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Correlates of Needle Stick Injuries among Health Care Workers at St. Pauls Mission Hospital

Article by Ireen Chola Mwape Musonda
Texila American University Lusaka Campus, Zambia
E-mail: irenjuliet@gmail.com

Abstract

The aim of the study was to profile the epidemiology and different determinants of needle stick injury among health care workers at St. Pauls Mission Hospital which could be used to develop/foster needle stick infection control measures. A cross sectional quantitative survey-based design was used in this study. A sample of 143 nurses instead was enlisted in this study from an expected sample size. In the last ten years, the incidence of NSIs was 139 episodes with an annual mean occurrence of 11 episodes per year. Within the sample of those who had NSIs, there are more health workers who are proactive and take up preventive actions than those who do not. Infection control measures appear not to be emphasised. There are more than half of respondents who indicated ‘‘No’’ than those who indicated ‘‘Yes’’ for the infection control prevention strategies. The least adhered to infection control strategy is the non-insistence of wearing of eye goggles when conducting minor or major surgery. The determinants of NSIs were; not wearing gloves before touching anything wet – broken skin, mucous membranes, blood, body fluids, secretion, or excretion or before touching soiled instruments and other items, not using barriers- Personal Protective Equipment (PPE) such as protective goggles, face mask and aprons if splashes or spills of blood or body fluids secretions or excretions are anticipated, lack of training at the workplace, long working hours and lack of supplies: disposable syringes, safer needle devices, and sharps-disposal containers. In conclusion, NSIs were observed in all categories of HCWs. There is a scope for improvement in safety protocols. Preventive strategies have to be devised and reporting of NSI need to be made mandatory. Issues requiring attention include use of safety engineered devices (SED), recording and reporting of incidents, training of all HCWs in handling and disposal of sharps, establishing a staff student health service and inculcating a responsible attitude among HCWs. The solutions are easy ones as they do need substantial resources.

Introduction

Needle stick and sharp object injuries (NSIs) are commonly encountered by people handling needles in the medical setting, such injuries are an occupational hazard in the medical community (Frijstein et al., 2002). Needle stick and sharps injuries (NSIs) have been recognized as one of the most serious occupational hazards among health care workers (HCWs) (Gurubacharya et al., 2003; Patterson et al., 2003; Shiao et al., 2002). Needle stick injuries (NSIs) and sharp injuries (SIs) comprise about 12% of all working people worldwide (Hofmann and Beie, 2002). It is estimated that of 35 million HCWs worldwide (Abu-Gad and Al-Turki 2001), 3 million experience these injuries every year (O Connor, 2009). Among HCWs, the highest incidence of these injuries has been reported more among nurses than other health workers (Abu-Gad and Al-Turki 2001; Saleh et al., 2005; Rampal et al., 2010; Gholami et al., 2013; Memish et al., 2013; Jahangiri et al., 2016).

Exposure to blood products in teaching hospitals is a common occurrence. But these incidents are usually under-reported (McCormickand Maki, 1981; McCormick et al., 1991), so NSI and blood exposure injury data are lacking. Moreover, elaborate knowledge, attitude and practice (KAP) studies are also lacking in an NSI contexts. Our study addresses NSI’s importance and aims to determining NSI occurrence and awareness among healthcare workers (HCW) regarding their KAP. We explore various measures to prevent these injuries such as improving knowledge, attitude, and practice. We try to integrate organizational changes and recommend specific strategies for consistent and safe methods for dealing with such incidents.

The frequency of NSIs has not been estimated in Zambia as compared to other nations (Cho et al 2013). Several other reports on sharp object injuries among health care workers have emerged from the
West, Asia mainland (Jahan, 2005; Salleh et al., 2013) and South East Asia (Jahan et al., 2005). Among healthcare workers nurses and physicians appear especially at risk (Memish et al., 2013). It is estimated that annually as a consequence there are 66,000 infections with HBV, 16,000 with HCV, and 1000 with HIV worldwide (WHO, 2002).

As there is a marked underreporting of needle stick incidents acquired by health care workers in Zambia it is not possible to develop interventions because the available evidence shows that the under-reporting rate after a needle stick injury is low. Considering the high prevalence of NSIs and SIIs and their important outcomes, researchers have emphasized the importance of reducing these injuries through recognizing the related risk factors (Rampal et al., 2010; Cho et al., 2013). While this is the case, research in Zambia has not looked at risks. To the best of this researcher’s knowledge, no study has profiled KAP and different risk factors correlated with needle stick injury among health care workers in Zambia. Given this problem, the aim of the study was to profile the epidemiology and different determinants of needle stick injury among health care workers at St. Pauls Mission Hospital which could be used to develop/foster needle stick infection control measures.

**Research design**

A quantitative cross-sectional descriptive study design was adopted for this study. This was carried out in rural district setting called Nchelenge in the Luapula Province in Zambia. The hospital has a Health Worker workforce totalling 670. Yamane sampling formula below will be used to determine the sample size. The sampling error will be set at 5% precision.

\[
n = \frac{N}{1 + N(e)^2}
\]

Where \( n \) is the sample size, \( N \) is the population size, and \( e \) is the level of precision (\( z \) score 0.05). All participants were volunteers and signed a written informed consent statement prior to taking part in the study. The total number of staff who were should have been approached for the study who satisfied the inclusion criteria was 169. A sample of 143 nurses instead was enlisted in this study from an expected sample size. The response rate of 85% was high and acceptable.

The researcher drafted a questionnaire on needle stick injuries and was piloted it among 10 nurses within the hospital and the study outcomes were not included in this study. Their comments were used to design the final version of interview schema and the questionnaire.

Before data was collected, ethical approval was received from the Research Ethics Committee of the University of Zambia (See ethical approval letter). Permission to conduct the study was sought from the local Executive Director of the Hospital. All respondents consented before participating in the study.

Staff were briefed on the study by way of a brochure at least one month before the study. Informed consent will be obtained from all of the potential participants. The study employed an anonymous, self-reporting questionnaire structured specifically to obtain quantitative data to identify risk factors and other attributes associated with NSIs. The questionnaire was constructed based on the literature. Questions relating to awareness, attitudes and practices regarding preventive measures will also be included.

