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"A Study to Assess The Effect of Health Teaching on Knowledge Regarding Identification of Danger Signs of Neonatal Illness among Mothers in Selected Hospital".

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Abstract:- **INTRODUCTION:** The neonatal period, which covers the first 28 days of life, is the most critical stage in the life of a newborn. During this time, infants are highly vulnerable to various health problems such as infections, breathing difficulties, hypothermia, jaundice, and feeding problems. **AIM:** To assess the effect of health teaching on knowledge regarding identification of danger signs of neonatal illness among mothers in selected hospital. **METHODOLOGY:** A quantitative research approach with a pre-experimental one group pre-test and post-test design was adopted for this study. The study was conducted among mothers admitted in a selected hospital. A total of 100 mothers were selected as the sample for the study using a convenient sampling technique. Data were collected using a structured questionnaire. The tool consisted of two sections. Section A included demographic variables of the mothers such as age, education, occupation, type of family, place of residence, monthly family income, and source of information. Section B consisted of knowledge-based questions related to neonatal danger signs including fever, difficulty in breathing, poor feeding, lethargy, convulsions, jaundice, and other symptoms that require immediate medical attention. Initially, a pre-test was conducted after the that structured health teaching program was administered to the mothers.**RESULT:** The findings of the study revealed that the pre-test assessment, 52% of mothers had poor knowledge, 45% had average knowledge, and only 3% had good knowledge regarding neonatal danger signs. The post-test results showed that 83% of mothers had good knowledge and 17% had average knowledge, while none of the participants remained in the poor knowledge category. Result clearly indicated that the structured health teaching program was effective in improving the knowledge of mothers regarding the identification of neonatal danger signs. **CONCLUSION**: The study highlights the importance of providing health education to mothers to enhance their awareness and ability to recognize early warning signs in newborns. Improving maternal knowledge can contribute to early diagnosis, timely treatment, and better neonatal health outcomes, thereby reducing neonatal morbidity and mortality.

Keywords*: Assess, Effect, Health Teaching, Identification of Danger Signs, Neonatal Illness, Mothers*

1. Introduction

The neonatal period, which encompasses the first 28 days of life, is the most delicate and vulnerable phase in a child's lifespan. "Neonatal death" is defined by the WHO as any death that takes place within the first 28 days after birth. During this time, a newborn undergoes rapid physiological adjustments to extrauterine life, making them highly susceptible to infections, respiratory distress, hypothermia, feeding difficulties, and other life-

threatening conditions. Neonatal morbidity and death continue to be a major health concern for communities and governments. Developing countries account for more than 98% of these deaths. In the least developed nations, the risk of neonatal death is more than eight times higher, and it is six times higher in developing countries. [1]

Neonatal danger signs are warning symptoms that indicate serious illness in a newborn and require immediate medical evaluation and intervention. Early recognition of these symptoms is critical because delays in seeking care can rapidly lead to complications and even death. WHO classifies risk indicators in newborns: shortness of breath, seizures, rapid breathing, and not starting to breastfeed since birth (tachypnea); skin temperature greater than 37.5 ◦C (hyperthermia) or below 35.5 ◦C (hypothermia); weakness or lethargy; yellow soles (may indicate jaundice); signs of local infection (umbilicus pus draining or redness, skin boils, or eyes draining pus). Initial delays are caused by parents who cannot recognize fatal manifestations of neonatal illness, followed by poor access to proper health facilities and finally by healthcare workers who delay diagnosis and appropriate treatment for neonatal illnesses.[1]

In India, neonatal health remains a priority area under various national health programs such as the National Health Mission. Although institutional deliveries have increased and healthcare facilities have improved, gaps in maternal knowledge regarding neonatal danger signs persist. Cultural beliefs, lack of education, limited access to health information, and inadequate counseling during antenatal and postnatal periods contribute to delayed care-seeking behavior. Mothers may sometimes misinterpret serious symptoms as minor problems or rely on home remedies, resulting in preventable complications. Hence, educating mothers about neonatal danger signs is an essential strategy to reduce neonatal morbidity and mortality.[2]

