

Effectiveness of a Structured Educational Module on Knowledge, Attitude and Acceptability Related to Wet Nursing among Postnatal Mothers at a Selected Hospital, Greater Noida, and Uttar Pradesh: A Quasi-Experimental Study

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Abstract

Background

Breastfeeding is the preferred source of nutrition for infants and contributes to growth, immunity, and survival. When a mother is unable to provide her own milk, wet nursing may represent one human-milk feeding option; however, misconceptions and limited knowledge may influence women's attitudes and acceptability. This study assessed knowledge, attitude, and acceptability regarding wet nursing among postnatal mothers and evaluated the effectiveness of a Structured Educational Module (SEM).

Methods

A quasi-experimental pre-test–post-test control-group study was conducted among 126 postnatal mothers admitted to a selected hospital in Greater Noida, Uttar Pradesh, India. Eligible participants were recruited using purposive sampling and allocated to an experimental group ($n = 63$) or control group ($n = 63$) by the study's chit method. Knowledge and attitude were assessed at baseline and 5 days later. The experimental group received an individually delivered SEM on wet nursing and a Hindi-language reinforcement pamphlet, while the control group received routine care. Descriptive statistics, paired t -tests, independent t -tests, and Chi-square or Fisher's exact tests, as appropriate, were used.

Results

Knowledge in the experimental group increased from a mean (SD) of 7.159 (1.461) at baseline to 16.127 (1.529) after the intervention ($t = 40.457$, $p < 0.001$), whereas no significant change was observed in the control group ($p = 0.159$). Attitude in the experimental group increased from 22.921 (4.209) to 38.333 (4.273) ($t = 25.497$, $p < 0.001$), while the control group showed no significant change ($p = 0.199$). Post-test knowledge and attitude scores were significantly higher in the experimental group than in the control group (both $p < 0.001$). Overall acceptability among participants in the experimental group was 84.13%.

Conclusions

The Structured Educational Module was associated with improved knowledge and more favorable attitudes toward wet nursing among postnatal mothers. Structured, culturally appropriate education may support informed decision-making regarding alternative human-milk feeding practices. Findings should be interpreted in light of the single-site design and non-probability sampling.

Trial registration

Not applicable.

Background

Breastfeeding plays a pivotal role in child survival and provides nutrients and bioactive components that support infant growth and development ^[1–3]. The World Health Organization and UNICEF recommend that breastfeeding be initiated within the first hour of delivery, that it be continued exclusively for the first six months, and that it be continued until the child reaches two years of age or older. ^[1]. Despite these benefits, optimal infant feeding is not achieved universally. When feeding with the biological mother's own milk is not possible, alternative sources of human milk may be considered, including wet nursing.

Wet nursing refers to breastfeeding an infant by a lactating woman who is not the infant's biological mother, particularly when the biological mother is unable to breastfeed because of illness, death, or other circumstances ^[4,5]. Historically, wet nursing was widely practiced and later declined with the increasing availability of animal milk, feeding bottles, and commercial infant formula ^[6,7]. The practice remains relevant in some cultural and religious communities, including Muslim communities, where beliefs and kinship considerations may influence its acceptance ^[4,5,8].

Women's knowledge, attitudes, cultural beliefs, and perceptions may influence their willingness to accept wet nursing or milk sharing. A study among Turkish women reported varying levels of willingness to become wet nurses or share breast milk and highlighted the influence of education, culture, and religion on acceptance ^[9]. Appropriate information and counselling may therefore help women make informed decisions about human-milk feeding practices.

Evidence on educational interventions addressing wet nursing among postnatal mothers remains limited. The present study therefore assessed knowledge, attitude, and acceptability regarding wet nursing among postnatal mothers and evaluated the effectiveness of a Structured Educational Module in improving knowledge and attitudes.

Methods

Study design and setting

A quantitative quasi-experimental pre-test–post-test control-group design was used. The study was conducted in the Obstetrics and Gynecology wards (Units 1, 2, and 3) of Sharda Hospital, Greater Noida, Uttar Pradesh, India, from 1 March 2026 to 23 May 2026.

