

# Impact of Health Education on Knowledge of Newborn Care among Expectant Women in Urban Area of Belagavi, India: Pre and Post Study

Yashaswi P. Kudachi<sup>1</sup>, Madhav Prabhu<sup>2</sup>, Mubashir Bashir Angolkar<sup>3</sup>

## ABSTRACT

**Introduction:** Neonate period refers to the time from birth to 28 days of life and is said to be a crucial period for the infant. Globally in 2015, there were 4.5 million deaths within first year of life and each year within first month of life 1 million newborns die. In 2012, India's IMR was 42 deaths per 1000 live birth. As mother's knowledge plays an important role in safeguarding health of newborn, there is a felt need to educate the expectant women regarding Newborn care. Study aimed to assess the impact of health education on knowledge of newborn care among expectant women.

**Material and methods:** A pre test was carried out in Ashok Nagar Urban Health Center, Belagavi, among 82 expectant women. Health education was given on newborn care and then post test administered after 1 month. Data was collected using a pre designed and pre-tested structured questionnaire and analysis was done with Fisher exact test, Paired t-test and ANOVA.

**Result:** Majority of expectant women belonged to age group of 20-24 years. Overall mean pre test knowledge of expectant women was 17.2±5.4 and post test was 31.2±3.9 and t-value for total pre and post test was 17.53. Area wise highest post test mean knowledge was on cleanliness/hygiene (4.9±0.9) and lowest mean knowledge was on immediate care. It was also found that the impact of intervention, primigravida women's knowledge was increased compared to multigravida mothers.

**Conclusion:** Study shows that knowledge of newborn care among expectant women increased significantly after delivery of health education.

**Keywords:** Expectant women, New-born care, Knowledge

## INTRODUCTION

Neonate period refers from birth to 28 days of life. In the first 28 days of life the child is at high risk of dying and is a crucial period of life.<sup>1</sup> During this period appropriate care and feeding should be provided in order to lay the foundation for healthy life as well as to improve the child's chances of survival.<sup>2</sup>

As newborns are completely dependent on their mothers, care is an effective way to cater to the needs of the baby which includes thorough and immediate drying, cord clamping and cutting after the first minutes after birth, skin to skin contact of the newborn with the mother, early initiation of breastfeeding, exclusive breastfeeding, increasing hand washing, counselling families on when to take a new-born to a health facility and immunization.<sup>2</sup> Globally the number of under 5 deaths has declined from 8.9 million in 1990 to 6.3 millions in 2013 and in 2015, 4.5 million deaths occurred within the first year of life.<sup>1</sup>

According to 2011 census, India's Infant Mortality Rate was 44 deaths per 1000 live births. In 2012 it further reduced to 42 deaths per 1000 live births.<sup>3,4</sup> IMR for rural areas has

dropped from 51 to 48 deaths per 1000 live births, while that of urban areas is 29 deaths per 1000 live births.<sup>5</sup> Many studies have shown that newborn lives can be saved by using simple intervention techniques to improve care for mothers during pregnancy, childbirth and in the postnatal period (immediately following birth).<sup>1</sup>

Mother's knowledge plays an important role in safeguarding health of a newborn. There is approximately a lack of care in feeding, immunization, umbilical cord care and prevention of hypothermia.<sup>6</sup> Hence there is a strong need to educate the expectant women regarding newborn care. Therefore, a pre and post study was undertaken to study the impact of health education on knowledge of newborn care among expectant women in Ashok Nagar Urban Health Centre, Belagavi, Karnataka, India.

## MATERIAL AND METHODS

A pilot study was conducted to understand the acceptance of the questionnaire; suitable changes were done in areas where difficulty was felt. A pre and post study was conducted to know the impact of health education on knowledge of newborn care among expectant women, conducted at Ashok Nagar Urban Health Centre, Belagavi, India. All expectant women registered in Ashok Nagar UHC, from August 2015 to December 2015 were included in this study. Expectant women who were registered in Ashok Nagar, UHC and who were willing to participate in the study and give a written informed consent were included. Expectant women with labour pain/any chronic illness were excluded from the study. Knowledge regarding newborn care was obtained from the eligible expectant women with the help of a predesigned questionnaire. Ethical approval was obtained from IEC, Jawaharlal Nehru Medical College, Belagavi, Karnataka, India. Inform consent from expectant women was taken before the study.

