

A descriptive study to assess the knowledge and practice regarding hospital acquired infection among novice nurses working in selected tertiary hospitals, Bangalore.

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Abstract

Background: Hospital acquired infections or health care associated infections are those infections that occur while receiving health care, developed in the hospital after 48 hours or more of admission. Hospital acquired infections are an important cause of mortality and morbidity and affects countries of all development. It increases the length of hospital stay and significant additional expense. Nurses being part of the health care realm needs adequate knowledge and skills to prevent such infections from occurrence. The aim of the study is to assess the knowledge and practice regarding hospital acquired infection among novice nurses.

Materials and methods: A descriptive study was employed to assess the knowledge and practice regarding hospital acquired knowledge among novice nurses working in three tertiary hospitals, Bangalore. Convenient sampling technique was used, and 100 novice nurses were selected. Structured knowledge

questionnaire and structured situational practice questionnaire were used to collect the data.

Result: Majority of the subject 72 % had moderately adequate knowledge, 26 % of the subjects had inadequate knowledge and only 2 % of the subjects had adequate knowledge regarding hospital acquired infection. Half of the subjects, 52% had poor practice, 42% of the subjects had fair practice and only 6% of the subjects had good practice. It was observed that there was a moderate degree of positive correlation ($r = 0.425, p = 0.000010$) between knowledge and practice. There was no significant association between socio demographic characteristics and knowledge whereas It was observed that there was significant association between practice regarding hospital acquired infection and age ($p = 0.027$) and gender ($p = 0.012$).

Conclusion: The study revealed that the novice nurses had moderately adequate knowledge with relatively poor practice.

Continuous training is required to increase the knowledge and practice of the novice nurses.

Keywords: Hospital acquired infection, health care associated infection, novice nurses.

Introduction

Hospital acquired infection is also known as “nosocomial infection” or “health care associated infection” or infection acquired in health care settings are the most frequent adverse event in health care delivery worldwide. Health care associated infections are those infection that the patients develop during receiving healthcare treatment for other condition, which are not incubating at the time of admission.

Hospital acquired infections are significant cause of illness and death and they can have devastating emotional, financial, and medical consequences. Some of the most occurring preventable hospital acquired infections are catheter associated urinary tract infection, central line associated blood stream infections, ventilator associated pneumonia and surgical site infections[1].

According to Centre for Disease Control and Prevention stated that catheter associated urinary tract infection occurs when germs enter the urinary tract through the urinary catheter and causes infection. Central line associated blood stream infection is an infection which is caused by the indwelling central venous catheter and results in thousands of deaths each year. Ventilator associated pneumonia is a lung infection that develops in a person who is on ventilator and infection may occur if germ enters through the tube into the patient lungs [2]. Since hospital acquired infections have a direct impact on patient safety, contributing to unexpected patient deaths, placing patients and their families at increased risk of infection, and increasing the burden of health cost for hospitals

and communities. Increasing awareness and practice of infection prevention and control becomes high priority for nurses in healthcare settings as nurses are the largest deliverer of health care worldwide.

Nurses have major responsibility for infection prevention and control as a part of daily patient care activities. So, Competency in infection control is crucial component for implementing best practices for nurses to ensure patient safety and provide high quality care [3].

Novice nurses are those who are newly qualified nurse and new to practice. During transition to practice, the novice nurses have theory-practice gap and limited skill sets which can lead to the reduction of quality patient care and reduction of novice nurse’s performance quality. A solid knowledge of infection control is necessary to assist new registered nurses to work as competent beginner practitioners within health care settings, including reducing risk for hospital acquired infection and providing safer patient care by minimizing cross infection between patients [4].

Therefore, it is important for the novice nurses to integrate knowledge, skills, and behaviours to perform safely in health care setting following infection control standards.

Materials & Method

A. Study Design

The study used descriptive research design.

B. Variables

Study variables for the study includes age, gender, educational status, nursing course in private or government sector, college with attached hospital, clinical training during study period and in-service education on hospital acquired infection in the last 6 months.