Health teaching is a planned and systematic educational intervention aimed at improving knowledge, shaping positive attitudes, and promoting healthy practices. In the context of neonatal care, health teaching empowers mothers with accurate and practical information that can help them identify abnormal signs and take immediate action. Nurses play a vital role in delivering health education to mothers. As frontline healthcare providers, they are in continuous contact with mothers and newborns, enabling them to provide individualized teaching and clarify doubts effectively. In many cases, mothers and family members are the first to observe these signs at home. By educating mothers before discharge from the hospital, nurses can ensure that mothers are prepared to monitor their newborns at home. Evidence suggests that health education interventions lead to improved maternal knowledge and early health-seeking behavior, thereby reducing preventable neonatal complications.[3]

The study aims to contribute to improved maternal awareness, early detection of neonatal illnesses, timely medical intervention, and ultimately, reduction in neonatal morbidity and mortality. Empowering mothers with appropriate knowledge is a cost-effective and sustainable approach toward ensuring neonatal survival and promoting healthy beginnings for every child.

BACKGROUND AND NEED OF THE STUDY

Solomon Gedlu Nigatu, Abebaw Gebeyehu Worku and Abel Fekadu Dadi conducted study to determine the level of mother's knowledge about neonatal danger signs and to identify factors associated with good mother's knowledge. Community-based cross-sectional study was conducted. A multi-stage sampling technique was used to select 603 mothers. A structured, pre-tested, and interview-administered questionnaire comprehending 13 neonatal danger signs was employed to collect the data. Data was analyzed by SPSS version 16. The results of the study showed that the odds of having good knowledge about neonatal danger signs was higher among Antenatal care (AOR = 2.28, 95% CI 1.05, 4.95) and Postnatal care attendant mothers (AOR = 2.08, 95% CI 1.22, 3.54). Furthermore, access to television was also associated with mothers' good knowledge about neonatal danger signs (AOR = 3.49, 95% CI 1.30, 9.39). The conclusion of the study indicated that the Maternal knowledge about neonatal danger signs was low and intervention modalities that focus on increasing level of parental education, access to antenatal and postnatal care and PNC service, and advocating the use of television was pinpointed.[4]

Yibeltal Asmamaw Yitayew et al. conducted study to assess the knowledge of neonatal danger signs and associated factors among mothers attending pediatric immunization clinics in Gidan district health centers, North Wollo, Ethiopia. An institution-based cross-sectional study was conducted from September, among 399

mothers attending pediatric immunization clinics in Gidan district health centers. The data were collected using a pretested, structured, and interviewer-administered questionnaire. The result showed that the level of good maternal knowledge of neonatal danger signs in the study area was 48.1%. Maternal education level (AOR: 3.58, 95% CI, 1.22–10.55), parity (AOR: 2.10, 95% CI1.18–3.71), having postnatal care follow-up (AOR: 2.05, 95% CI, 1.21–3.49), receiving health education about neonatal danger signs (AOR: 4.87, 95% CI, 2.73–8.68), and previous experience of neonatal danger signs (AOR: 2.35, 95% CI, 1.33–4.15) were significantly associated variables with the maternal knowledge of neonatal danger signs. This study concluded that the maternal knowledge of neonatal danger signs was low. Maternal educational level, parity, postnatal care follow-up, health education about neonatal danger signs, and previous experience of neonatal danger signs were significantly associated variables.[5]

Every year, 10 million children worldwide pass away before turning five, the majority of them during the newborn stage. Over 98% of these deaths take place in underdeveloped nations. Over 64% of baby deaths in India are caused by neonatal mortality, which primarily happens in the first week of life. Additionally, compared to later ages, the mortality rate is higher in the second month of life. Naturally, the start of treatment and hospital referral are delayed when warning indications of newborn illness are not identified. If mothers are aware of neonatal risk indicators, it can be prevented. Despite putting more effort to lower it, neonatal morbidity and mortality remain a significant health concern for communities and governments. The World Health Organization (WHO) estimates that 50% of the 5.3 million infants under five who died globally did so within 28 days of birth. The primary causes of neonatal deaths worldwide include preterm birth issues, intrapartum difficulties, and newborn infections.[6]

An estimated 4 million newborn deaths happen worldwide each year, making neonatal mortality one of the most ignored health issues in developing countries. Furthermore, it is believed to be responsible for two-thirds of baby fatalities and 40% of mortality in children under five. In 2019, approximately 2.4 million newborn deaths were reported globally, making up nearly 47% of all under-five child mortality. In 2018, India had a newborn mortality rate of 23 per 1,000 live births, highlighting the need for improved neonatal care and early intervention techniques. Neonatal danger symptoms indicate life-threatening conditions requiring immediate medical intervention.[7]

