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Effectiveness of Structure Teaching Programme on Knowledge Regarding Treatment and Prevention of Sepsis in Post-Operative Patients among Staff Nurses in Selected Hospitals in Bangalore

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Abstract

Introduction: Severe sepsis and septicemic shock are the syndromes of overwhelming response of the body to severe infections. The incidence of sepsis is increasing and it is as high as the incidence of myocardial infarction. The occurrence of sepsis following surgery is a severe complication with a mortality rate of up to 30%. Less severe cases will require prolonged ICU treatment for organ failure. As primary care givers, nurses should involve in identifying, preventing, controlling and teaching the client about infection. In the present study data was collected on knowledge regarding treatment and prevention of sepsis in post-operative patients among staff nurses in selected hospitals in Bangalore.

Methodology: In the methodology the investigator selected descriptive research approach. The study was conducted in selected hospitals at Bangalore. The populations were staff nurse. The investigator adopted non probability Purposive sampling sample technique, as a sampling technique. Sample size is100 staff nurse. Self-administered knowledge questionnaire for the data collection. Based on the statement of the study and the objectives, to assess the knowledge regarding treatment and prevention of sepsis in post-operative patients a descriptive research design was adopted for the present study. Data was analyzed by using descriptive and inferential statistics.

Results: This study shows the level of knowledge regarding treatment and prevention of sepsis in post-operative patients among staff nurses, for pre-test level score is 50 (50.0%) were found poor knowledge, 50 (50.0%) were found average knowledge, and none were found excellent knowledge regarding treatment and prevention of sepsis in post-operative patients among staff nurses. For Post-test level score is 04 (04.0%) were found poor knowledge, 14 (14.0%) were found average knowledge, and 82 (82.0%) were found excellent knowledge regarding treatment and prevention of sepsis in post-operative patients among staff nurses. Hence the stated H1 is accepted. So there will be significant association between the levels of knowledge with selected demographic variables at 0.50 levels. Paired t Test Value is 28.76 df is 99, Hence calculated value is more than table value so null hypothesis is rejected and

research hypothesis are accepted. The obtained chi square value shown that there was significant association between the levels of knowledge with demographic variables such as religion, educational status and working experience and other variables are not significant.

Conclusion: The findings of this study support the need for conducting an awareness programme on treatment and prevention of sepsis in post-operative patients among staff nurses. The study proved that majority of the staff nurses had inadequate knowledge.

Keywords: Knowledge, staff nurse, treatment and prevention of sepsis in post-operative patients.

Introduction

The context in which an individual lives is of great importance for his health status and quality of life According to the World Health Organization "a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity" when these conditions are not fulfilled, then one can be considered to have an illness or to be ill.[1]In industrialized nations, sepsis is one of the most common illnesses in hospitalized patients and is associated with a substantial mortality. In the non-industrialized world, sepsis remains one of the main causes of diminished life expectancy.[2]

Worldwide, sepsis has long been a common cause of illness and mortality in hospitals, intensive care units, and emergency departments. In 2017 alone, an estimated 11 million people worldwide died from sepsis, accounting for nearly one-fifth of all deaths globally that year. Nonetheless, this number marked a decrease in sepsis death rates from the last part of the 20th century. Improvements in health care, including better sanitation and the development of more effective treatments, were thought to have contributed to the decline. Sepsis causes and risk factors bacterial infections are most often to blame for sepsis. [3]

Post-operative sepsis is a rare complication of surgery, where sepsis has occurred shortly after an operation. In severe cases it can be life threatening, causing multi-organ failure. The most common bacteria include Staphylococcus, Streptococcus, and Pseudomonas.[4]Sepsis is the leading cause of death in postoperative patients. Early detection, prior to development of multiple organ failure and septic shock, markedly improves survival. A high index of clinical suspicion, fortified by appropriate laboratory and radiographic examination is key to the early diagnosis and treatment of postoperative infection.[5] Prevention of sepsis in hospital care providers is focusing on providing a safe and therapeutic environment to protect client. Medical science is trying to control various types of infections arises in various method. Prevention of infection is a major focus for nurses. As primary care givers, nurses should involve in identifying, preventing, controlling and teaching the client about infection.[6] Prompt treatment is required in order to decrease the risk of progression to septic shock or MODS. Initial treatment includes the emergency intravenous administration of fluids and antibiotics. Vasoconstrictor drugs also may be given intravenously to raise blood pressure, and patients who experience breathing difficulties sometimes require mechanical ventilation. Dialysis, which helps clear the blood of infectious agents, is initiated when kidney failure is evident, and surgery may be used to drain an infection.[7]

Materials and Methods

Research design: Pre-experimental one group pre-test and post-test design

Variables:

Independent variable: Structured teaching programme (treatment and prevention of sepsis).