Participants and sampling

The study included 126 eligible postnatal mothers admitted to the study wards. Participants were recruited using non-probability purposive sampling and assigned to an experimental group (n = 63) or a

control group (n = 63) using the chit method described by the investigators. Eligibility was determined according to the study's inclusion and exclusion criteria.

Figure 1 explain that a total of 126 postnatal mothers were selected and equally allocated to experimental and control groups. The experimental group received the Structured Educational Module, while the control group received routine care. Knowledge and attitude were assessed after 5 days.

Sample size

The single-population proportion formula, $n = Z^2pq/d^2$, was employed to estimate the sample size. This was done with a 95% confidence level ($Z = 1.96$), an anticipated proportion of 50%, and a 9% margin of error. The calculated sample size was 119. Allowing 5% for possible attrition resulted in an adjusted target of approximately 125 participants; 126 participants were included to permit equal group sizes.

Intervention and study procedures

After the baseline assessment, participants in the experimental group received the Structured Educational Module on wet nursing individually at the bedside in Hindi. The session lasted approximately 20–30 minutes and used a PowerPoint presentation delivered on a laptop. Content included the meaning of wet nursing, its potential need and importance, perceived benefits, how wet nursing is practised, and relevant procedures and safety considerations. Participants were allowed to ask questions and clarify doubts. A Hindi-language pamphlet written in simple language was provided as reinforcement. The control group received routine hospital care. After completion of the study, the pamphlet was also provided to control-group participants.

Baseline assessments were conducted in both groups using the socio-demographic proforma, knowledge questionnaire, and attitude scale. Five days after the intervention, both groups completed the knowledge and attitude assessments again. Acceptability was assessed after the intervention in the experimental group only.

Study instruments and measurement

A self-structured tool was developed from the literature, study objectives, and expert advice. It included: (A) a 15-item socio-demographic proforma; (B) a 20-item knowledge questionnaire, categorized as poor (1–10) and good (11–20); (C) a 15-item attitude scale with total scores ranging from 15 to 45, categorized as negative (15–30), neutral (31–37), and positive (38–45); and (D) a 10-item acceptability checklist, interpreted as acceptable ($\geq 80\%$) or not acceptable ($< 80\%$).

Validity, reliability, and pilot testing

The Structured Educational Module and study instruments were reviewed by 10 experts in Obstetric and Gynecological Nursing and Medical-Surgical Nursing for relevance, clarity, and appropriateness. Necessary modifications were made following expert feedback. Internal consistency was assessed using KR-20 for the knowledge questionnaire and Cronbach's alpha for the attitude scale, yielding coefficients of 0.76 and 0.79, respectively. A pilot study involving 30 postnatal mothers (15 in each group) assessed feasibility; no major modifications were required.

Statistical analysis

Data was coded and entered into Microsoft Excel (Microsoft Office, 2021). Participants' characteristics and outcome scores were summarized using frequencies, percentages, means, and standard deviations.

The baseline comparability of categorical socio-demographic data was determined using the Chi-square test or Fisher's exact test, as appropriate. Paired t-tests were used to compare pre-test and post-test knowledge and attitude scores within groups, whereas independent t-tests were used to compare post-test scores between groups. Statistical significance was determined at $p < 0.05$.

Ethics approval and consent to participate

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Ethical approval was obtained from the Institutional Ethics Committee of Sharda School of Medical Science and Research, Sharda University (IEC No. SU/SMS&R/76-A/2025/295). Written informed consent was obtained from all participants. Participant information was coded and confidentiality was maintained throughout the study.