**Data analysis**

The SPSS software version 20 was used for statistical analysis to generate univariate variables which appear as measures of central tendencies and dispersions.

**Research findings**

The results of this study are from a survey that was conducted from May to June 2019. Just over half of the health worker’s \( n = 86 \) (60.1%) had worked for over eight years implying that the sample was composed of health care workers (HCWs) with sufficient experience in infection control. Of the 143 HCWs, 64 (44.8%) were males and 79 (55.2%) were females and their mean age was 33.7 ± 7.5 years the oldest was 57 and the youngest was 19 years. As expected, majority of the HCWs who participated in this study were nurses 102 (71.3%), and then Clinical Officers \( n = 18 \) (12.6%). The least number
were doctors’ n = 3 (2.1%). Tables 1 and 2 show some socio-demographic characteristics of the studied HCWs by gender.

### Table 1. Demographic profile

<table>
<thead>
<tr>
<th>Social demographic Characteristic</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>64</td>
<td>44.8</td>
</tr>
<tr>
<td>Female</td>
<td>79</td>
<td>55.2</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctors</td>
<td>3</td>
<td>2.1</td>
</tr>
<tr>
<td>Nurse</td>
<td>102</td>
<td>71.3</td>
</tr>
<tr>
<td>Technicians</td>
<td>11</td>
<td>7.7</td>
</tr>
<tr>
<td>Attendants</td>
<td>9</td>
<td>6.3</td>
</tr>
<tr>
<td>Clinical officers</td>
<td>18</td>
<td>12.6</td>
</tr>
<tr>
<td><strong>Work Station</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient room/ward</td>
<td>51</td>
<td>35.7</td>
</tr>
<tr>
<td>Treatment/procedure room</td>
<td>14</td>
<td>9.8</td>
</tr>
<tr>
<td>Clinical laboratories</td>
<td>16</td>
<td>11.2</td>
</tr>
<tr>
<td>Mortuary/pathology</td>
<td>1</td>
<td>.7</td>
</tr>
<tr>
<td>Labour and delivery room</td>
<td>16</td>
<td>11.2</td>
</tr>
<tr>
<td>Emergency Dept.</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>Operating theatre/recovery</td>
<td>10</td>
<td>7.0</td>
</tr>
<tr>
<td>Outpatient clinic/office</td>
<td>29</td>
<td>20.3</td>
</tr>
<tr>
<td>Blood bank</td>
<td>4</td>
<td>2.8</td>
</tr>
</tbody>
</table>

### Incidence of NSI and action

From this sample, the incidence of NSI in the last ten years shows that injecting and venepuncture, appear to be problems worth noting (See Table 2).

### Table 2. Needle stick injury profile

<table>
<thead>
<tr>
<th>Source of Needle stick Injury</th>
<th>Frequency</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Suturing</td>
<td>12</td>
<td>8.4</td>
</tr>
<tr>
<td>Assisting a surgical procedure</td>
<td>8</td>
<td>5.6</td>
</tr>
<tr>
<td>Injecting</td>
<td>29</td>
<td>20.3</td>
</tr>
<tr>
<td>Passing needle</td>
<td>10</td>
<td>7.0</td>
</tr>
<tr>
<td>Recapping needle</td>
<td>12</td>
<td>8.4</td>
</tr>
<tr>
<td>Cleaning up</td>
<td>24</td>
<td>16.8</td>
</tr>
<tr>
<td>Venepuncture</td>
<td>13</td>
<td>9.1</td>
</tr>
<tr>
<td>Recapping a needle</td>
<td>9</td>
<td>6.3</td>
</tr>
<tr>
<td>Removing needle</td>
<td>14</td>
<td>9.8</td>
</tr>
<tr>
<td>Arterial puncture</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Throwing needle</td>
<td>8</td>
<td>5.6</td>
</tr>
</tbody>
</table>

In this sample, there were 139 episodes of NSIs in the last ten years – a mean occurrence of 11 per year (See Table 3).
Table 3. Needle stick incidence profile

<table>
<thead>
<tr>
<th>Incidence of Needle stick Injury per person</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Experienced an NSI once</td>
<td>106</td>
</tr>
<tr>
<td>Experienced an NSI three times</td>
<td>3</td>
</tr>
<tr>
<td>Experienced NSI four times</td>
<td>1</td>
</tr>
<tr>
<td>Not experienced NSI</td>
<td>33</td>
</tr>
</tbody>
</table>

Action taken following needle stick injury

Within the sample of those who had NSIs, there are more health workers who are proactive and take up preventive actions than those who do not (Table 4).

Table 4. Action taken following NSI

<table>
<thead>
<tr>
<th>Action taken following NSI</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>n</td>
</tr>
<tr>
<td>I washed the wound</td>
<td>98</td>
</tr>
<tr>
<td>I continued working</td>
<td>99</td>
</tr>
<tr>
<td>I consented to have my blood to be drawn for HIV and HBV test</td>
<td>98</td>
</tr>
<tr>
<td>I reported my needle stick matter to the infection committee</td>
<td>91</td>
</tr>
<tr>
<td>I got HBV and HIV vaccination/prophylaxis</td>
<td>100</td>
</tr>
<tr>
<td>I took some action as I thought it was infectious</td>
<td>102</td>
</tr>
<tr>
<td>I took action as I deemed the Incidence was important</td>
<td>96</td>
</tr>
<tr>
<td>I took action as I was worried about future consequences</td>
<td>95</td>
</tr>
<tr>
<td>I took action as the reporting process was not complicated to follow</td>
<td>104</td>
</tr>
<tr>
<td>I took action because I did not want to be embarrassed in future</td>
<td>103</td>
</tr>
<tr>
<td>I reported as I did know needle stick injuries were reportable</td>
<td>110</td>
</tr>
</tbody>
</table>

Infection control measures

At St Paul’s Mission Hospital, infection control measures appear not to be emphasised. There are more than half of respondents who indicated “No” than those who indicated “Yes” for the infection control prevention strategies. The least adhered to infection control strategy is the non-insistence of wearing of eye goggles when conducting minor or major surgery (See Table 5).
Determinants of needle stick injuries

When the health workers were asked to identify what the determinants of NSIs were; I wear gloves before touching anything wet – broken skin, mucous membranes, blood, body fluids, secretion, or excretion or before touching soiled instruments and other items.