The most crucial time for a child's survival is the neonatal period, which involves the first 28 days of life. Neonatal health is an important national and international priority since a significant percentage of newborn deaths happen during this little time. The World Health Organization reports that over 2.3 million babies die globally each year, with the neonatal period accounting for nearly 46% of all fatalities among children under five. Preventable and treatable problems such infections, birth asphyxia, preterm, and effects from poor postnatal care account for the majority of these deaths (WHO, 2023). Neonatal mortality is still an important issue for the public in India. According to the National Family Health Survey-5 (NFHS-5), the neonatal death rate is 24 per 1,000 live births, meaning that an important part of newborns passes away during their first month of life each year. According to the International Institute for Population Sciences (2021), a large number of these deaths take place at home as a result of delayed diagnosis and treatment.[8]

2. Objectives

1.To assess knowledge regarding identification of danger signs of neonatal illness among mothers in selected hospital.

2. To evaluate the effect of health teaching on knowledge regarding identification of danger signs of neonatal illness among mothers in selected hospital.

3.To find out the association between knowledge with selected demographic variables.

3. Methods

RESEARCH APPROACH: Quantitative approach.

RESEARCH DESIGN: One group pretest post-test Quasi-Experimental research design **VARIABLES OF STUDY**

Independent variable -Health teaching regarding identification of neonatal danger signs.

Dependent variable -Knowledge of mothers regarding identification of danger signs of neonatal illness.

SETTING OF THE STUDY: Pune.

TARGET POPULATION: All postnatal mothers in selected hospital.

SAMPLE SIZE: 100 postnatal mothers in selected hospitals.

SAMPLE TECHNIQUE: Non-probability sampling technique

SAMPLING CRITERIA

Inclusion criteria

- Mothers who willing participate
- Mothers who can understand Marathi/English

Exclusion criteria

- Mothers who are critically ill.
- Mothers who have already received structured teaching on neonatal danger signs.

DESCRIPTION OF THE INSTRUMENT

The instrument consisted of questions related to knowledge regarding identification of danger signs of neonatal illness among mothers.

Part I: Demographic Variables such as age, educational status, occupation, parity, type of family, and previous exposure to information regarding neonatal care.

Part II: It consists of 30 structured questions and a checklist related to identification of danger signs of neonatal illness among mothers in the selected hospital.

LEVEL OF KNOWLEDGE SCORE TABLE

SCORE	PERCENTAGE	LEVEL OF KNOWLEDGE
0-10	0-33%	Poor
11-20	34-66%	Moderate
21-30	67-100%	Good

HYPOTHESIS

H0: - There is no significant difference between the pre-test and post-test knowledge scores of mothers regarding identification of danger signs of neonatal illness after the health teaching program.

H1: - There is a significant difference between the pre-test and post-test knowledge scores of mothers regarding identification of danger signs of neonatal illness after the health teaching program.

ETHICAL ASPECTS

1. The institutional ethical committee provided permission in advance of the study's performance.
2. After explaining the objective and methodology of the study, informed consent was collected from all participants.

4. Results

Section I: Description of samples (mothers) based on their personal characteristics

Table 1: Description of samples (mothers) based on their personal characteristics in terms of frequency and percentage **N=100**

Demographic variable	Freq	%
Age		

Below 20 years	5	5%
21–25 years	51	51%
26–30 years	42	42%
Above 30 years	2	2%
Education		
Illiterate	2	2%
Primary	40	40%
Secondary	52	52%
Graduate and above	6	6%
Occupation		
Daily wage worker	11	11%
Housewife	69	69%
Private job	20	20%
Type of family		
Joint	24	24%
Nuclear	76	76%
Place of residence		
Rural	43	43%
Urban	57	57%
Monthly family income		
Below ₹10,000	19	19%
₹10,001–20,000	36	36%
Above ₹20,000	45	45%
Source of health information		
Family/Friends	17	17%
Nurse	68	68%
Television/media	3	3%
Other	12	12%

Table 1 showed that 51% of them had age 21-25 years, 52% of them had secondary education, 69% of them were housewives, 76% of them had nuclear family, 57% of them were from urban region, 45% of them had monthly family income above Rs.20000, 68% of them had information from nurses/doctors.