Results

Participant characteristics

Table 1. Socio-demographic characteristics of participants in the experimental and control groups (N = 126)

Demographic Variables	Experimental Group		Control Group		Chi-square/Fisher Exact	P-value
	(n = 63)		(n = 63)			
1. Age in (years)	F	%	F	%	0.24	0.97
1. Below 20 years	1	1.59%	1	1.59%		
2. 21-25 years	24	38.10%	24	38.10%		
3.26-30 years	27	42.86%	25	39.68%		
4. Above 30 years	11	17.46%	13	20.63%		
Total	63	100%	63	100%		
2.Educational Qualification					1.97	0.58
1. No formal education	4	6.35%	2	3.17%		
2. Primary education	15	23.81%	21	33.33%		
3. Secondary education	16	25.40%	16	25.40%		
4. Graduate and above	28	44.44%	24	38.10%		
Total	63	100%	63	100%		
3. Occupation					-	-
1. Employed	5	7.94%	5	7.94%		
2. Self -employed	2	3.17%	2	3.17%		
3. Homemaker	56	88.89%	56	88.89%		
Total	63	100%	63	100%		
4.Types of family					5.71	0.12
1.Nuclear family	17	26.98%	28	44.44%		
2.joint family	44	69.84%	35	55.56%		
3.Extended family	1	1.59%	0	0.00%		
4.Blended family	1	1.59%	0	0.00%		
Total	63	100%	63	100%		
5. Number of children					3.91	0.27
1.None	2	3.17%	1	1.59%		
2.one	40	63.49%	45	71.43%		

3.two	20	31.75%	13	20.63%	
4.three or more	1	1.59%	4	6.35%	
Total	63	100%	63	100%	
6.Duration of marriage				6.17	0.10
1.<1 year	4	6.35%	7	11.11%	
2.1-5 year	41	65.08%	45	71.43%	
3.6-10 years	13	20.63%	11	17.46%	
4.>10 years	5	7.94%	0	0.00%	
Total	63	100%	63	100%	
7.Husband / Partners					
occupation				7.88	0.04
1. unemployed	1	1.59%	4	6.35%	
2.Daily wage worker	26	41.27%	16	25.40%	
3.private job	30	47.62%	41	65.08%	
4.Government job	6	9.52%	2	3.17%	
Total	63	100%	63	100%	
8. Number of family					
Members in the household				3.19	0.36
1. 2-3	7	11.11%	7	11.11%	
2.4-5	27	42.86%	35	55.56%	
3. 6-7	20	31.75%	17	26.98%	
4.>8	9	14.29%	4	6.35%	
Total	63	100%	63	100%	
9.Monthly family income				3.09	0.37
1.Less than 10,000	25	39.68%	20	31.75%	
2.10,000-20,000	30	47.62%	33	52.38%	
3.20001-30,000	6	9.52%	4	6.35%	
4.more than 30,000	2	3.17%	6	9.52%	
Total	63	100%	63	100%	

10. Place of Residence					8.71	0.01
1.urban	41	65.08%	51	80.95%		
2.semi-urban	1	1.59%	4	6.35%		
3.rural	21	33.33%	8	12.70%		
Total	63	100%	63	100%		
11.Access to health care facility					2.93	0.40
1.Primary health center	2	3.17%	3	4.76%		
2. Community health center	7	11.11%	3	4.76%		
3.private hospital	45	71.43%	43	68.25%		
4. Government hospital	9	14.29%	14	22.22%		
Total	63	100%	63	100%		
12.Religion					0.7	0.15
1.hindu	51	80.95%	58	92.06%		
2.muslim	11	17.46%	5	7.94%		
3.sikh	1	1.59%	0	0.00%		
Total	63	100%	63	100%		
13.Parity					3.39	0.33
1.Nullipara	2	3.17%	0	0.00%		
2.Primipara	37	58.73%	43	68.25%		
3.Multipara	23	36.51%	18	28.57%		
4.Grand multipara	1	1.59%	2	3.17%		
Total	63	100%	63	100%		
14.Mode of current delivery					5.35	0.14
1.Normal vaginal delivery	35	55.56%	33	52.38%		
2.Assisted vaginal delivery	2	3.17%	1	1.59%		
3.Elective Caesarean section	4	6.35%	0	0.00%		
4.Emergency caesarean section	22	34.92%	29	46.03%		
Total	63	100%	63	100%		