1) I use barriers- Personal Protective Equipment (PPE) such as protective goggles, face mask and aprons if splashes or spills of blood or body fluids secretions or excretions are anticipated.

2) I have most of the times used safe work practices, such as bending needles, safely passing sharp instruments, and disposing sharps in a puncture proof container.

3) Lack of training at the workplace contributed to my getting pricked

4) Long working hours at the workplace contributed to my getting pricked

5) I find it inevitable to recap the needle

6) Lack of supplies: disposable syringes, safer needle devices, and sharps-disposal containers.

These are shown in Table 6 below.

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>*I wear gloves before touching anything wet – broken skin, mucous membranes, blood, body fluids, secretion, or excretion or before touching soiled instruments and other items.</td>
<td>119 24 0 0 0</td>
</tr>
<tr>
<td>*I use barriers- Personal Protective Equipment (PPE) such as protective goggles, face mask, and aprons if splashes or spills of blood or body fluids secretions or excretions are anticipated.</td>
<td>94 49 0 0 0</td>
</tr>
<tr>
<td>*I have most of the times used safe work practices, such as bending needles, safely passing sharp instruments, and disposing sharps in a puncture proof container.</td>
<td>100 43 0 0 0</td>
</tr>
<tr>
<td>*Lack of training at the workplace contributed to my getting pricked</td>
<td>32 42 13 36 20</td>
</tr>
<tr>
<td>*Long working hours at the workplace contributed to my getting pricked</td>
<td>39 28 11 45 20</td>
</tr>
<tr>
<td>I find it inevitable to recap the needle</td>
<td>48 13 21 31 30</td>
</tr>
<tr>
<td>Overuse of injections and unnecessary sharps</td>
<td>0 0 97 9 37</td>
</tr>
</tbody>
</table>

Table 5. Infection control measures

<table>
<thead>
<tr>
<th>NSI Infection control measures</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>In my work place there is training on infection prevention</td>
<td>49 34.3 94 65.7</td>
</tr>
<tr>
<td>In my work place there is insistence of wearing of eye goggles when conducting minor or major surgery</td>
<td>30 21.0 113 79.0</td>
</tr>
<tr>
<td>In my work place there is availability of enough hand washing facilities</td>
<td>71 49.7 72 50.3</td>
</tr>
<tr>
<td>In my work place there is presence of safety sign</td>
<td>52 36.4 91 63.6</td>
</tr>
<tr>
<td>In my work place there is presence of infection prevention committee</td>
<td>57 39.0 86 60.1</td>
</tr>
<tr>
<td>In my work place there is enough protective equipment against needle stick injuries</td>
<td>66 46.2 77 53.8</td>
</tr>
</tbody>
</table>
Discussion and conclusion

This cross-sectional study aimed at determining the incidence of needle stick injury cases among HCWs at ST. Pauls Mission Hospital. The present study addressed certain aspects of NSI in a busy rural mission hospital and derived some equivocal and some contrasting results.

In the last ten years, the incidence of NSIs was 139 episodes with an annual mean occurrence of 11 episodes per year. Considerably low proportions of each category of the health workers were susceptible to needle stick injuries though among them nurses were more at risk than all others. Within the sample of those who had NSIs, there are more health workers who are proactive and take up preventive actions than those who do not. Infection control measures appear not to be emphasised. There are more than half of respondents who indicated “No” than those who indicated “Yes” for the infection control prevention strategies. The least adhered to infection control strategy is the non-insistence of wearing of eye goggles when conducting minor or major surgery. The determinants of NSIs were; not wearing gloves before touching anything wet – broken skin, mucous membranes, blood, body fluids, secretion, or excretion or before touching soiled instruments and other items, not using barriers- Personal Protective Equipment (PPE) such as protective goggles, face mask and aprons if splashes or spills of blood or body fluids secretions or excretions are anticipated, lack of training at the workplace, long working hours and lack of supplies: disposable syringes, safer needle devices, and sharps-disposal containers. The researcher further has established that most departments do not have formal (separate) HIV post-exposure prophylaxis centres with proper guidelines.

Though the studied health workers who had needle stick injuries had post-exposure prophylaxis, most did not because the patients turned out to be HIV negative. There was however delay in initiating PEP perhaps because PEP was not accessible 24 hours.

These low figures of incidence may not be attributed to patient overload but perhaps a different work culture in the rural scenario. Several studies have shown high occurrence of NSI. The incidence of needle sticks injuries findings of this study (7%) are lower than the results of the study done in sub Saharan Africa (Fredrich et al., 2005) that recorded an incidence rate of 57% in the last the previous year. However, there are other studies where the incidence rate was lower than this study. A survey of British nurses by the Royal College of Nursing in 2006, reported that 9 in 10 nurses use needles or sharps, most report that there are procedures for dealing with sharps/needle stick injuries, and 7% of nurses had been injured by a sharp/needle in the previous12 months (Ball and Pike, 2006).

Published estimates of needle stick injury incidence within the United Kingdom are rather low but vary widely. For example, a Scottish study involving 132,000 survey participants reported an annual incidence of just 1.85 % (Elmiyeh et al., 2004) while a survey involving 279 doctors and nurses at an acute district general hospital in England indicated an annual incidence of 1.8% per HCW. In Germany, as in other countries, the reported annual incidence of needle stick injuries can vary widely; for example, one study found rates of 0.5% per HCW per year based on data in hospital surveillance systems compared with 4.1% based on a survey of HCWs (Elmiyeh et al., 2004).

