Assessment of Knowledge of Staff Nurses on Safe Injection Techniques in Pediatric Care Settings of JIPMER, Puducherry

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Abstract : Safe administration of medication holds a sound position in the health care delivery system. Injection is the most frequently used nursing procedure, with an estimated 16 billion injections administered each year. Every child who seeks the medical care has a fundamental right to receive a treatment which is absolutely free from physical and emotional injuries. The child health nurse should meet all the ends of a clean and safe injection technique to bring down the occurrence of unfavorable circumstances. A cross sectional study was conducted among staff nurses working in pediatric medical and surgical wards, NICU, PICU, PSICU, pediatric OPD and pediatric casualty of JIPMER, Puducherry, 92 staff nurses who fulfilled the inclusion criteria participated in the study. The data was collected by using structured questionnaire with 25 knowledge assessment items on safe injection techniques. The study showed that most of the staff nurses ( 51.1%) had moderate level of knowledge regarding safe injection technique and 41.3% had adequate knowledge. Only few staff nurses (7.6%) had inadequate knowledge on safe injection techniques in children. There was no significant difference between the level of knowledge of staff nurses with selected demographic variables (age, gender, educational qualification, years of experience and source of information).

Keywords: NICU - Neonatal Intensive Care Unit, PICU – Pediatric Intensive Care Unit, PSICU – Pediatric Surgery Intensive Care Unit, Safe injection techniques

1. Introduction

“An injection should only be given if it is necessary, And each injection that is given must be safe.”  WHO The child health nurse should meet all the ends of a clean and safe injection technique to bring down the occurrence of unfavorable circumstances.¹ Creating a safe health care environment for children and their families is a long standing goal of the American Academy of Pediatrics. Over the years, they have been engaged actively in developing and disseminating multiple strategies to improve pediatric patient safety. To date, many of the efforts have been targeted at inpatient, as this is where the majority of knowledge and interventions for safety and improvement work to date exists.² An unsafe injection is any form of injection practice those possess any health risk to the recipient. It is a major public health problem in many areas. Lack of trained personnel, gap between knowledge and practice, lack of facilities and equipments and high patient demand for injection are leading causes for the occurrence of unsafe injection practices.³ A survey done on knowledge, attitude and behavior regarding safe injection practices among the health practitioners in Shandong, China reported that scores for safe injection knowledge among health practitioners were significantly low, rate of unsafe injection practices were 6.2%, rate of improper handling of used disposable syringes were 7.6%. This data clearly shows the lack of proper awareness regarding injection practice and this need to be dealt urgently.⁴ An epidemiological study by International clinical epidemiological programme network on assessment of injection practices showed that a very large number of injections were administered every year in India. It was estimated that 3 of 6 injections were received per person in an year. The number of injections given to infants was almost twice as compared to older children due to vaccine related injection in this age group. Unsafe injections in the form of unsterile equipment, using same syringe and needle for more than one patient and undue and wrong habit of injection administration increased the risk
of blood borne infections. Overall 60.5% injections in India were classified unsafe of which 40% injections were unsafe due to wrong habits of injection given. The findings of the study give the alarming picture of unsafe injection practices in India.

1.1 Statement of the problem
Assessment of the knowledge of staff nurses on safe injection techniques in paediatric care settings of JIPMER, Puducherry.

1.2 Objectives

- To assess the level of knowledge among staff nurses on safe injection techniques in children.
- To identify the factors associated with the level of knowledge of staff nurses on safe injection techniques.

1.3 Research questions

- What is the level of knowledge of staff nurses on safe injection techniques in children?
- What are the demographic factors associated with the level of knowledge of staff nurses on safe injection techniques?

2. Methods and Materials

2.1 Methodology
Research design-Cross sectional descriptive design

2.2 Variables of the study

Independent Variables- age, sex, professional qualification, area of posting, years of working experience and prior source of information

Dependent variable- level of knowledge on safe injection techniques

2.3 Setting and population
The study was conducted in JIPMER Hospital, among all the staff nurses presently working in pediatric ward (medical/surgical), PICU, NICU, PSICU, Pediatric OPD and casualty of JIPMER.

2.4 Sample, Sample size and Sampling technique
Sample included for this study are staff nurses presently working in pediatric medical and surgical wards, PICU, NICU,PSICU, Pediatric OPD and pediatric casualty of JIPMER, because all staff nurses are included for this study from the chosen or selected setting, and the sampling method was not applicable as all staff nurses included in the study. Sample size was 92.

2.5 Criteria for selection of samples

2.5.1 Inclusion criteria
All the staff nurses presently working in pediatric medical and surgical wards, PICU, NICU,PSICU, Pediatric OPD and pediatric casualty of JIPMER willing to participate in the study.

2.5.2 Exclusion criteria
Staff nurses who are not available at the time of data collection, such as those who are on long term medical leave or on maternity leave.