**Health education module:** Health education was delivered after pre-test data collection to change the existing knowledge of expectant women regarding newborn care. A pamphlet

<sup>1</sup>PG student, Master of Public Health, Jawaharlal Nehru Medical College, <sup>2</sup>Associate Professor, Department of Medicine, <sup>3</sup>Associate Professor and I/C HOD, Department of Public Health, KLE University, Belagavi, Karnataka, India

**Corresponding author:** Ms. Yashaswi Kudachi, CCB-27, Swami Vivekanand Nagar Tilakwadi, Belgavi, Karnataka, India

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was developed that sensitized the target population about the importance of immediate care, thermal protection, cleanliness/hygiene, eye care, umbilical cord care, feeding and exclusive breastfeeding, burping, KMC and illness. The pamphlet also included the immunization schedule.

## STATISTICAL ANALYSIS

Analysis was done in SPSS descriptive analysis to summarize qualitative (by mean, median, standard deviation and range) and categorical variables by frequencies. Association was analysed with Fisher exact test, Paired t-test and ANOVA.

## RESULTS

Table-1 shows distribution of expectant mothers according to Demographic Variables shows that out of 82 Participants,

S. No.	Variables	Number	Percentage
1.	Age in years		
	≤19	6	7.3
	20-24	47	57.3
	25-29	22	26.8
	30-35	7	8.5
2.	Religion		
	Hindu	30	36.6
	Muslim	50	61
	Christian	2	2.4
3.	Education		
	Illiterate	1	1.2
	Primary	22	26.8
	Secondary	41	50
	PUC	3	3.7
	Graduate	10	12.2
	PG	5	6.1
4.	Occupation		
	Housewife	68	82.9
	Service	11	13.4
	Fieldworker	0	0
	Labour	3	3.7
5.	Family type		
	Nuclear	46	56.1
	Joint	24	29.3
	Extended	12	14.6

**Table-1:** Distribution of expectant mothers according to Demographic Variables

57.3% were in the age group of 20-24 years, 61% of expectant women were Muslims and 56.1% of them belonged to nuclear family. 83% of expectant women were housewives, while 50% mothers had secondary level education.

Impact of Health Education on Knowledge of Newborn Care among Expectant Women found that among 82 respondents it was found that the overall knowledge regarding newborn care in every aspect of domain increased post intervention. A tremendous increase in knowledge regarding Breastfeeding and feeding ( $2.52 \pm 1.50$ ) and immunization ( $2.11 \pm 1.68$ ) was seen post intervention (Table-2)

Table-3 shows distribution of overall knowledge among primigravida and multigravida mothers shows that out of 82 participants, 52 women were multigravida and 30 were primigravida. At baseline, multigravida mother's knowledge was  $19 \pm 4.51$ , compared to primigravida  $14.4 \pm 5.6$ , but at the post intervention a vice versa was seen.

Comparing means of overall knowledge with gestation period of participants there was a maximum increase in knowledge was seen among second trimester expectant women i.e.  $14.9 \pm 6.8$ , which was not statistically significant (F- value: 1.862 p-values: 0.16) Table-4

Comparing means of total knowledge with age of participants, maximum increase in knowledge was seen among less than or equal to 19 years age group ( $17.8 \pm 8.1$ ) after the health education, which was not statistically significant (p-value: 0.69)

Comparing means of overall knowledge with education of participants mean knowledge score of women belonging to different literacy were not statistically significant. But there was tremendous increase in primary educated women after delivery of health education i.e.  $11.04 \pm 6.12$  and least knowledge among PUC educated women  $15.33 \pm 6.65$ .

## DISCUSSION

Regarding socio-demographic variables in the present study, Among 82 expectant women majority were in the age group of 20-24 years. Majority of expectant women were Muslims and most of them belonged to nuclear family. Majority of expectant women were housewives and most of them were in their second trimester.