The annual occurrence of needle stick injuries in France is estimated at 18,720 for nurses, a figure calculated by multiplying the number of nurses at risk (234,000) (IRDES, 2006; Saia et al., 2010) by the incidences reported per year per nurse 8% (Lamontagne et al. (2007). Alternatively, the national network Reseau d’Alerte d’Investigation et de Surveillance des Infections Nosocomiales estimated that 41,276 blood exposures occurred in France in 2004, 72% (29,719) of which were caused by needle stick injuries (Venier et al. 2007). That study also estimated that the annual incidence rates of blood and body fluid exposures via needle stick injuries were 5.8 per 100 hospital beds, 0.05 per full-time equivalent nurse, 0.02 per full-time equivalent physician, and 0.01 per full-time equivalent nurse’s aide.

| *Lack of supplies: disposable syringes, safer needle devices, and sharps-disposal containers | 33 | 20 | 43 | 8 | 39 |
| Inadequate or shortage of staffing | 4 | 5 | 11 | 45 | 78 |
| Lack of engineering controls such as safer needle devices | 9 | 15 | 13 | 40 | 66 |
| Passing instruments from hand to hand in the operating suite or during treatment or performing a task | 10 | 20 | 8 | 57 | 48 |
The Italian Occupational Risk Study on HIV (SIROH) is the main public surveillance program for occupational infections in Italy. The results of a SIROH-EPINet survey that documented 27,000 claims of occupational events in Italian indicated that nurses accounted for the greatest number of occupational exposures to needle stick injuries (57%), followed by auxiliary personnel (18%), training personnel (13%), and physicians (5%) (Puro et al., 2001). Based on data gathered from the SIROH-EPINet survey, the Assobiomedica estimated that, in Italy, 0.061 NIs occur per HCW each year. Given this incidence and the total number of HCWs at risk (463,000), the Ministry of Health estimated an annual occurrence of 28,200 NSIs in Italy. The annual incidence rates reported by SIROH-EPINet28 for needle stick injuries appear broadly consistent with results from a separate report that found an annual incidence of 8.4% for nurses and 2.8% for physicians. The EPINet in Spain reported a mean annual incidence of 11.8% needle stick injuries per 100 occupied beds using data collected from 64 hospitals between 1996 and 2000 (Trim and Elliott, 2003); thus, an alternative estimate suggests that 21,815 needle stick injuries occur in Spain annually.

Although it is generally felt that working in the healthcare sector is clean and without risk, healthcare staff and especially physicians and nurses who generally work very long hours are actually exposed to various occupational risks. Sharps and needle stick injuries are important problems for healthcare workers as they increase the risk of spread of infection. Certain clinical practices such as recapping needles were related more to the likelihood of being injured. This points to inadequate training of HCWs, or their refusal to follow correct procedures. Other studies have also condemned the practice of recapping needles and offered remedial measures (Joseph et al., 1999; Askarian and Malekmakan, 2006; Chacko and Isaac, 2007; Alam, 2002).

This study has shown a large number of health workers who reported that they have never had a needle stick injury been exposed to HIV risk conditions which is higher than the 2003 Italian study that indicated the overall occupational exposure to be 11.3, 11, 4.9, and 4.1%, in midwives, nurses, cleaners, and laboratory technicians, respectively (Bandolier, 2003). This difference might be due to the difference in the settings.

In contrary to this study, previous studies showed that considerable numbers of health workers were exposed to the risk of HIV. The study in Guy's and St Thomas's hospitals revealed 76% of junior doctors had experienced high risk of exposure to potentially infective material at some stage in their careers but only 18% had sought advice about PEP following potential exposures (Chen et al., 2003). This difference might be due to the presence of social desirability bias in the present study or doctors might have used universal precautions better than others. The later explanation also can be applied for the exposure of lesser proportion of the health workers to needle prick/cut by sharps in the current study than the finding documented in the study done in Nepal in 2003 (Gurubacharya et al., 2003). The quantitative and qualitative study revealed similar results on determinants of exposure of health workers to HIV risk conditions in their work place and were also supported by the result of the study done in Johannesburg University (Karstaedt and Pantanowit, 2001). Regarding delay or desire not to seek PEP seems to be common with most of the studies. Like the Nepal study finding most exposed health workers didn't use PEP (Martin and Makay, 2007). In this study, the major perceived reasons reported for not using PEP of HIV after exposure were almost similar with the findings of the studies done in Australia, Kenya and others that identified the reasons which discourage reporting of the risk of an HIV occupational exposure including being sure of the patient being HIV negative, uncertainty regarding the confidentiality of the results, being unaware that a protocol exists for reporting and dealing with occupational exposure, and lack of support and encouragement to report (Julian and Maggy, 2005; Martin and Makary, 2007).

Working long hours was also a significant predictor of the risk of needle stick injuries, and this study has not shown that it has been previously associated with recapping and poor compliance with precautions (Adegboye et al. 1994; Dejoy et al. 1995; Aiken et al. 1997; Grosch et al. 1999; Gershon et al. 2000), but it has not been linked directly to the occurrence of needle stick injuries. Working excessive hours can result in stress and emotional and physical exhaustion, which are likely to increase the chance of human error and contribute to a tendency towards risky behaviours, such as poor compliance with the precautions in general (Dejoy et al. 1995; Gershon et al. 1995; Aiken et al. 1997; Grosch et al. 1999;
Gershon et al., 2000). Long working hours is also an indicator of understaffing, a common phenomenon in developing countries (WHO, 2001; Ugandan Ministry of Health, Resource Centre 2003a, b).

**Limitations and strengths of this study**

Due to the obvious limitation of this study (cross-sectional study), doing further study, which is stronger in determining cause and effect relationship of the variables, is advisable. The study outcomes cannot be generalised to other institutions in Zambia with so much certainty. The questionnaire was answered anonymously, so that the participants could answer with no fear of being linked to their response, and this might have promoted the accuracy of the answers. Because of the voluntary participation into the study some degree of selection bias could not be considered as all those who had got needle stick injuries were eager to participate. The researcher was able to collect information on several potential risk factors and assess their relative contribution to the risk of getting a needle stick injury.

