and its Management among Postnatal Mothers Admitted in S.S Hospital, Davangere, Karnataka. Int J Nurs Educ Res. 2016;4(2):129. [DOI]
40. Njuguna EM. Effectiveness And Acceptability Of Audiovisual Aids For Increasing Knowledge Of Neonatal Danger Signs Among Primiparous Women: A Randomized Controlled Trial. [Link]
41. Adhikari M, Chalise B, Bista B, Pandey AR, Upadhyaya DP. Sociodemographic correlates of antenatal care visits in Nepal: results from Nepal Demographic and Health Survey 2016. BMC Pregnancy and Childbirth. 2020 Dec;20:1-0. [Google Scholar]

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