Assessment of knowledge and skills of nursing staff working in a tertiary care hospital of Western Uttar Pradesh

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Abstract

Background: Nurses are the most vital part of the health system. Having adequate knowledge, awareness and desired clinical skills among them can decrease the risk of infection or complications, can shorten the stay of patients in hospital, decrease the morbidity and mortality of patients and decrease the disease burden.

Material & Methods: Nursing staff from the wards of a private tertiary care hospital were interviewed for knowledge and observed for skill assessment.

Aim & Objective: To assess the knowledge, skills and practices of nursing staff working in a tertiary care hospital. Results: Knowledge of nurses is good regarding routine investigations, universal precautions, work ethics but poor in pharmacovigilance. Nurses are found to be good having skills in patient care, clinical skills but are poor in practice of biomedical waste management and vital monitoring. Nurses are having good communication with patient & doctors but response time on patients’ call is more. Conclusion: Retraining of nursing staff at regular intervals to upgrade their knowledge regarding universal precautions, work ethics, bio medical waste management and improve upon clinical skills should be made mandatory in a hospital setting.

Keywords

Nurses; Knowledge; Skills; Communication

Introduction

Nurses are the important members of health team. In recent years, health care settings are more dynamic and the role of nurses has expanded rapidly. Nurses are confronted daily with a situation in which difficult decisions have to be made. (1, 2) Nurses are caregiver, they provide hands on care to patients (3). Nurses are decision maker, as sometimes they have to make critical decision, set goals, and promote outcomes for patients. As a communicator, they have to effectively communicate with doctors, patients and patients family members; as a patient advocate, the nurse’s responsibility is to protect a patient’s rights, act on patients behalf, and support their decisions. (4) Health systems can satisfy their clients by promotion of their nurses’ clinical competencies. (5)
The purposeful regular assessment of nurses can increase efficacy as it will tell/show us the conditions/performance of nurses and the educational/technical need required to improve them. Assessment/Evaluation of nurses helps us to update, promote, and coordinate their functions with rapid changes.(6) Therefore, each nurse needs assessment for his/her professional and personnel growth.(7,8) Therefore, with regard to above-mentioned issues, this study was aimed for assessment of nurses on various parameters. Lack of knowledge, awareness or skills among them can increase the risk of infection or complications, can prolong the stay of patients in hospital, increase the morbidity and mortality of patients and increase the disease burden.

**Aim & Objectives**

To assess the knowledge, skills and practices of nursing staff working in a tertiary care hospital

**Material & Methods**

The study was carried out in a private tertiary care hospital of Western Uttar Pradesh. Purposive sampling was done to select study populations keeping in mind the resources, feasibility and logistics. Study population comprised of all nurses working in the various wards of the hospital and were thought to be sufficient to meet the required sample size to fulfil the objectives of the study. One hundred twenty eight nurses participated in the study.

**Inclusion criteria** were the desire to participate in the study, having a GNM/BSc degree in nursing and working in the hospital ward. Multiple wards were taken from the hospital.

**Ethical approval:** Approval for study was obtained from the Medical Superintendent of the hospital. Ethical issues were raised by taking verbal consent for participation from every nurse after explaining them the aims of the study and confirming confidentiality of data. Nurses were explained that the participation is voluntary and they have right to withdraw from the study at any time.

A pilot study was carried out in order to test clarity and applicability of tool and also to estimate the needed time to fill it. The validity of the questionnaire was done by submitting it to three experts from nursing administration, community health and a general physician from medical college.

Questionnaire had 3 parts. First one contains questions related to assessment of knowledge, second one observation of skills and practices and third one regarding behaviour, communication and managerial skills of nurses. In context of knowledge questions each for routine investigations (Urine, blood, Ultrasound etc.), universal precautions (hand washing practices, use of gloves, gown & mask, disposal of sharps, prevention of needle stick injury, knowledge about exposure reporting etc.) were asked. In addition, questions concerning handling of bio medical waste (colour coding system), work ethics and pharmacovigilance were asked. Response were recorded as score of zero (Not having correct knowledge) & one (having correct knowledge). Then the total of all responses were put as excellent, good, average, poor & very poor based upon the total cumulative score of correct knowledge in more than 80% questions, 61-80%, 41-60%, 21-40% & 0-20% questions respectively. Skills and practices were assessed by observing nurses’ skills in taking vitals (blood pressure, pulse, respiratory rate, temperature), collection of blood sample, patient hygiene and nursing care (timely recording of vitals, timely dispensing of drugs, dressing & sponging if required, patient counselling etc.). Scoring was done in the same pattern as in knowledge (Excellent, good, average, poor & very poor).

Managerial skills (maintenance of patient’s records), communication skills (with doctors/staff, patients & their attendants), response time for reaching to patient on call were also recorded. Attitude towards patients and his attendants were asked from patients/attendants themselves. Communication with doctors & supporting staff was ascertained from doctors, post graduate students of that particular ward.