**Implications for policy (Recommendations)**

The findings indicate that nursing staff are a group should be targeted for educational programmes. Consideration also needs to be given to the unwanted effects of working long shifts, where tiredness may contribute to the number of needle stick injuries.

All health care workers should be able to access timely and competent advice following a needle stick injury, 24 hours a day, and seven days a week. The emotional impact on staff and their family members can never be underestimated and access to effective counselling support – post-incident, while awaiting test results, and for the duration of an anti-viral medication course – is also essential.

In order to have a proper database on these injuries, ST. Pauls Mission Hospital should also develop surveillance systems for needle-stick injuries among HCWs. Legal measures are also indicated to address compensation for HCWs who contact blood-borne pathogens as an occupational hazard. All these would require proper notification, documentation, and education of HCWs. There is also need for: proper training of workers, provision of equipment and clothing for personal protection, establishment of an effective occupational health program that includes PEP and medical surveillance. In ideal situation PEP should be commenced preferably one hour after exposure however up to 2 weeks after exposure one may still start and will still be beneficial. Timely post exposure prophylaxis to high risk body fluids is believed to reduce the risk of sero-conversion to HIV. The staffs showed a lot of reluctance to follow up the system set up for post exposure prophylaxis many once got exposed would either ignore or assume patient is safe or test the patient. This requires more education.

**Conclusion**

The study has shown that majority of health workers were exposed to needle stick injuries. There is much room for improvement in protecting the HCWs from NSI, which can be accomplished through a combination of comprehensive programmes, including stress on institutional behaviour and device related factors that contribute to the occurrence of these injuries, seeking alternatives to use of needles wherever possible, using newer devices with safety features, ensuring adequate training in safe use and disposal of needles, putting in place a culture of accident reporting, especially sharps-related, and following preventive practices like vaccinations for hepatitis B, as also stressed by several others.

Some institutions elsewhere, have a staff student health service facility in place, which maintains records, and registers the incidence of NSI and has protocols for management and follow-up of NSI cases. This is a dire necessity in all health care facilities even when they have a low rate of NSI.

In conclusion, NSIs were observed in all categories of HCWs. There is a scope for improvement in safety protocols. Preventive strategies have to be devised and reporting of NSI need to be made mandatory. Issues requiring attention include use of safety engineered devices (SED), recording and reporting of incidents, training of all HCWs in handling and disposal of sharps, establishing a staff student health service and inculcating a responsible attitude among HCWs. The solutions are easy ones as they do need substantial resources.
References


A Study of the Attitude of Nurses Toward Death and Dying in Federal Teaching Hospital Gombe in Gombe City, Nigeria.

Article by Hauwa Yusuf Dogo
RM, RN, B.sc, Texila American University, Nigeria
E-mail: hauwayusuf797@yahoo.com

Abstract

This study examined the attitude of nurses towards the care of dying patients at the federal teaching hospital Gombe, Nigeria, three research questions and one hypothesis were formulated in line with the objectives of the study. Research design adopted was the cross-sectional approach. Questionnaires and interviews were used to raise vital data. sample size of 75 nurses was selected for the study using stratified random sampling method. The data were analyzed using the statistical package for social science. A p-value of 0.05 levels was used at one degree of freedom to test the hypothesis. Demographic and work environment factors such as emotional stress, inter and intra-professional factors influences nurses’ attitudes towards caring for patients that are dying as 50 (66.7%) of the respondents strongly agreed that favorable conditions amongst Nurses and inter-professional teamwork with other healthcare workers is needed to break negative cycle of job dissatisfaction, 18 (24) agreed, 7 (9.3) strongly disagreed to this fact. Nurses’ years of experience has influence of their attitude towards dying patients as 40 (53.3%) of respondents strongly agreed that they would not want to be assigned to care for a dying person as younger nurses, 70 (93.3%) of the respondents were of the view that they would feel like running away when a patient dies during their first night shift as younger nurses. findings revealed that nurses’ age and the level of knowledge through training in critical care nursing has influence on their attitude towards caring for a dying patient.

Operational definitions

Attitude: This refers to the psychological pattern of mental views that produce a tendency to respond in certain ways.
Nurse: A person trained to care for the sick or infirm especially in the hospital or at home.
Nurses: This refers to the nurses who are professional trained and license to render nursing care to patients.
Nursing: Nursing is a profession within the health care sector focused on the care of individual, families, and community.
Dying patients: Patient who are about to die under the care of a nurse.
Attitude toward the dying: this refers to the psychological pattern of mental views that produces the tendency to respond in certain ways when caring for a dying patient. This pattern of mental views, established by cumulative prior perceptions and experiences, include cognitive, affective and behavioral components.

Introduction

Dying is a part end of life (EOL) cycle, but advancements in medical technology have prolonged the dying process to the point of robbing the patient of dignity and a sense of well-being (Seymour, 2007). However, Dame, (2008) has placed great emphasis on the end of life agenda and the end of life care program, initially directed at the primary care, is gradually transferring to secondary care. End of life care has received an increased recognition in recent years as a critical opportunity to improve health care quality. It has been defined as "the active, total care of patients whose disease is not responsive to curative treatment (Truog, Campbell & Curtis, 2008).

Nursing care at end of life should be rooted in values these include providing safe, compassionate, competent and ethical care; promoting health & well-being; promoting & respecting informed decision making; preserving dignity; maintaining & respecting privacy and confidentially; and being
accountable. When people in their care are dying, nurses foster comfort, alleviate suffering, advocate for adequate relief of discomfort and pain and support a dignified & peaceful death. This includes support for the family during and following death, (Canadian Nurse Association (CNA), 2008). Therefore, it is important to identifying the nurses' knowledge, and practices to improve the end of life care.

Nurses who are working in critical care units have traditionally received little education and training in care of dying patients and the patients’ families, even though death often occurs in critical care units. However, education is not the only need of critical care nurses, other factors that may be as important for providing end of life care include a work environment with strong communication and collaboration between nurses and physicians, use of palliative care services, ready availability of ethics consultations, and adequate support of patients, patients’ families, and staff. (Hansen & Goodell, 2009). Carper (1978), stated that the more skilled that nurses become in perceiving and empathizing with patients, the more knowledge and understanding will be gained and the care provided to individuals will be enhanced.