Depended variable: Treatment and prevention of sepsis in post- operative patients among staff nurses

Demographic variables: In this study refer to age, gender, education of staff nurses, occupation of staff nurses, and type of family, socio-economic status, food habits, and source of information.

Setting of the study: the study was conducted at selected Hospital, Bangalore

Sample size: 100 staff nurses

Sample technique: Non probability convenient sampling technique

Inclusion criteria

1. Staff nurses who are working in post-operative department.

2. Staff nurses in post-operative department who are available during the period of data collection.

Exclusion criteria

Staff nurses in post-operative department who are not willing to participate in this study

Development of the Tool

Selection and development of the tool was done based on the objectives of the study. After an extensive review of literature and discussion with the experts the self-administered knowledge questionnaire was found appropriate to assess the knowledge regarding treatment and prevention of sepsis in post-operative patients among staff nurses. The developed tool was refined and validated by the subject experts and guide. The tool consisted of sections:

Section –A: Socio-demographic data

It consist of nine items for obtaining information about the selected socio-demographic data such as Age, gender, Qualification, Years of experience, Socio-economic status, type of family.

Section –B: self-administered knowledge questionnaire

This section includes 30 multiple choice questions. The numbers of questions under various headings are given below:

Table 1: Aspect wise distribution of questions

Aspects/ Contents	No of Items
Introduction regarding post-operative sepsis	3
Definition of sepsis	3
Incidence of sepsis	3
Risk factors of sepsis	2
Causes of sepsis	5
Signs and symptoms of sepsis	3
Diagnostic evaluations of sepsis	1
Prevention of sepsis	5
Management of sepsis	5
Total	30

Content validity

Validity of the tool was assessed by obtaining opinion from 10 experts comprising of two surgeons, seven Nurse Educators (Medical surgical nursing specialty), one statistician and one Educationist. Prepared tool was evaluated in two criteria- agree, disagree and comments. Appropriate corrections were made according to expert's suggestions and corrections and tool was finalized with the help of research guide.

Reliability of the tool

A test was done to establish the reliability and to determine the language clarity and feasibility of the tool. The reliability of the tool is computed by using Split half technique, where 'r' value obtained was 0.70 which showed that the tool was reliable and valid.

Ethical consideration: Formal permission was obtained from ethical committees of Ranebennur College of Nursing and concerned Medical Officer of the selected Hospitals, Bangalore.

Pilot Study

Pilot study was conducted in GOVU hospital at Bangalore. After getting written permission from Medical officer the study was conducted among 10 adults that are 10% of the main sample to measure the authenticity of the tool, the strength and weakness of the tool was identified and assured confidentiality. No significant problem was faced during Pilot study.

Data Collection Procedure

A prior written permission was obtained from the Medical Officer of the selected Hospitals at Bangalore. The subjects were selected according to the selection criteria of the study. Self-introduction, nature and objectives of study were explained to the staff nurses to obtain maximum co-operation. Anonymity and confidentiality were assured to staff nurses and made them comfortable. Obtained consent from the adults for the study. Self-administered knowledge questionnaire was distributed during the study. An average of 15-20 staff nurse was made to fill the tool daily and approximately 15-30 minutes were allowed for them to answer the questions and to complete it. At the end of successful data collection, conveyed thanks to the staff nurses**.**

Statistical Methods

The data collected from the clients has been organized and presented under the following headings

Section I: Frequency and percentage distribution of the staff nurses according to their socio-demographic variables.

Section II: Analysis of pre-test and post-test knowledge scores of regarding the on treatment and prevention of sepsis in post-operative patients.

Section III: Mean, Median, Mode Standard Deviation knowledge regarding on treatment and prevention of sepsis in post-operative patients.

Section IV: Analysis of association between the pre-test levels of knowledge with selected socio-demographic variables.

Section I: Frequency and percentage distribution of the staff nurses according to their socio-demographic variables.