15.Mode of transportation to health facility	3.19				0.27
1.walking	14	22.22%	13	20.63%	
2.Two-wheeler	45	71.43%	42	66.67%	
3.Public transport	3	4.76%	2	3.17%	
4.private vehicle	1	1.59%	6	9.52%	
Total	63	100%	63	100%	

Table 1 illustrate that among the 126 participants, the experimental and control groups were generally comparable with respect to most selected socio-demographic variables ($p > 0.05$). Differences were observed for husband/partner's occupation ($p = 0.04$) and place of residence ($p = 0.01$) (Table 1).

Knowledge outcomes

Table 2. Comparison of pre-test and post-test knowledge scores in the experimental and control groups

Groups	Knowledge on Wet Nursing	Mean	SD	T- value	p-value
Experimental	Pre-test	7.159	1.461	40.457	<0.001
	Post-test	16.127	1.529		
	Pre vs. Post Difference	8.968			
Control	Pre-test	5.968	0.933	1.426	0.159
	Post-test	5.873	1.055		
	Pre vs. Post Difference	-0.095			

In the experimental group, the mean (SD) knowledge score increased from 7.159 (1.461) at baseline to 16.127 (1.529) after the intervention, with a mean difference of 8.968 ($t = 40.457$, $p < 0.001$). In the control group, the mean score changed from 5.968 (0.933) to 5.873 (1.055), with no statistically significant difference ($t = 1.426$, $p = 0.159$). (Table 2).

Attitude outcomes

Table 3. Comparison of pre-test and post-test attitude scores in the experimental and control groups (N = 126)

Groups	Attitude regarding Wet Nursing	Mean	SD	T -value	p-value
Experimental	Pre-test	22.921	4.209	25.497	<0.001
	Post-test	38.333	4.273		
	Pre vs. Post Difference	15.413			
Control	Pre-test	19.270	3.493	1.298	0.199
	Post-test	19.190	3.398		
	Pre vs. Post Difference	-0.079			

Table 3 elaborates In the experimental group, the mean (SD) attitude score increased from 22.921 (4.209) to 38.333 (4.273), with a mean difference of 15.413 ($t = 25.497$, $p < 0.001$). In the control group, the mean score changed from 19.270 (3.493) to 19.190 (3.398), with no statistically significant difference ($t = 1.298$, $p = 0.199$).

Post-test comparison between groups

Table 4. Comparison of post-test knowledge scores between the experimental and control groups (N = 126)

Group	Number(n)	Mean	SD	Mean Difference	T-value	P-value
Experimental	63	16.127	1.529	10.254	43.813	<0.001
Control	63	5.873	1.055			

The experimental group had a significantly higher post-test knowledge score than the control group (16.127 ± 1.529 vs 5.873 ± 1.055 ; mean difference 10.254; $t = 43.813$; $p < 0.001$). (Table 4).

Table 5. Comparison of post-test attitude scores between the experimental and control groups (N = 126)

Group	Number(n)	Mean	SD	Mean Difference	T-value	P-value
Experimental	63	38.333	4.273	19.143	27.83	<0.001
Control	63	19.190	3.398			

Table 5 state that the experimental group also had a significantly higher post-test attitude score than the control group (38.333 ± 4.273 vs 19.190 ± 3.398 ; mean difference 19.143; $t = 27.83$; $p < 0.001$).

Acceptability of wet nursing

Table 6. Acceptability of wet nursing among postnatal mothers in the experimental group (n = 63)

S. No.	Acceptability Statement	Yes n (%)	No n (%)
1	Would you accept the practice of wet nursing if it were medically safe?	54 (85.71%)	9 (14.29%)
2	Would you consider wet nursing an acceptable alternative to formula feeding when breastfeeding by the biological mother is not possible?	51 (80.95%)	12 (19.05%)
3	Would you allow your baby to be breastfed by another lactating mother if you had problems or a medical complication that prevented breastfeeding?	53 (84.13%)	10 (15.87%)
4	Do you think religious or cultural beliefs influence your acceptance of wet nursing?	55 (87.30%)	8 (12.70%)
5	Would you recommend wet nursing to another mother if breastfeeding by the biological mother were not possible?	52 (82.54%)	11 (17.46%)
The overall acceptability score was 84.13% (Highly acceptable)			

Overall acceptability of wet nursing among participants in the experimental group was 84.13%. Acceptance across individual reported items ranged from 80.95% to 87.30% (**Table 6**).