Nurses are in a pivotal position to improve care for dying patients and their families by challenging current end of life practices in their settings. However, nurses report a lack of preparation in dealing with end of life care in the critical care environment (Zomorodi & Lynn, 2010). Suffering, dying with dignity and respecting patient wishes are timely issues of critical interest in the moral arena of nursing and nurses have to identify and explore the patients' needs in the end of life period to provide high quality end of life care for criticality ill patient in critical care unit; this information may improve their level of knowledge and practices (Tilden, 2006).

The researcher’s personal experience has borne witness to the perception that Nurses’ attitudes towards caring for patients that are terminally ill and dying are influenced by working with these patients on a daily basis. Nurses’ attitudes may be positively or negatively influenced by demographic factors (for example age and years of experience in oncology), work satisfaction and the degree of support in the working environment. If one considers that the role of caring and compassionate nursing staff has consistently been recognized as contributing to improvements in functional adjustment and quality of life of the patient then, (Kenny et al., 2007:664), the need for research in this field is clear. It is against this background that the researcher wishes to conduct a study on the attitude of nurses towards death and dying in tertiary health institution in Gombe city, Nigeria.

Materials and methods

Study area

The study will be limited to only federal teaching hospital Gombe. The federal teaching hospital (FTHG) is located within the city of Gombe, the capital of Gombe state. Gombe state is located within the Sahel savannah belt in the northeastern geopolitical zone of the federal republic of Nigeria. This tertiary health institution has over (300) bed capacity and was established in 1996 by the federal government as a referral center in the northeastern geopolitical zone of the country. There are (11) eleven main wards in the hospital including the amenity ward. Other critical care units include the intensive care unit and the dialysis units. These wards and specialist units are managed by trained nurses who constitute the majority of health staff in the hospital.

Population of the study

The target population for this study included all the nurses, caring for patients that are dying in FTHG. All current nursing staff that had worked for at least one year in these selected FTHG wards comprised the convenience sample.

Research design

Research design used in this study was a cross sectional approach. It uses a survey research technique, in which questionnaires and interviews are used to raise vital data. The study is a cross sectional investigation. According to Hakim (2000) a cross sectional study involves the collection of data at one point in time from samples of different sub-groups. The choice of the design is informed
by the fact that nurses are with varying years of experience and age in the profession. The study involved the federal teaching hospital found in Gombe State.

**Sample and sampling technique**

Samples of seventy-five (75) nurses were selected using the stratified random sampling. This is because the sample is more of the fact that nurses are with varying years of experience and age in the profession, also demographic data including age, previous experience working with death and dying patients and nurses vary.

**Sample selection criteria**

Nurses, who had worked for at least one year in the hospital and who had been directly involved with the caring of patients that are dying, were included in this study. Agency staff was excluded from the study, because they did not work on a permanent basis in the hospital settings.

**Instrument of data collection**

The study involves nurses of different ages and years of experience working in the federal teaching hospital Gombe. Nurses Attitude towards Death and Dying Instrument (NATDAD) were used. Demographic data including age, previous experience working with death and dying patients will be used. The NATDAD attitude towards death and dying is a 12-item tool using a 4-point Likert Scale to indicate respondents’ viewpoint.

**Data collection procedure**

The information leaflet, consent form and a questionnaire were handed out to each participant, whilst a time-frame of one week was given in which participants had to complete the questionnaire. After completion, each participant sent the questionnaire provided by the researcher. After one week the researcher collected the questionnaires.

**Data analysis**

Data sorting was done as respondents turned in their questionnaire. This ensured that respondents attempted every item. The data were analyzed using the statistical package for social science (SPSS). The univariate analyses described the background characteristics of the respondents and the study objectives. A p-value of 0.05 levels was used as the cut off value for statistical significance at one degree of freedom. Results were presented using frequency tables and in percentages.

**Results**

**Results from table 1** shows that 40 (53.3%) of respondents strongly agreed that culture where individuals live or work contains norms of behavior that people adhere to in relation to their response to death, 25 (33.3) agreed, 8 (10.7) strongly disagreed while 2 (2.7%) disagreed.

**Results from table 2** indicates that 40 (53.3%) of respondents strongly agreed that they would not want to be assigned to care for a dying person as younger nurses, 20 (26.7) agreed, 10 (13.3) strongly disagreed while 5 (6.7%) disagreed. 30 (40%) strongly agreed that the length of time required to give nursing care to a dying person is more frustrating than the time spent on serving medications, 25 (33.3) agreed, 15 (20) strongly disagreed while 5 (6.7%) disagreed. 50 (66.7%) strongly agreed that frequent exposure to care of a dying patient reduce death anxiety in nurses, 23 (30.7) agreed, while 2 (2.6) strongly disagreed. 70 (93.3%) of the respondents were of the view that they would feel like running away when a patient dies during their first night shift as younger nurses while 5(6.7%) disagreed with this statement.

**Results from table 3** indicates that 45 (60%) of respondents hoped that the person they are caring for dies when more elderly nurses are on duty, 15 (20) agreed, 10 (13.3) strongly disagreed while 5 (6.7%) disagreed with the statement. 59 (78.7%) agreed that older nurses have special competence caring for geriatric patients, 10 (13.3) agreed while 6 (8%) strongly disagreed. 47 (62.7%) of the respondents strongly agreed that young nurses develop death anxiety when posted to oncology units, 13 (17.3) agreed, 10 (13.3) strongly disagreed while 2 (2.6%) disagreed. All of the 75 (100%)
respondents agreed that the availability of coping resources and death education would contribute to more positive attitudes towards caring for patients that are dying.

