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Effectiveness of self instructional module regarding neonatal nosocomial infection among nursing personnels

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Abstract

Neonatal nosocomial infections are an important cause of neonatal morbidity. A hospital-acquired infection, also known as a nosocomial infection, is an infection whose development is favored by a hospital environment, such as one acquired by a patient during a hospital visit or one developing among hospital staff. Such infections include fungal and bacterial infections and are aggravated by the reduced resistance of individual patients. A descriptive study of 50 staff nurses who working in NICU in N. C Jindal hisar, vashnavvidevi churamani hospital. Data was collected by convenient sampling techniques. In pre-test, Level of knowledge of nursing personnel in the pre test showed that 52% of the nursing personnel were having moderate knowledge regarding neonatal nosocomial infection control and 48% of the nursing personnel were having inadequate knowledge In post-test, 74% of the nursing personnel were having adequate knowledge regarding neonatal nosocomial infection control and 26% of the nursing personnel were having moderate knowledge. Pre-test the lowest nursing personnel mean percentage score (42.1%) was in the area of Prevention and complication of neonatal nosocomial infection. In post-test the lowest nursing personnel mean percentage score (75.9%) was in the area of Prevention and complication of neonatal nosocomial infection. The result showed present study that the practice mean score (10.80) in pre-test and in post- test practice mean score (15.32). The calculated P value (0.000) is significant at 0.001 level. Demographical variables have significant association with knowledge score of nursing personel at 0.05 level of significant. But working place have no significant association with knowledge score of nursing personel at 0.05 level of significant.

Keywords: effectiveness, knowledge, practice, infection control, nursing personnel, neonatal intensive care unit, self-instructional module

Introduction

A newborn is an infant who is only hours, days, or up to a four weeks old or 28 days after birth. During these first 28 days of life, the child is at highest risk of dying because there are three major causes of neonatal deaths worldwide are infections (36%, which includes sepsis/pneumonia, tetanus and diarrhoea), pre-term (28%), and birth asphyxia (23%). There is some variation between countries depending on their care configurations. It is thus crucial that appropriate feeding and care are provided during this period, both to improve the child's chances of survival and to lay the foundations for a healthy life. A productive environment in the hospital unit is very essential as a pre-requisite particularly, when considering the services provided in the Neonatal Intensive Care Unit provision for a safe and protective environment is a prior need. A neonatal intensive-care unit (NICU) is an intensive-care unit specializing in the care of ill or premature newborn infants. The first official ICU for neonates was established in 1961 at Vanderbilt University by Professor Mildred Stahlman, officially termed as NICU when Stahlman was the first to use a ventilator off-label to assist a baby with breathing difficulties. Neonatal nosocomial infections are an important cause of neonatal morbidity. A hospital-acquired infection, also known as a nosocomial infection, is an infection whose development is favored by a hospital environment, such as one acquired by a patient during a hospital visit or one developing among hospital staff. Such infections include fungal and bacterial infections and are aggravated by the reduced resistance of individual patients However, its reporting in our country is non uniform. According to recent report in India the neonatal infection rate is 44/1000 live birth.

The reported incidence of Infections occur frequently in the neonate, causing illness and possibly death. Neonates acquire nosocomial infections from other neonates, nursery personnel, their mothers or contaminated supplies and equipment. The smaller the neonates the less resistance there is to infection. Neonatal infection is usually more severe and more

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likely to disseminate and be fatal. The use of a therapeutic procedure after birth and the use of an umbilical catheter or other invasive procedures increase the risk of infection. Neonates who already have an anomaly such as teacheoesophageal fistula can easily acquire an infection through these portals of entry for organisms.

Material and methods

Quantitative research approach with quasi experimental one group pre-test and post-test design was used and 50 nurses were selected by non-probability convenient sampling techniques from N.C. Jindal Hisar, Vashnavidevi Churamani hospital Hisar, Maharaja Agarsen Medical college Agroha Hisar. The content reliability of the structured knowledge questionnaire was established using Cronbach's alpha which was found to be 0.76. Inter-rater reliability for observation checklist was found to be 0.82. Structured knowledge questionnaire consists of 30 items, which are 7 items related to the neonatal nosocomial infection, another 7 are related to the cause of infection, 12 items related to the prevention and complication of nosocomial infection, 4 items related to the sources of infection. Observation checklist consists of 20 items. This was related to the infection control, personal and environmental hygiene, aseptic techniques, education and training of nurses.

Data collection procedures

Nurses were working in NICU selected by non-probability convenient sampling techniques in hospital. Data was

collected from 2 March to 25 April 2015. All the staff nurses who are working in neonatal intensive care unit available at the time of data collection were included after written consent from each subject. Time taken to collect the data 30 minutes from each sample, approximately 6 to 7 samples were available in each day.

Result and discussion

The result of current study showed that staff nurses have good knowledge regarding nosocomial infection. Similarly the findings of current study were consistent with the study conducted by Jyoti Bala, (2007) [14]:- conducted a study on knowledge and practices of Staff nurses regarding infection control in MCH area of a selected Hospital, Ludhiana, Punjab. The final result was majority of staff nurses (56.66%) have adequate knowledge regarding infection control measures. Staff nurses working in nursery have higher knowledge score (45.7) than labour room and postnatal ward (39.97). Most of the staff nurses have unsatisfactory practices (61.66%) regarding infection control measures. The result of current study shows that all the demographical variables have significant association with practice score of nursing personnel at 0.05 level of significance. But working place has no significant association with practice score of nursing personnel at 0.05 level of significance. Based on the findings the H2 hypothesis was accepted for most of the demographical variables. But hypothesis H2 was rejected for working place.