Socio-demographic Variables	Frequency	Percentage
Age in years		
21 to 30 years	27	27
31 to 40 Years	41	41
41to 60 Years	32	32
Gender		
Male	59	59
Female	41	41
Religion		
Hindu	54	54
Muslim	22	22
Christian	17	17
Others	07	07
Place of residence		
Urban	49	49
Rural	51	51
Education		
ANM	00	00
GNM	23	23
Post Basic BSc Nursing	31	31
BSc Nursing	28	28
MSc Nursing	18	18
Working Experience		
Below 1 Year	55	55
1 to 2 Year	17	17
2 to 4 Year	16	16
Above 4 Years	12	12
Nature of Appointment		
Permanent	45	45
Temporary	55	55
Information regarding post-operative sepsis Through		
Mass Media	59	59
Health Professionals	20	20
Family and Friends	21	21
Others	00	00

Table 2: Pre Test Mean, Median, Mode Standard Deviation, Range

Frequency and percentage distribution of knowledge

Aspects	Max Score	knowledge of Respondents				
knowledge Aspects		Mean	Median	Mode	Range	SD
	30	10.56	10.50	10	6 to 17	2.114

Above table represents the maximum score is 30, range score is 6 to 17, mean is 10.56, SD is 2.114 median is 10.50 and mode is 10 in aspects of knowledge**.**

Table 3: Post Test Mean, Median, Mode Standard Deviation knowledge Frequency and percentage distribution of knowledge.

Aspects	Max Score	knowledge of Respondents				
Knowledge Aspects .		Mean	Median	Mode	Range	SD
	30	23.21	24	24	9 to 28	4.188

Above table represents the maximum score is 30, range score is 9 to 28, mean is 23.21, SD is 4.188 median is 24 and mode is 24 in aspects of knowledge

Table 4: Association Table for knowledge regarding treatment and prevention of sepsis in post-operative patients among staff nurses

Socio-demographic Variables	Frequency	Less than and Equal Median (10.50)	More than Median (10.50)	Chi Square Test
Age in years				X2-4.83 df-2 Significant
21 to 30 years	27	15	12	
31 to 40 Years	41	20	21	
41to 60 Years	32	15	17	
Gender				X2-0.41 df-1 Not Significant
Male	59	29	30	
Female	41	21	20	
Religion				X2-10.03 df-3 Not Significant
Hindu	54	26	28	
Muslim	22	13	09	
Christian	17	08	09	
Others	07	03	04	
Place of Residence				X2-3.60 df-1 Significant
Urban	49	23	26	
Rural	51	27	24	
Education				X2-14.21 df-3 Not Significant
ANM	00	00	00	
GNM	23	11	12	
Post Basic BSc Nursing	31	18	13	
BSc Nursing	28	12	16	
MSc Nursing	18	9	9	
Working Experience				X2-4.567 df-3 Not Significant
Below 1 Year	55	25	30	
1 to 2 Year	17	10	7	
2 to 4 Year	16	11	05	
Above 4 Years	12	04	08	
Nature of Appointment				X2-0.40 df-1 Not Significant
Permanent	45	22	23	
Temporary	55	28	27	
Information post-Operative				X2-2.65 df-2 Not Significant
Mass Media	59	59		
Health Professionals	20	20		
Family and Friends	21	21		
Others	00	00		

The above table shows the association between selected demographic variables such as age, gender, religion, educational status, place of residence, nature of appointment, working experience, Source of information of treatment and prevention of sepsis in post-operative patients among staff nurses with knowledge with selected socio-demographic variables of staff nurses.

In relation to age of the chi-square value obtained was 4.83, df=2 which showed significance at $p<0.05$ level.

In relation to gender the chi-square value obtained was 0.41, df=1 which showed not significance at $p<0.50$ level.

In relation to religion the chi-square value obtained was 10.03, df=3 which showed not significance at $p<0.50$ level.

In relation to place of residence the chi-square value obtained was 3.60, df=1 which showed significance at $p<0.50$ level.

In relation to Educational Status the chi-square value obtained was 14.21, df=3 which showed not significance at $p<0.50$ level.

In relation to working experience the chi-square value obtained was 4.567, df=3 which showed not significance at $p<0.50$ level.

In relation to Nature of appointment the chi-square value obtained was 0.40, df=1 which showed not significance at $p<0.50$ level.

In relation to source of information of management of retinoblastoma the chi- square value obtained was 2.65, df=2 which showed not significance at $p<0.50$ level.

Paired t Test Value is 1.83 df is 99

Hence calculated value is more than table value so null hypothesis is rejected and research hypothesis are accepted.