**Discussion of findings**

**Demographic and work environment factors on nurses’ attitudes towards caring for patients that are dying**

In an attempt to find out if demographic and work environment factors influenced the attitude of nurses towards caring for patients that are dying, table 5.1 revealed that 40 (53.3%) of respondents strongly agreed that culture where individuals live or work contains norms of behaviour that people adhere to in relation to their response to death, 25 (33.3) agreed, 8 (10.7) strongly disagreed while 2 (2.7%) disagreed. 75 (100%) of the respondents also strongly agreed that the degree of job satisfaction that individuals experience has an influence on their level of functioning, devotion at work and long-term continuance in the specific field of work. 50 (66.7%) of the respondents strongly agreed that creating favorable conditions for intra-professional teamwork amongst Nurses and inter-professional teamwork with other health care workers is needed in order to break negative cycle of job dissatisfaction, 18 (24) agreed, while 7 (9.3) strongly disagreed to this fact. More so, 56 (74.7%) of respondents strongly agreed that emotional distress related to caring for patients that are dying, as well as the ethical issues associated with death and dying, are major sources of job dissatisfaction, 10 (13.3) agreed, 5 (6.7) strongly disagreed while 4 (5.3%) disagreed. This implies that demographic and work environment factors such as emotional stress, inter – professional and intra- professional factors have an influence on nurses’ attitudes towards caring for patients that are dying. This finding is consistent with Biton and Tabak (2002), who stated that the degree of job satisfaction that individuals experience has an influence on their level of functioning, devotion at work and long-term continuance in the specific field of work. Job satisfaction is also related to one’s emotional interpretation of work experiences. Thus, creating favorable conditions for intra-professional teamwork amongst Nurses and inter-professional teamwork with other health care workers is needed in order to break negative cycle of job dissatisfaction.

**Years of experience related to nurses’ attitude towards death and dying**

Findings from table 5.2 of the study revealed that 40 (53.3%) of respondents strongly agreed that they would not want to be assigned to care for a dying person as younger nurses, 20 (26.7) agreed, 10 (13.3) strongly disagreed while 5 (6.7%) disagreed. 30 (40%) strongly agreed that the length of time required to give nursing care to a dying person is more frustrating than the time spent on serving medications, 25 (33.3) agreed, 15 (20) strongly disagreed while 5 (6.7%) disagreed. 50 (66.7%) strongly agreed that frequent exposure to care of a dying patient reduce death anxiety in nurses, 23 (30.7) agreed, while 2 (2.6) strongly disagreed. 70 (93.3%) of the respondents were of the view that they would feel like running away when a patient dies during their first night shift as younger nurses while 5(6.7%) disagreed with this statement. This finding implies that nurses’ years of experience has an influence on their attitude towards caring for a dying patient. This finding is in compliance with that of Nwana (2007) who remarked in his studies that certain variables – age and working experience can exert some influence on the attitudes of care providers towards death and dying. Also, Rooda et al. (1999) found that nurses who cared for a greater percentage of terminally ill patients had more positive attitudes toward caring for dying patients than nurses who cared for a lesser percentage of terminally ill patients.

**Association between nurses’ age and attitude towards death and dying**

Findings from table 5.3 showed that 45 (60%) of respondents hoped that the person they are caring for dies when more elderly nurses are on duty, 15 (20) agreed, 10 (13.3) strongly disagreed while 5 (6.7%) disagreed with the statement. 59 (78.7%) agreed that older nurses have special competence caring for geriatric patients, 10 (13.3) agreed while 6 (8%) strongly disagreed. 47 (62.7%) of the respondents strongly agreed that young nurses develop death anxiety when posted to oncology units, 13 (17.3) agreed, 10 (13.3) strongly disagreed while 2 (2.6%) disagreed. All of the 75 (100%) respondents agreed that the availability of coping resources and death education would contribute to
more positive attitudes towards caring for patients that are dying. Thus, nurses’ age and the availability of coping resources and death education would contribute to more positive attitudes towards caring for patients that are dying. This finding is in agreement with that of Sorribes, and Ezquerro (2001) in their study in Catalonia who found that older nurses, nurses working on the day shift, and nurses having 17–21 years of experience reported more favorable attitudes toward caring for dying patients than younger nurses, nurses on afternoon and night shifts, and nurses with less experience.

**Association between the levels of knowledge acquired and nurse’s attitude towards the care of dying patients.**

The findings on the association between the level of knowledge acquired and nurse’s attitude towards the care of dying patients at 0.05 level of significance and degree of freedom (df) of 1, revealed that there is a significant relationship between the level of knowledge acquired and the attitude of nurses towards the care of dying patients. Findings from this study support Benner’s (1984) proposition that practical knowledge learned from professional experience may have influenced how nurses care for patients. Also, Carper (1978), postulated that the more skilled that nurses become in perceiving and empathizing with patients, the more knowledge and understanding will be gained and the care provided to individuals will be enhanced. Thus, there is need for nurses to receive special training in critical care and end of life issues as to adequately prepare to render holistic care to the dying patient.

From the above discussion on the research questions and hypothesis, it can be deduced that demographic, work environment factors, age of the nurse, years of experience of nursing staff and the level of training or knowledge acquired are all factors that could influence the attitude of nurses towards the care of dying patients.

**Conclusion**

This study examined the attitude of nurses towards the care of dying patients at the federal teaching hospital Gombe north east Nigeria. The researcher arrived at the following conclusions after analysis of the collected data based on the research objectives.

Findings revealed demographic and work environment factors such as emotional stress, inter – professional and intra- professional factors have an influence on nurses’ attitudes towards caring for patients that are dying. Further findings revealed that nurses’ years of experience, age and the level of knowledge acquired through training in critical care nursing all has influence on their attitude towards caring for a dying patient.