Section II: Analysis of data related to the knowledge regarding identification of danger signs of neonatal illness among mothers before health teaching

Fig. 1: Knowledge regarding identification of danger signs of neonatal illness among mothers

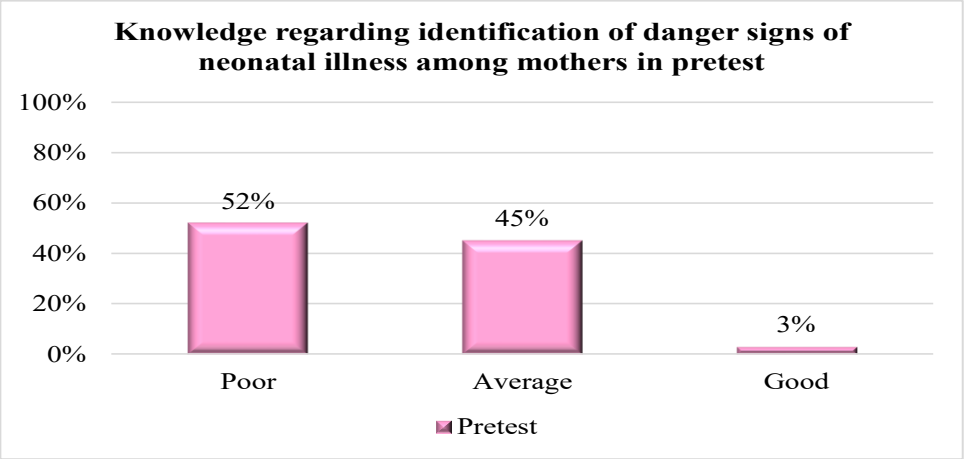

Fig.1 indicated that in pretest, 52% of the mothers had poor knowledge, 45% of them had average knowledge and 3% of them had good knowledge regarding identification of danger signs of neonatal illness among mothers

Section III: Analysis of data related to the effect of health teaching on knowledge regarding identification of danger signs of neonatal illness among mothers after health teaching

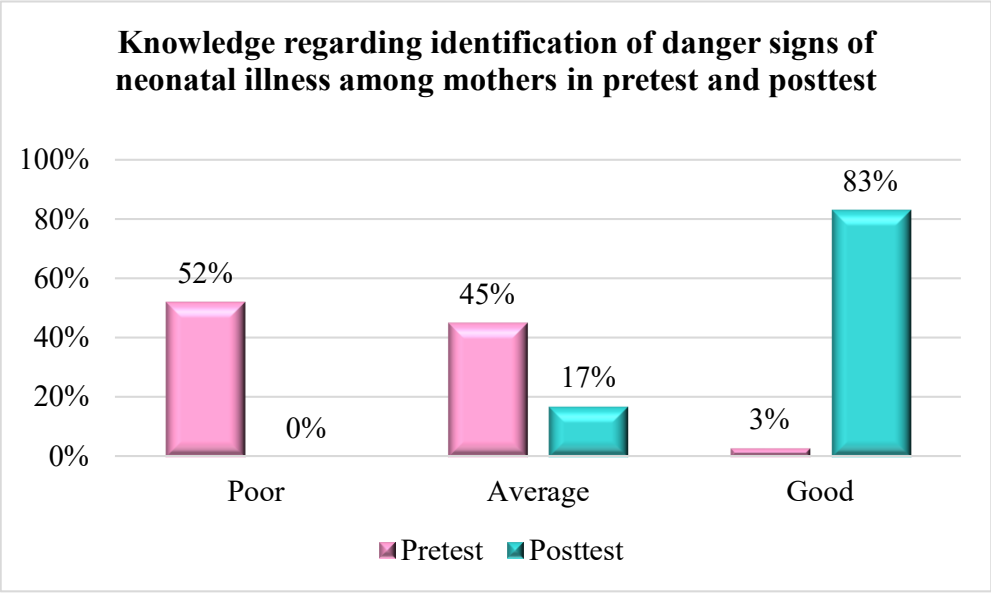

Fig.2: Comparison of subjects based on knowledge score in pretest and post test

Fig.2 indicated that in pretest, 52% of the mothers had poor knowledge, 45% of them had average knowledge and 3% of them had good knowledge regarding identification of danger signs of neonatal illness. In posttest, 17% of them had average knowledge and 83% of them had good knowledge regarding identification of danger signs of neonatal illness. This indicates that the knowledge among mothers regarding identification of danger signs of neonatal illness improved remarkably after health teaching.