Discussion

This quasi-experimental study found that a Structured Educational Module on wet nursing was associated with substantial improvements in postnatal mothers' knowledge and attitudes over a 5-day assessment period. The experimental group demonstrated significant within-group improvements, while no significant changes were observed in the control group. Post-test scores were also significantly higher in the experimental group.

The increase in knowledge following the educational intervention is consistent with the premise that structured, understandable information can address misconceptions and improve awareness of an unfamiliar infant-feeding practice. A previous study of an information booklet also reported significant improvement in knowledge regarding wet nursing among women [10].

Attitudes toward wet nursing also improved after the intervention. Because cultural, religious, and social considerations may influence acceptance of wet nursing, educational approaches that are respectful of individual beliefs may help women consider the practice and make informed decisions when alternative human-milk feeding options are discussed. Direct comparison with previous intervention studies

remains limited because relatively few studies have specifically evaluated educational interventions targeting attitudes toward wet nursing.

The post-intervention acceptability level was high among participants in the experimental group. However, acceptability was measured only after the intervention and only in the experimental group; therefore, the study cannot determine whether acceptability changed as a result of the intervention or compare acceptability between groups. These findings should be interpreted as descriptive evidence of post-intervention acceptability rather than as a causal effect.

The findings have potential implications for postnatal counselling and nursing education. Brief, culturally appropriate educational interventions may be incorporated into discussions of infant feeding options, provided that counselling also addresses safety, informed consent, local policies, and appropriate clinical guidance.

Strengths and limitations

The study included both experimental and control groups and assessed knowledge and attitudes before and after the intervention. It also examined acceptability, providing a broader perspective on postnatal mothers' views of wet nursing. However, the study was conducted at a single hospital, used non-probability sampling, and included baseline differences in some socio-demographic characteristics. Acceptability was measured only after the intervention in the experimental group, and no longer-term follow-up was conducted. These factors may limit causal inference and generalizability.

Conclusions

The Structured Educational Module was associated with improved knowledge and more favorable attitudes regarding wet nursing among postnatal mothers. Participants who received the intervention had significantly higher post-test knowledge and attitude scores than those receiving routine care, and post-intervention acceptability was high in the experimental group. Structured health education may support informed decision-making regarding wet nursing; however, further multicentre studies with rigorous allocation procedures and longer follow-up are needed.

Abbreviations

SEM

Structured Educational Module

SD

Standard deviation.

Declarations

Ethics approval and consent to participate

The Institutional Ethics Committee (IEC) of Sharda University, Greater Noida, Uttar Pradesh, India, provided ethical permission for this work (IEC No. SU/SMS&R/76-A/2025/295). The study followed the Declaration of Helsinki's ethical standards, as well as all applicable institutional and national criteria for human-participant research.

Consent for publication

Inapplicable.

Availability of data and materials

The datasets created and/or analyzed during the current investigation are accessible from the corresponding author upon reasonable request, subject to ethical approval, participant privacy, and appropriate de-identification.

Competing interests

The authors affirm that they have no competing interests..

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The authors did not receive any external funding for this study.

Authors' contributions

SS include conceptualization, technique, data collecting, analysis, interpretation, and manuscript production. RK: supervision and guidance, manuscript preparation, methodological direction, validation, and critical review. STM: writing and critical review of the manuscript. SK: Supervision and literature review. JP is responsible for reviewing the literature, analyzing the data. All authors reviewed and approved the final manuscript.