In the present study majority of the expectant women were aware of safe delivery in hospital i.e. Pre test (93.9%) and Post test (100%). There was a significant increase in knowledge

Knowledge about	Mean Score $\pm$ SD		Paired difference Mean $\pm$ SD	t-value
	Pre test	Post test		
Immediate care	0.63 $\pm$ 0.74	1.57 $\pm$ 0.52	0.93 $\pm$ 0.69	12.31
Cleanliness/Hygiene	4.19 $\pm$ 1.10	4.97 $\pm$ 0.92	0.78 $\pm$ 0.91	7.82
Thermal protection	1.24 $\pm$ 0.79	2.35 $\pm$ 0.77	1.11 $\pm$ 0.94	10.65
Umbilical cord	1.47 $\pm$ 1.15	2.69 $\pm$ 0.55	1.22 $\pm$ 1.05	10.47
Eye care	0.84 $\pm$ 0.77	1.64 $\pm$ 0.57	0.81 $\pm$ 0.82	8.85
Breastfeeding and feeding	2.15 $\pm$ 1.25	4.68 $\pm$ 1.09	2.52 $\pm$ 1.50	15.23
Burp	1.09 $\pm$ 1.02	2.52 $\pm$ 0.68	1.42 $\pm$ 1.12	11.51
Immunization	1.42 $\pm$ 1.32	3.43 $\pm$ 0.91	2.11 $\pm$ 1.68	10.79
LBW	1.84 $\pm$ 0.57	2.97 $\pm$ 1.1	1.13 $\pm$ 1.13	9.18
Illness	1.21 $\pm$ 1.1	2.48 $\pm$ 0.74	1.28 $\pm$ 0.99	11.62
Others	1.09 $\pm$ 0.88	1.76 $\pm$ 0.47	0.6 $\pm$ 0.87	6.93
Overall	17.21 $\pm$ 5.4	31.12 $\pm$ 3.91	13.9 $\pm$ 7.17	17.53
P-Value: <.001				

**Table-2:** Distribution of Participants According to Knowledge of Newborn Care

regarding hand wash before touching the baby by 20.7% after delivery of health education. Study conducted in Nepal by Shrestha et.al results showed that knowledge on hand washing before breastfeeding was 58% and after Diaper care was 56% among postnatal mothers.<sup>8</sup> This poor understanding in our study could be because of the poor educational status of women.

In the present study, mean knowledge regarding thermal protection was found to be less (1.24±0.79) and there was an increase in knowledge after delivery of health education (2.35±0.77). Knowledge regarding first bath of newborn was increased by 31% and wrapping baby increased by 61% after delivery of the health care module. Study carried out in Vientiane, Laos by Weiner EA found that scores for knowledge regarding new born temperature control increased from 75 to 91%.<sup>9</sup> Study

conducted in Puducherry, India, showed that mother's response to maintain body temperature of baby was 77%, warm cloth and timing of first bath was 33% respectively.<sup>10</sup> Regional variations in handling of newborns and poor educational status may be responsible for these difference in understanding.

In the present study, knowledge regarding umbilical cord care was low and increased after health education; it was found that knowledge about application of oil and covering stump declined respectively after health education. After delivery of health education there was an increase in knowledge about leaving the cord uncovered by 57.4%. Study in Vientiane, Laos carried out by Weiner EA, shows that score for knowledge regarding UC care increased by 10% (Post test) immediately after educational intervention.<sup>9</sup> Study by Senarath U in Sri Lanka, results showed that after post-intervention there was a significant reduction in unwanted cord care practices such as covering it with nappy and application of spirit.<sup>11</sup> There was more awareness about cord care in our group of females, Since more importance was attached to the umbilical care.

In the present study, an increase in knowledge was seen after delivery of health education on initiation of breastfeeding within 1 hour by 49%, giving colostrum by 46%,and sitting position while feeding 34%, solid feeding after six months 4% and burping baby after feeding increased by 30%. In Uttar Pradesh, due to a BCC package intervention there was an increase in good practices like giving colostrums, initiation of breastfeeding within one hour and burping of baby increased up to 6 times.<sup>12</sup> Shrestha T.et al carried out a study among postnatal mothers in Nepal and reported that, knowledge on colostrums was 100%, initiation of breastfeeding within one hour was 70%. About 45% of the mothers answered that new-born should be kept in lateral position after breastfeeding. Only 15% of the mothers had burped their new-borns after breastfeeding.<sup>8</sup> It was noticed that there was still a lot of resist to immediate breast