Paired t-test for the effect of health teaching on knowledge regarding identification of danger signs of neonatal illness among mothers

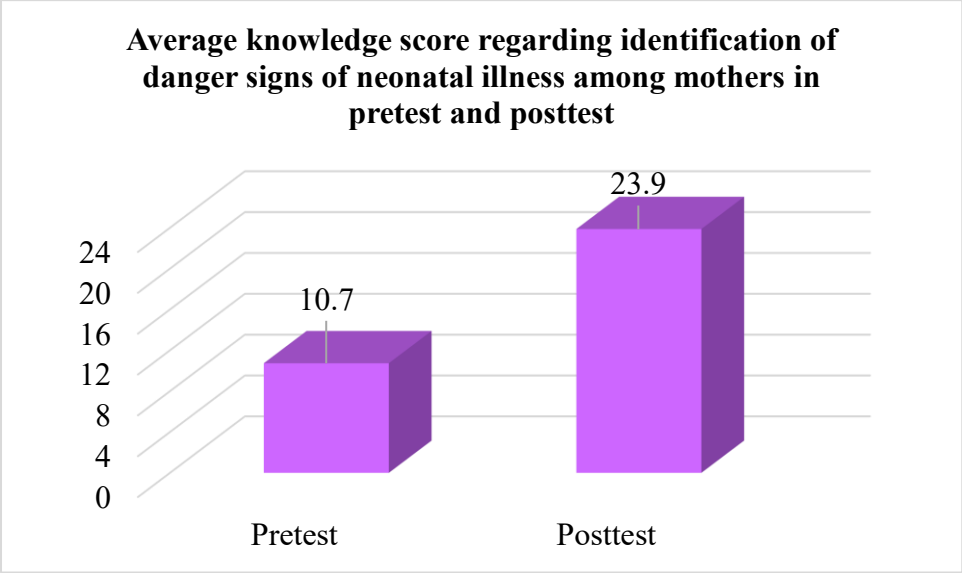

Fig.3 Distribution of subjects based on knowledge score in pretest and post test

Fig.2 indicated that paired t-test for effect of health teaching on knowledge regarding identification of danger signs of neonatal illness among mothers. Average knowledge score in pretest was 10.7 which increased to 23.9 in posttest. T-value for this test was 27.3 with 99 degrees of freedom. Corresponding p-value was small (less than 0.05), the null hypothesis is rejected. Average knowledge score in posttest was significantly more than that in pretest. It is evident that the health teaching is significantly effective in improving the knowledge among mothers regarding identification of danger signs of neonatal illness.

Table 2: Knowledge item analysis **N=100**

Knowledge	Pretest		Posttest	
	Freq	%	Freq	%
The term “neonate” refers to a baby aged:	41	41%	98	98%
Neonatal illness means:	46	46%	93	93%
Which of the following is a danger sign in a newborn?	38	38%	78	78%
High fever or low temperature in a newborn indicates:	48	48%	90	90%
Difficulty in breathing is a sign of:	55	55%	88	88%
If a baby becomes blue or pale, it means:	24	24%	61	61%
Convulsions (fits) in a newborn indicate:	35	35%	82	82%
If a newborn vomits everything after feeding, it means:	37	37%	79	79%
Loose watery stools many times a day in a newborn may cause:	39	39%	83	83%
Which is a danger sign in the umbilical cord area?	47	47%	84	84%
Yellow eyes and skin in a newborn show:	39	39%	85	85%
If a newborn has sunken eyes and dry mouth, it indicates:	38	38%	72	72%
Poor sucking or not feeding well means:	27	27%	59	59%
When should a mother seek medical help for her newborn?	44	44%	70	70%
Cold hands and feet in a newborn may be a sign of:	31	31%	86	86%
Fast breathing in a newborn means:	39	39%	90	90%
Convulsions or jerky movements are caused by:	23	23%	77	77%
If the baby does not cry at birth, what should be done?	30	30%	61	61%
In case of infection, the baby may show:	39	39%	82	82%