2.5.3 Methods of Data collection & Ethical approval
After obtained institute ethical committee approval, the subjects were assured about anonymity and confidentiality of the information provided by them and informed consent was taken. Using self administered questionnaire the data was collected from each subject for 20 minutes. The collected data was entered in master sheet and coded and analyzed using descriptive and inferential statistics.

3. Results

3.1 Data Analysis and Interpretation

<table>
<thead>
<tr>
<th>Variables</th>
<th>Categories</th>
<th>Frequency (N)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>16</td>
<td>17.4</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>76</td>
<td>82.6</td>
</tr>
<tr>
<td>Professional qualification</td>
<td>GNM</td>
<td>21</td>
<td>22.8</td>
</tr>
<tr>
<td></td>
<td>BSc Nursing</td>
<td>53</td>
<td>57.6</td>
</tr>
<tr>
<td></td>
<td>PBSc Nursing</td>
<td>6</td>
<td>6.5</td>
</tr>
<tr>
<td></td>
<td>MSc in Paediatric Nursing</td>
<td>9</td>
<td>9.8</td>
</tr>
</tbody>
</table>
Table 1 showed the distribution of socio demographic variables of staff nurses and it is self explanatory.

Table 2 Mean estimation of age and years of experience of staff nurses

Table 3 showed that 51.1% of staff nurses have moderate knowledge, 41.3% of them have adequate knowledge and 7.6% of them have inadequate knowledge.

Table 4 Comparison of knowledge score in relation to socio demographic variables of staff nurses
Table 4 shows that there is no significant difference in knowledge level of staff nurses with selected demographic variables.

Table 5 Association of age in relation to level of knowledge of staff nurse

<table>
<thead>
<tr>
<th>Level of knowledge</th>
<th>N</th>
<th>Mean (Age)</th>
<th>Standard Deviation</th>
<th>Statistical significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate (0-50%)</td>
<td>7</td>
<td>29.57</td>
<td>4.75</td>
<td>F=0.63</td>
</tr>
<tr>
<td>Moderate (50-75%)</td>
<td>47</td>
<td>29.21</td>
<td>6.09</td>
<td>P=0.53</td>
</tr>
<tr>
<td>Adequate (75-100%)</td>
<td>38</td>
<td>28.05</td>
<td>3.66</td>
<td></td>
</tr>
</tbody>
</table>

Table 5 showed that there is no significant difference in knowledge level of staff nurses and their age.

Table 6 Association of years of experience in relation to level of knowledge of staff nurses

<table>
<thead>
<tr>
<th>Level of knowledge</th>
<th>N</th>
<th>Mean (years of experience)</th>
<th>Standard Deviation</th>
<th>Statistical significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate (0-50%)</td>
<td>7</td>
<td>2.071</td>
<td>1.64</td>
<td>F=1.58</td>
</tr>
<tr>
<td>Moderate (50-75%)</td>
<td>47</td>
<td>1.45</td>
<td>1.33</td>
<td>P=0.210</td>
</tr>
<tr>
<td>Adequate (75-100%)</td>
<td>38</td>
<td>1.87</td>
<td>1.08</td>
<td></td>
</tr>
</tbody>
</table>

Table 6 showed that there is no significant difference in knowledge of staff nurses with their years of experience.

4. Discussion

The study assessed the knowledge of staff nurses on safe injection techniques and their association with age, gender, professional qualification, area of posting, years of experiences and prior source of information. The study showed that regarding the total marks, 51.1% had moderately adequate (50-75%) knowledge, 41.3% had adequate (75-100%) knowledge, 7.6% had inadequate (0-50%) knowledge on safe injection techniques in children. In the study conducted by Audu Onyemocho et al (2013) on injection safety among workers of prison health facilities showed that 54.3% had good knowledge, 16.7% had fair knowledge and 29.0% had poor knowledge on injection safety. Current study shows that 47.8% had no prior information on safe injection techniques, 25% had exposure to in-service education, 16.3% had CNE classes, 6.5% had information from mass media, 2.2% had information from mass media and in-service education, 1.1% had information from both mass media, CNE and in-service education, CNE. The study conducted by Oguamanam et al (2014) found that 81.7% had heard of injection safety prior, of this number, 67.2% had some training on it, but only 46.2% had a formal training on injection safety. It is depicted through this study that there was no association between the demographic variables and the level of knowledge of staff nurses.

5. Conclusion

Since the study was based on convenient sampling among relatively smaller population, the findings were not generalizable but can be utilized as a preliminary investigation throughout for the research projects among staff nurses to improve their knowledge on injection safety in paediatric care settings and it helps the institute to make a policy related to injection safety.

6. References

3. WHO Guiding principle to ensure injection device safety (online) 2010 Dec 11 (cited2011Feb2); Available from: http://www.WHOint/injectionsafety/webfinalSIGN/ex/