Tables and figures

Table 1: Frequency and percentage distribution of knowledge score regarding neonatal nosocomial infection control among nursing personnel

Level of Knowledge	Range of percentage of score	Range of score	Pre - test		Post - test	
			No	%	No	%
Inadequate	<50%	0-15	24	48	00	00
Moderate	50-75%	16-22	26	52	13	26
Adequate	>75%	23-30	00	00	37	74
Total			50	100	50	100

The data presented in table 1 revealed that 52% of the nursing personnel were having moderate knowledge regarding neonatal nosocomial infection control. In post-test, level of knowledge of nursing personnel in the pre-test showed that 74% of the nursing personnel were having

adequate knowledge regarding neonatal nosocomial infection control and 26% of the nursing personnel were having moderate knowledge and no one nursing personnel was having inadequate knowledge regarding neonatal nosocomial infection control.

Table 2: Area wise knowledge score regarding neonatal nosocomial infection control among nursing personnel.

Sr. No.	Knowledge Aspects	Max score (30)	Pre-test (n=50)			Post-test (n=50)		
			Mean	SD	Mean %	Mean	SD	Mean %
1	Concept and introduction of neonatal nosocomial infection.	07	3.58	1.029	51.2%	6.26	0.660	89.4%
2	Type and causes of nosocomial infection	07	3.60	1.060	51.4%	5.35	0.840	76.4%
3	Sources, transmission and clinical manifestation of nosocomial infection	04	2.80	0.658	70%	3.55	0.648	88.8%
4	Prevention and complication of neonatal nosocomial infection	12	5.05	1.661	42.1%	9.11	2.351	75.9%

The data presented in Table 2 indicates that in pre-test the lowest nursing personnel mean percentage score (42.1%) was in the area of Prevention and complication of neonatal nosocomial infection. In post-test the lowest nursing personnel mean percentage score (75.9%) was in the area of Prevention and complication of neonatal nosocomial infection. It represents that maximum knowledge deficit

existed in this area followed by Type and causes of nosocomial infection (76.4%), Regarding Sources, transmission and clinical manifestation of nosocomial infection (88.8%) in area of Concept and introduction of neonatal nosocomial infection (89.4%), which is the minimum knowledge deficit area.

Table 3: Evaluate the effectiveness of self-instructional module on knowledge regarding neonatal nosocomial infection control among nursing personnel.

Test	Knowledge score			Paired 't' test	P value
	Mean	SD	df		
Pre-test	14.92	3.35	49	41.88**	.000
Post-test	24.60	2.82	49		

It is observed from the present study that the knowledge mean score (14.92) in pre-test and in post- test knowledge mean score (24.60). The calculated P value (0.000) is

significant at 0.001 level. Off significance. H1 hypothesis was accepted.

Table 4: Association between the practice score regarding neonatal nosocomial infection control among nursing personnel with selected demographic variables

Demographical variables	Category	Post-test practice score		df	Chi- square Value (t value)	Fisher's exact test	P value
		< Mean %	> Mean %				
Age in years	a) 25-30 years	22	05	3	29.74		.000
	b) 30-35 years	01	22				
	c) 35-40 years	00	00				
	d) Above 40	00	00				
Professional qualification	a) G.N.M	22	05	3	29.79		.000
	b) B.Sc nursing	01	17				
	c) Post B.Sc. nursing	00	05				
	d) M.Sc nursing	00	00				
Residence	a) Rural	23	10	1		.000	.000
	b) Urban	00	17				
Marital status	a) Married	01	22	1		.000	.000
	b) Unmarried	22	05				
Professional experience	a) 1 year	22	05	3	29.75		.000
	b) 1 year to 5 years	01	21				
	c) 5 year to 10 years	00	01				
	d) Above 10 years	00	00				
Experienced in NICU	a) 0-6 months	22	05	3	29.74		.000
	b) 6 months to one year	00	00				
	c) 1 year to 3 years	01	22				
	d) Above 3 years	00	00				
Attended any workshop related to prevention of nosocomial infection	a) Yes	04	19	1		.000	.000
	b) No	19	08				
Working place	a) Govt. hospital	00	00	2	.986		.261
	b) Semi Govt. hospital	06	04				
	c) Private hospital	17	23				
Monthly income	a) 10000 to 15000/ month	22	05	3	29.74		.000
	b) 15000 to 20000/ month	00	00				
	c) 20000 to 25000/ month	01	22				
	d) Above 25000/ month	00	00				
Source of information	a) T.V / Radio/Television	22	05	2	29.74		.000
	b) Health personnel	01	22				
	c) Books & Magazines	00	00				

This table shows that all the demographical variables have significant association with practice score of nursing personnel at 0.05 level of significant. But working place have no significant association with practice score of nursing personnel at 0.05 level of significant. Based on the findings the H2 hypothesis was accepted for most of the demographical variables. But hypothesis H2 was rejected for working place.

Conclusion

On the basis of above reported findings of the study, the conclusion can be drawn that the staff nurses have good knowledge regarding nosocomial infection but still have deficit of knowledge in some areas of nosocomial infection transmission. So self-instructional module was used to elevating the knowledge and practice regarding neonatal nosocomial infection control in intensive care unit.

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