Newborns with breathing difficulty should be:	40	40%	86	86%
Which of the following is a normal sign in a newborn?	41	41%	68	68%
If the baby has pus around the eyes, it means:	29	29%	80	80%
A newborn who is unusually sleepy and inactive may have:	29	29%	82	82%
Which of the following helps prevent neonatal illness?	32	32%	91	91%
Breastfeeding within 1 hour after birth helps:	33	33%	71	71%
Keeping the baby warm after birth helps prevent:	12	12%	74	74%
If the baby has difficulty sucking milk, it may indicate:	25	25%	78	78%
What should a mother do if her baby has a fever?	41	41%	78	78%
Which of the following is an early sign of infection?	36	36%	80	80%
Why is it important to identify danger signs early?	35	35%	81	81%

Table 2 presented that the frequency and percentage of the correct responses by mothers to each knowledge item in pretest and posttest. It is clear from this table that the correct responses to each knowledge item improved remarkably in posttest as compared to those in pretest. Health teaching is effective in improving the knowledge among mothers regarding identification of danger signs of neonatal illness.

Section IV: Analysis of data related to association of knowledge among mothers regarding identification of danger signs of neonatal illness with Demographic Variables

Table 3: Fisher's exact test for the association of knowledge among mothers regarding identification of danger signs of neonatal illness with Demographic Variables

N=100

Demographic variable		**Knowledge**			**p-value**
		Poor	**Average**	**Good**	
Age	Below 20 years	5	0	0	0.136
	21–25 years	22	28	1	
	26–30 years	24	16	2	
	Above 30 years	1	1	0	
Education	Illiterate	1	1	0	0.445
	Primary	22	18	0	
	Secondary	27	23	2	
	Graduate and above	2	3	1	
Occupation	Daily wage worker	3	8	0	0.278
	Housewife	37	30	2	
	Private job	12	7	1	
Type of family	Joint	11	13	0	0.495
	Nuclear	41	32	3	
Place of residence	Rural	24	19	0	0.417
	Urban	28	26	3	
Monthly family income	Below ₹10,000	10	9	0	0.992
	₹10,001–20,000	18	17	1	
	Above ₹20,000	24	19	2	
Source of health	Family/Friends	4	13	0	0.002
	Nurse/Doctor	37	28	3	

information	Television/media	0	3	0	
	Other	11	1	0	

Table 3 indicated that the p-value corresponding to source of health information was small (less 0.05), the demographic variable source of information was found to have significant association with the knowledge among mothers regarding identification of danger signs of neonatal illness.

Discussion

Das M, Kumar P, Saha M et al (2022) conducted study on A study to assess knowledge regarding identification of neonatal danger signs among primipara mothers in selected hospital in Siliguri with aim to assess knowledge regarding identification of neonatal danger signs among primipara mother. In this descriptive cross-sectional study included 120 primipara mothers of newborn from 2 to 28 Days of life admitted in postnatal ward in Siliguri District hospital during the year 2022 in month of June. Data was collected using interview method. Results showed that the majority of the mothers were having good knowledge 85.83% regarding neonatal danger signs followed by Fair knowledge 9.16% and only 5% of mothers were having Poor knowledge. This study concluded that the good knowledge of the mothers indicates that mother can identify the danger signs and early treatment makes the good prognosis.[9]

The present study assessed the effect of health teaching on knowledge regarding the identification of danger signs of neonatal illness among mothers in a selected hospital. A quantitative research approach with a pre-experimental one-group pre-test and post-test design was adopted for this study. The study was conducted among mothers admitted to a selected hospital. A total of 100 mothers were selected as the sample for the study using a convenience sampling technique. Data were collected using a structured questionnaire. The tool consisted of two sections. Section A included demographic variables of the mothers, such as age, education, occupation, type of family, place of residence, monthly family income, and source of information. The findings of the study revealed that, in the pre-test assessment, 52% of mothers had poor knowledge, 45% had average knowledge, and only 3% had good knowledge regarding neonatal danger signs. The post-test results showed that 83% of mothers had good knowledge and 17% had average knowledge, while none of the participants remained in the poor knowledge category. The results clearly indicated that the structured health teaching program was effective in improving the knowledge of mothers regarding the identification of neonatal danger signs. The study highlights the importance of providing health education to mothers to enhance their awareness and ability to recognise early warning signs in newborns. Improving maternal knowledge can contribute to early diagnosis, timely treatment, and better neonatal health outcomes, thereby reducing neonatal morbidity and mortality.

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Conflict of Interest

The authors declare no conflict of interest.

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