The data collected were recorded into excel sheet and analysed using SPSS version 23. Data was analysed using Chi Square test to draw results and inference.

**Results**

One hundred twenty eight nurses participated in the study. All participants were female.

When we assessed the knowledge about routine investigations, out of 128 nurses 60 (46.8%) had scored more than 60% (Good/Excellent). Knowledge related with universal precautions was quite fair among nurses as 62.5% respondent scored good and excellent level. In knowledge regarding bio medical
waste management, 59 nurses (46%) scored 40% or less (poor and very poor). Work ethics were well known issue among nurses as 80.47% nurses scored more than 40%. Pharmacovigilance was not well addressed among nurses as only 18 (14%) nurses scored above 60% while 66.3% showed average and below level of knowledge. Scoring of knowledge for given components was statistically found to be significantly different among participants (p<0.001) (Table 1).

The second section of the questionnaire contained questions related to assessment of skills and practices of nurses. In reference to skill in monitoring of vitals, more than half of nursing staff (57.8%) scored as having poor or very poor skill. Only less than one-tenth (9.38%) had excellent skills in monitoring vitals. In reference to patient care 54.69% & 23.44% nurses achieved excellent & good score. Clinical skills (skill of sample collection and cannula insertion) were above average level in 108 (84.38%) nurses. Practices of Bio medical waste (BMW) management were poor among nurses as more than half (60.93%) participants scored poor and very poor. Practices regarding universal precaution scored good and average in 39.06% and 23.44% nursing staff respectively. (Table 2). Scoring of Skill and practices were significantly different for the given domain (p<0.001).

Third section of questionnaire was related with record maintenance management & communication skills with patient and rapport with supporting staff. Less than half (45.32%) of nurses were good in managing patient’s records while only 7.81% were very poor in it. Nurses’ communication with doctors was excellent in 45.31% & good in 23.44%. Attitude of nurses towards patient attendants was found to be good in 58.59% & average in 19.53%. More than two-third of the nurses (70.31%) had good rapport with supporting staff. (Table 3).

### Discussion

Present study was focused on knowledge and practices of nurses in a tertiary care hospital related with different domains of professional work. In context to bio medical waste management in present study, 38.28 % nurses achieved good and excellent score, at the same time slight less than half (46.09%) scored poor and very poor. Sengodan VC et al (9) in their study reported that mean score of nurses was 7.6 out of 10While RekhaAcharya et al (10) reported that majority (79.4%) of study population had fair to good overall knowledge whereas in our study only slight more than half (53.8%) of study population had above average level of awareness regarding various aspects of biomedical waste management. MohdShafee (11) reported approximate same level of knowledge regarding bio-medical waste as 266 (53.2%) study subjects knew about BMW correctly.

In a study by Jaydeep J devalia et al (12) all the nurses knew that HIV is transmitted by parenteral route while only 20 nurses (39%) knew that Hepatitis C is also transmitted through blood. Current study find out practice of universal precaution was good and excellent in 80 participants (62.51%). This figure is comparable to Kotwal A et al who reported that 64% nurses shows compliance in hand washing. (13). Paul B et al. (14) reported higher level of hand washing compliance (92%) among nurses in a study by Hafizullah Fayaz (15) among 300 respondents, the mean knowledge score was 5.2 with a standard deviation (SD) of 1.5. There were no associations between the knowledge and self-reported practice of universal precautions. However, in our study, we found that 62.51 % nurses have excellent/good knowledge regarding universal precautions and 56.25% are also practicing it with excellent or good score.

Fatma et al (16) found that 63.3% nurses had satisfactory knowledge about work ethics. The current study shows almost similar level of knowledge. It shows that 68.7% nurses had good and above level of scoring in reference of work ethics.

### Conclusion

Knowledge of nurses is good regarding routine investigation, universal precautions, work ethics but poor in pharmacovigilance. Nurses are found to be good having skills in patient care, clinical skills but are poor in practice of biomedical waste management and vital monitoring. Nurses are having good communication with patient & doctors but they take more time to respond to patient.

### Recommendation

Retraining of nursing staff at regular intervals to update their knowledge regarding universal precautions, work ethics, bio medical waste management and to improve upon clinical skills should be made mandatory in hospital settings. They must also be trained in management skills and communication skills.
**Limitation of the study**

The present study was conducted in only one tertiary hospital in western Uttar Pradesh.

**Relevance of the study**

In this study we assessed the knowledge along with practice and behavior of nurses.

**Authors Contribution**

All authors contributed significantly in the study.

**Acknowledgement**

Brig.(Dr.) Shyam Kumar Handa for his constant guidance during study.