C. Setting of the study

The study was carried out at Ramaiah Memorial Hospital, Bangalore, Ramaiah Narayana Heart centre, Bangalore and Prakriya Multispeciality Hospital, Bangalore. The selected hospitals provide a range of advanced medical services.

D. Sample size: 100 novice nurses.

E. Sampling technique: convenient sampling technique was used to select the samples.

F. Inclusion and exclusion criteria

Inclusion criteria

- Novice nurses working less than 1 year in tertiary Hospital

- Novice nurses who are willing to participate

Exclusion criteria:

- Novice nurses who are not registered
- Novice nurses who are not available during time of data collection.

G. Development of tool

After an extensive review of literature and discussion with experts, a structured knowledge questionnaire regarding hospital acquired infection and structured situational practice questionnaire regarding prevention of hospital acquired infection was developed by the researcher. The questionnaire included various items on catheter associated urinary tract infection, central line associated blood stream infection and ventilator associated pneumonia. In addition, information regarding sociodemographic variables of subjects was collected.

H. Validity

Content validity of the tool was established by inviting suggestions from experts that included one ICU intensivist and eleven nurse experts. There was 100% agreement between the experts on relevance of items included on the tool.

I. Reliability

The tool was tested for reliability using split half test method ($r= 0.71$ and 0.73) respectively.

J. Ethical clearance

The ethical clearance for this study was obtained from the ethics committee of Ramaiah Institute of Nursing Education and Research.

K. Pilot study

Pilot study was conducted at Shirdi Sai hospital and Sri Sai Krupa hospital, Bangalore. A total of 10 novice nurses were selected for the study. On completion of pilot study, it was found that it was feasible to undertake main study.

L. Data collection procedure

The data were collected in Ramaiah Memorial Hospital, Ramaiah Narayana Heart centre and Prakriya Multispeciality Hospital, Bangalore, after obtaining formal permission from the concerned authorities. Novice nurses who met the inclusion criteria were recruited from the Head department of Nursing of each hospital. A total of 100 novice nurses were selected for the study. Subjects were given detailed information about the study and informed consent was obtained from all the subjects. Data were obtained by using structured knowledge questionnaire and structured situational practice questionnaire. The time taken by each subject was about 20-30 minutes. Approximately 5-10 subjects were assessed per day. The collected data were coded and entered in the master sheet.

M. Statistical method

The data analysis was done by using descriptive and inferential statistics SPSS (version 20) was used to analyse the data.

1. Frequency and percentage distribution were computed for sociodemographic characteristics.

2. Frequency and percentage distribution were computed for knowledge
3. Frequency and percentage distribution were computed for practice
4. Karl-Pearson correlation coefficient was used to determine the relationship between knowledge and practice of novice nurses.
5. Association between knowledge regarding hospital acquired infection and sociodemographic variables using chi square test.
6. Association between practices regarding hospital acquired infection and sociodemographic variables using chi square test.

Results

The collected data were analysed according to the objectives of study. The findings are presented below.

I. Socio demographic characteristics of the subjects.

Frequency and percentage distribution were computed for sociodemographic characteristics of the subjects. It is observed that majority of the subjects, 83 % belongs to the age groups of (23 – 25) year. Majority of the subjects 73 % were female. Majority of the subjects, 78 % had completed B.sc nursing. 89 % of the subjects had completed their nursing course in private college/school. Most of the subject 68 % studied in college with attached parent hospital. More than half of the subjects, 65 % described their clinical training during study period as good. Only 40% had attended in-service education regarding hospital acquired infection in the past 6 months.

II. Frequency and percentage distribution of knowledge.

Majority of the subject 72 % had moderately adequate knowledge, 26 % of the subjects had inadequate

knowledge and only 2 % of the subjects had adequate knowledge regarding hospital acquired infection.

III. Frequency and percentage distribution of practice.

Half of the subjects, 52% had poor practice, 42% of the subjects had fair practice and only 6% of the subjects had good practice regarding hospital acquired infection.

IV. Correlation between knowledge and practice regarding hospital acquired infection.

It was observed that there was a moderate degree of positive correlation ($r = 0.425$, $p = 0.000010$) between knowledge and practice regarding hospital acquired infection among novice nurses.