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Figures

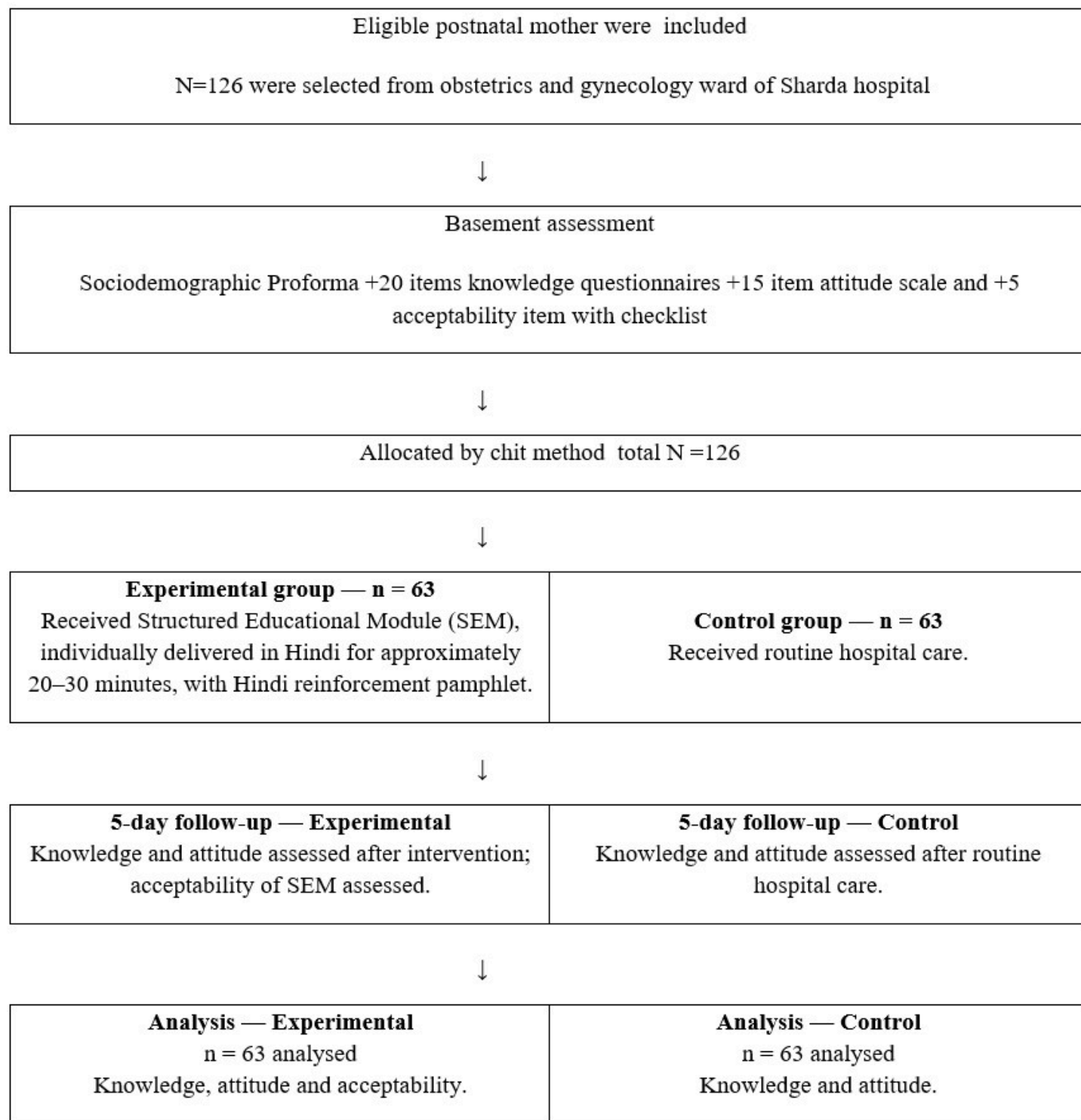


Figure 1

Flow diagram Wet-Nursing Study Participant