**References**


**Tables**

<table>
<thead>
<tr>
<th>Knowledge regarding</th>
<th>Excellent (&gt;80%)</th>
<th>Good (61 – 80%)</th>
<th>Average (41 – 60%)</th>
<th>Poor (21 – 40%)</th>
<th>Very poor (0 – 20%)</th>
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<tbody>
<tr>
<td>Routine Investigations</td>
<td>24 (18.75%)</td>
<td>36 (28.13%)</td>
<td>29 (22.65%)</td>
<td>28 (21.88%)</td>
<td>11 (8.59%)</td>
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<tr>
<td>Universal precautions</td>
<td>60 (46.88%)</td>
<td>20 (15.63%)</td>
<td>19 (14.84%)</td>
<td>18 (14.06%)</td>
<td>11 (8.59%)</td>
</tr>
<tr>
<td>Bio medical waste management</td>
<td>16 (12.5%)</td>
<td>33 (25.78%)</td>
<td>20 (15.63%)</td>
<td>44 (34.37%)</td>
<td>15 (11.72%)</td>
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<tr>
<td>Work ethics</td>
<td>37 (28.90%)</td>
<td>51 (39.85%)</td>
<td>15 (11.72%)</td>
<td>10 (7.81%)</td>
<td>15 (11.72%)</td>
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10.1097/NND.0b013e3181a689a1. PubMed PMID: 20098164.[PubMed]


<table>
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<tr>
<th>Pharmacovigilance</th>
<th>8 (6.25%)</th>
<th>10 (7.8%)</th>
<th>25 (19.53%)</th>
<th>31 (24.22%)</th>
<th>54 (42.18%)</th>
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</table>

$X^2 = 185.49$ df 16 $p < .001$

### TABLE 2 SKILLS & PRACTICES AMONGST NURSING STAFF (N=128)

<table>
<thead>
<tr>
<th>Skills &amp; practices</th>
<th>Excellent (&gt;80%)</th>
<th>Good (61 – 80%)</th>
<th>Average (41 – 60%)</th>
<th>Poor (21 – 40%)</th>
<th>Very poor (0 – 20%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring of vitals</td>
<td>12 (9.38%)</td>
<td>17 (13.28%)</td>
<td>25 (19.53%)</td>
<td>41 (32.03%)</td>
<td>33 (25.78%)</td>
</tr>
<tr>
<td>Patient hygiene and nursing Care</td>
<td>70 (54.69%)</td>
<td>30 (23.44%)</td>
<td>12 (9.36%)</td>
<td>6 (4.69%)</td>
<td>10 (7.82%)</td>
</tr>
<tr>
<td>Clinical skills</td>
<td>45 (35.16%)</td>
<td>47 (36.72%)</td>
<td>16 (12.5%)</td>
<td>10 (7.81%)</td>
<td>10 (7.81%)</td>
</tr>
<tr>
<td>Biomedical waste</td>
<td>26 (20.32%)</td>
<td>8 (6.25%)</td>
<td>16 (12.5%)</td>
<td>10 (7.81%)</td>
<td>68 (53.12%)</td>
</tr>
<tr>
<td>Universal precaution</td>
<td>22 (17.19%)</td>
<td>50 (39.06%)</td>
<td>30 (23.44%)</td>
<td>16 (12.5%)</td>
<td>10 (7.81%)</td>
</tr>
</tbody>
</table>

$X^2 = 261$ df 16 $p < .001$

### TABLE 3 ASSESSMENT OF NURSES REGARDING MANAGEMENT SKILLS, COMMUNICATION WITH STAFF & PATIENTS (N=128)

<table>
<thead>
<tr>
<th></th>
<th>Excellent (&gt;80%)</th>
<th>Good (61 – 80%)</th>
<th>Average (41 – 60%)</th>
<th>Poor (21 – 40%)</th>
<th>Very poor (0 – 20%)</th>
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<tr>
<td>Record maintenance</td>
<td>10 (7.81%)</td>
<td>58 (45.32%)</td>
<td>35 (27.34%)</td>
<td>15 (11.72%)</td>
<td>10 (7.81%)</td>
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<td>Response time on patient call</td>
<td>30 (23.44%)</td>
<td>18 (14.06%)</td>
<td>42 (32.81%)</td>
<td>28 (21.88%)</td>
<td>10 (7.81%)</td>
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<tr>
<td>Communication with doctors</td>
<td>58 (45.31%)</td>
<td>30 (23.44%)</td>
<td>10 (7.81%)</td>
<td>20 (15.63%)</td>
<td>10 (7.81%)</td>
</tr>
<tr>
<td>Attitude towards patient attendants</td>
<td>12 (9.38%)</td>
<td>75 (58.59%)</td>
<td>25 (19.53%)</td>
<td>10 (7.81%)</td>
<td>6 (4.69%)</td>
</tr>
<tr>
<td>Rapport with supporting staff</td>
<td>10 (7.81%)</td>
<td>80 (62.5%)</td>
<td>18 (14.06%)</td>
<td>12 (9.38%)</td>
<td>8 (6.25%)</td>
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