V. Association between knowledge regarding hospital acquired infection and sociodemographic data.

Chi square was used to find the association between sociodemographic characteristics and knowledge of the novice nurses. It was observed that there was no significant association between socio demographic characteristics and knowledge regarding hospital acquired infection of the novice nurses.

VI. Association between Practices regarding hospital acquired infection and sociodemographic data.

Chi square was used to find the association between sociodemographic characteristics and practice of the novice nurses. It was observed that there was significant association between practice regarding hospital acquired infection and age ($p = 0.027$) and gender ($p = 0.012$). Other characteristics such as type of institution, attached parent hospital, clinical training experience, and in-service education did not show any association with practice of novice nurses.

Discussion

Hospital acquired infection increases patients' morbidity, mortality, significant financial loss and increase length of hospital stay. Novice nurses during transition has theory and practice gap and they need an utmost knowledge and practice regarding hospital acquired infections to prevent infections.

This study aims to determine the novice nurses' level of knowledge and practice regarding HAIs. Based on the result of present study, majority of the subjects, (72%) had moderately adequate knowledge, (26%) of the subjects had inadequate knowledge and only (2%) of the subjects had adequate knowledge regarding hospital acquired infection. A similar study conducted by Sodhi Kanwal Preet et al in Ludhiana, 2013 showed that (17%) nurses had good knowledge, (60%) nurses had average knowledge, (18%) nurses had below average knowledge and only (5%) nurses had excellent knowledge[5].

The present study result showed that half of the subject, (52%) had poor practice, (42%) of the subjects had fair practice and only (6%) of the subjects had good practice regarding hospital acquired infection. In contradiction, a similar study conducted by Alrubaiee Gamil et al in Yemen (2017), showed that only 3% of them had poor practices, whereas 71% nurses had fair practices and 26% of them had good practices [6].

It was observed that there was moderate degree of positive correlation ($r = 0.425$, $p < 0.000010$) between knowledge and practice regarding hospital acquired infection among novice nurses. In contradiction, a study conducted by Garba Iliyasu et al in Nigeria (2015) showed that there was a weak negative correlation between overall knowledge score and overall practice score ($r = -0.004$, $P < 0.001$)[7]. It was also inconsistent with the results of a Study conducted

by Balonchi Abbas et al in Iran (2015) where the result showed that there was no statistically significant correlation between knowledge and practice ($r = 0.08$, $p = 0.3$) [8].

The findings of the study showed that there was no statistical association between knowledge regarding hospital acquired infection and socio demographic variables. A similar study conducted by Purushottam A Giri et al in Maharashtra (2013) showed that there was no statistical association between knowledge and socio demographic variables [9]. Whereas similar Study conducted by Balonchi Abbas et al, (2015) showed inconsistent result that there was statistical association between knowledge and socio- demographic variables - gender ($p = 0.02$) [8]. It was also inconsistent with the result of the study conducted by Abdullah Gruda et al in (2016) which showed that there was a statistical association between knowledge and socio demographic variables education (OR = 0.22, 95% CI 0.10-0.48, $p < 0.05$) [10].

The present study revealed that there was significant association between practice regarding hospital acquired infection and selected socio demographic variable - age ($p = 0.027$) and gender ($p = 0.012$). A similar study conducted by Majidipour Parastoo et al, in Iran (2018), showed that there was significant association between performance and gender ($p = 0.014$)[11]. Another similar study conducted by Imad Fashafsheh et al, Palestine (2014-2015) showed that there was significant association between practice and gender ($p = 0.004$) [12]. Whereas the result of the present study was contradicted by the study conducted by Abdullah Gruda et al, (2016) which showed that there was no statistical association between practice and socio demographic variables [10].

Limitations

- Authenticity of the information regarding socio-demographic variables is based on the response of the subjects.
- Limited sample size.
- Practice level was not supervised directly and relied solely on subjective assessment questionnaire.

Conclusion

The present study findings indicated that the novice nurses had moderately adequate knowledge with relatively minimal practice rate. It clearly signifies that there is a gap in knowledge and practice regarding hospital acquired infection control measures among the novice nurses. Periodical assessment and training sessions is needed to increase novice nurse's knowledge and practice.

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