Gravida	Pre test	Post test	Mean difference
	Mean ± SD		
Multigravida	19±4.51	29.8±3.9	10.8±5.54
Primigravida	14.4±5.6	33.1±2.9	18.7±6.81
	Pre test	Post test	Mean difference
t-value	4.098	4.120	5.793
p-value	< .001	< .001	< .001
df:	80		

**Table-3:** Distribution of Overall Knowledge among Primigravida and Multigravida Mothers

S. No.	Gestation Period	Mean	Standard Deviation
1	First Trimester	10.6	8.1
2	Second Trimester	14.9	6.8
3	Third Trimester	13.6	7.1
	Total	13.90	7.177

F- value: 1.862 p-values: 0.162

**Table-4:** Comparing Means of Overall Knowledge with Gestation Period of Participants.



**ESSENTIAL NEWBORN CARE**



Department of public health,  
2nd floor, JNMC Campus,  
KLE University, Nehru Nagar,  
Belagavi- 590010.  
Tel: 0831-244444/ Extn: 4327  
E-mail: mphkleu@gmail.com

**IMMEDIATE NEWBORN CARE**

- Babies should be placed in contact with the mother's skin and dried with pre-warmed towels
- Initiation of breast feeding within 1 hour of birth
- The eyes should be cleaned at birth and once every day using clean cotton swabs

**THERMAL PROTECTION**



Dry baby thoroughly after birth and immediately wrap in warm dry cloth

**CLEANLINESS/HYGIENE**

- Visitors should wash their hands before touching the baby
- Place your baby to sleep on his/her back on a clean firm and flat surface.

**FEEDING EXCLUSIVE BREASTFEEDING**



- Initiation of breastfeeding within 1 hour of birth
- Assess for good attachment and positioning
- Frequent breastfeeding day and night (8-12 times/24 hours)
- Exclusive Breastfeeding for 6 months
- Complementary feeds, to be given from 6 months of age in addition to breast milk

**BURPING**



Burping helps to get rid of some of the air that babies tend to swallow during feeding. Some babies who are not being burped frequently and have swallowed air. This can cause spitting up, crankiness, and gassiness

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feed due to myths pressure by local population.

In the present study, participants had lack of knowledge on vaccines that their new-borns should receive. 19.5% of the study participants named at least three vaccines. After delivery of health education, 65.9% of the study participants could name 4 to 7 vaccines. In Brazil, less than half of the subjects had knowledge on vaccines. About 29% of the study participants knew when to start the vaccination process and none knew the schedule of the first three vaccines to be given to their new-borns.<sup>13</sup> A study carried out in Nepal regarding immunization among mothers reported the mean knowledge to be 67.33%.<sup>8</sup> The outcome was welcomed and reflects that the study module explained vaccination procedure with great simplicity.

In the present study, overall mean post test knowledge on newborn care among expectant women was increased 31.12±3.91 after providing health education than the pre test knowledge i.e.17.2±5.4 and t-value for overall knowledge was 17.53. Study conducted in Karad by Kadam S. and Tata S. found that results related to present study, overall mean post test knowledge among antenatal mothers was higher (23.68) than the total mean pre test knowledge score (14.53).<sup>6</sup> Another study carried out in Uttrakhad among 62 postnatal mothers showed that overall pre test level of knowledge among mothers was good (0.30±4.3) and after intervention mean post test level of knowledge was found to be very good (42±1.1) and t-value of pre test and post test was 22.22.<sup>14</sup>

## CONCLUSION

Study shows that overall level of knowledge regarding newborn care among expectant women was found to be low. Thus, maternal education plays an important role in the knowledge regarding newborn care that includes immediate care, thermal protection, cord care, breastfeeding and cleanliness/hygiene. A simple module developed by us was found to be effective in imparting the basic skills required by a nursing mother. The knowledge module can be a blueprint for carrying out further research. Health education imparted at the right time and in a simplistic manner can significantly reduce the burden of infant mortality.

The affectivity of the present module needs to be tested in larger populations for validity.

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