Discussion

The level of knowledge regarding management of retinoblastoma and its prevention in children among staff nurses, for pre-test level score is 56 (56.0%) were found inadequate knowledge, 44 (44.0%) were found moderately inadequate. The finding of study was

supported by a cohort studies examining the epidemiology of the septic syndromes, with emphasis on intensive care unit (ICU) patients, to examine the incidence, risk factors, etiologies and outcome of the various forms of the septic syndromes and their relationships In such patients, sepsis evolves to severe sepsis in >50% of cases, whereas evolution to severe sepsis in non-ICU patients is about 25%. Severe sepsis and septic shock occur in 2%-3% of ward patients and 10%-15% or more ICU patients, depending on the case-mix; 25% of patients with severe sepsis have shock. There is a graded severity from SIRS to sepsis, severe sepsis and septic shock, with an associated 28-day mortality of approximately 10%, 20%, 20%-40%, and 40%-60%, respectively. Researcher concluded that the prevalence of sepsis in ICU patients is very high, and most patients have clinically or microbiologically documented infection, except in specific subset of patients.[8]

The level of knowledge regarding treatment and prevention of sepsis in pre-operative patients among staff nurses, For Post-test level score is 04 (04.0%) were found poor knowledge, 14 (14.0%) were found average knowledge, and 82 (82.0%) were found excellent knowledge regarding treatment and prevention of sepsis in post-operative patients among staff nurses. The finding of study supported by an observational longitudinal study was conducted in Brazilian teaching hospital in 2004-2005.The objective of the study was to estimate disease incidence and mortality rate of sepsis in a tertiary public hospital. During the study, we analyzed 1,179 patients. Systemic Inflammatory Response Syndrome (SIRS) was present in 1,048 (88.9%) patients on admission, and was associated with infection in 554 (47.0%) patients. Of these, sepsis was diagnosed in 30 (2.5%) patients, while severe sepsis was diagnosed in 269 (22.8%) patients, and septic shock was diagnosed in 255 (21.6%) patients. APACHE II and SOFA scores were higher in septic patients ($p < 0.001$), and the ensuing mortality rates were 32.8% (IC 95%: 21.6- 45.7%) for patients with sepsis, 49.9% (IC 95%: 44.5-55.2%) for severe sepsis, and 72.7% (IC 95%: 68.1-76.9%) for septic shock. The researchers concluded that the data from the study revealed a high incidence of sepsis among hospitalized patients. Moreover, sepsis patients had a high rate of mortality.[9]

To find out the association between the knowledge with demographic variables the chi square test has been used. The calculated values were lesser than the table values. Hence there was significant association between the demographic variables such as age, place of residence, with levels of knowledge so research hypothesis is accepted and other variables are not significant so null hypothesis is accepted .The finding of study supported by a prospective study was conducted in United States to examine the epidemiology of postoperative sepsis using the Nationwide Inpatient Sample. Elective admissions of patients aged 18 years or older with a length of stay more than 3 days for any 1 of the 20 most common elective operative procedures were extracted from the dataset for the years 1997-2006.The investigators identified 2,039,776 admissions for analysis. The rate of severe sepsis increased from 0.3% in 1997 to 0.9% in 2006. The in- hospital mortality rate for patients with severe postoperative sepsis declined from 44.4% in 1997 to 34.0% in 2006; this trend also persisted after adjustment for relevant co variables-the adjusted odds ratio per year was 0.94 .The investigator concluded as during the 10-year period that they studied, there was a marked increase in the rate of severe post-operative sepsis.[10]

Conclusion

The conclusion drawn from the study includes, the findings of present study revealed that regarding treatment and prevention of sepsis in pre-operative patients among staff nurses for pre-test level score is 50.0% were found poor knowledge, 50.0% were found average knowledge, For Post-test level score is 04.0% were found poor knowledge, 14.0% were found average knowledge, and 82.0% were found excellent knowledge regarding treatment and prevention of sepsis in post-operative patients among staff nurses. The present study shows that the maximum score is 30, range score is 6 to 17, mean is 10.56, SD is 2.114 median is 10.50 and mode is 10 in aspects of knowledge regarding treatment and prevention of sepsis in post- operative patients among staff nurses.

Paired t Test Value is 1.83 df is 99

Hence calculated value is more than table value so null hypothesis is rejected and research hypothesis are accepted

The obtained chi square value shown that there was significant association between the levels of knowledge with demographic variables such as gender, religion, educational status and working experience and other variables are not significant.

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