**Figures and tables**

<table>
<thead>
<tr>
<th>Items</th>
<th>SA (n)</th>
<th>A (n)</th>
<th>SD (n)</th>
<th>D (n)</th>
<th>Total</th>
<th>Percentage (%)</th>
</tr>
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<tbody>
<tr>
<td>Culture where individuals live or work contains norms of behavior that people adhere to in relation to their response to death</td>
<td>40 (53.3%)</td>
<td>25 (33.3%)</td>
<td>8 (10.7%)</td>
<td>2 (2.7%)</td>
<td>75</td>
<td>100</td>
</tr>
<tr>
<td>The degree of job satisfaction that individuals experience has an influence on their level of functioning, devotion at work and long-term continuance in the specific field of work.</td>
<td>75 (100%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>75</td>
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</table>
Creating favorable conditions for intra-professional teamwork amongst nurses and inter-professional teamwork with other health care workers is needed in order to break negative cycle of job dissatisfaction

<table>
<thead>
<tr>
<th>Emotional distress related to caring for patients that are dying, as well as the ethical issues associated with death and dying, are major sources of job dissatisfaction</th>
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<tr>
<td>56 (74.7%)</td>
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Table 2

<table>
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<th>Items</th>
<th>SA  (n)</th>
<th>A  (n)</th>
<th>SD  (n)</th>
<th>D  (n)</th>
<th>Total</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would not want to be assigned to care for a dying person as a younger nurse.</td>
<td>40 (53.3)</td>
<td>20 (26.7)</td>
<td>10 (13.3)</td>
<td>5 (6.7)</td>
<td>75</td>
<td>100</td>
</tr>
<tr>
<td>The length of time required to give nursing care to a dying person is more frustrating than the time spent on serving medications.</td>
<td>30 (40)</td>
<td>25 (33.3)</td>
<td>15 (20)</td>
<td>5 (6.7)</td>
<td>75</td>
<td>100</td>
</tr>
<tr>
<td>Frequent exposure to care of a dying patient reduce death anxiety in nurses</td>
<td>50 (66.7)</td>
<td>23 (30.7)</td>
<td>2 (2.6)</td>
<td>0 (0)</td>
<td>75</td>
<td>100</td>
</tr>
<tr>
<td>I would feel like running away when a patient dies during my first night shift as a younger nurse.</td>
<td>70 (93.3)</td>
<td>0 (0)</td>
<td>5 (6.7)</td>
<td>0 (0)</td>
<td>75</td>
<td>100</td>
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Table 3

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<th>Items</th>
<th>SA  (n)</th>
<th>A  (n)</th>
<th>SD  (n)</th>
<th>D  (n)</th>
<th>Total</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Would Hope the Person I Am Caring for Dies When More elderly Nurses Are on Duty.</td>
<td>45 (60%)</td>
<td>15 (20)</td>
<td>10 (13.3%)</td>
<td>5 (6.7)</td>
<td>75</td>
<td>100</td>
</tr>
<tr>
<td>Older Nurses Have Special Competence Caring for Geriatric Patients</td>
<td>59 (78.7%)</td>
<td>10 (13.3)</td>
<td>6 (8%)</td>
<td>0 (0)</td>
<td>75</td>
<td>100</td>
</tr>
<tr>
<td>Young Nurses Develop Death Anxiety When Posted to Oncology Units</td>
<td>47 (62.7%)</td>
<td>13 (17.3)</td>
<td>10 (13.3%)</td>
<td>2 (2.6)</td>
<td>75</td>
<td>100</td>
</tr>
<tr>
<td>Availability of Coping Resources and Death Education Would Contribute to More Positive Attitudes Towards Caring for Patients That Are Dying</td>
<td>75 (100)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>75</td>
<td>100</td>
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Table 4. Opinions of trained and non-trained nurses

<table>
<thead>
<tr>
<th></th>
<th>Specially trained</th>
<th>Not trained</th>
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<tr>
<td>Yes</td>
<td>22.5</td>
<td>24</td>
</tr>
<tr>
<td>No</td>
<td>15</td>
<td>13.5</td>
</tr>
<tr>
<td>Total</td>
<td>37.5</td>
<td>37.5</td>
</tr>
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</table>

Level of significance 0.05, df 1, calculated X² = 0.1

References

Acceptance of Third-Party Reproduction Technology: Perception of Nurses in Osun State

Article by Victoria Adebowale¹, Opeyemi Adewale², Johnson komolafe³, Monisayo Komolafe⁴
¹Lautech Teaching Hospital, Osogbo, Osun State
²Ayomide Women’s Health Specialist Hospital and IVF Centre, Osogbo, Osun State
E-mail: monisayokomolafe@gmail.com⁴, komosayo@gmail.com³

Abstract

Background: Assisted reproductive techniques are becoming increasingly available in Nigeria for infertile couples. Majority of the couples presenting in many fertility clinics are women with advanced age, some of the men also have severe male factor not amenable to in vitro fertilization, necessitating use of donor gametes in the treatment.

Objective: Nurses play significant roles in management of medical conditions worldwide inclusive of Infertility. The study set out to determine knowledge, perception and acceptability of third-party reproduction among Nurses working in Osun State.

Methodology: A Cross sectional study. 130 Self-administered questionnaires were distributed among nurses from different cities and levels of hospitals who gathered for the annual mandatory update course organised by Nursing and Midwifery council. Questionnaire consisted of eighteen stem questions divided into four sections testing knowledge, perception and acceptability of third-party reproduction.

Results: Respondents have overall good knowledge about third party reproduction (63.99%), did poorly in only four out of the eighteen stem questions. The respondents consider the products of conception from egg donation to belong to the couples rather than the donors who assisted in one form or the other.

Discussion: The generalist nurse possesses basic knowledge about third party reproduction. Few misconceptions concerning its scope and indications can be corrected by Fertility Nurse Counsellors in fertility clinics.

Conclusion: Nurses in Osun State have good knowledge about third party reproduction.

Keywords: infertility, donor gametes, In Vitro Fertilization, Third party reproduction.

Abbreviations

ART : Assisted Reproductive Technology
TPR : Third party reproduction
ICSI : Intracytoplasmic sperm injection
IUI : Intra-uterine insemination
IVF : Invitro Fertilization
LGBT : Lesbian, Gay, Bisexual, Transgender

Introduction

The phrase “third-party reproduction” or donor assisted reproduction refers to involving someone other than the individual or couple that plans to raise the child (intended parent[s]) in the process of reproduction ¹.

This includes using donated eggs, sperms, or embryos, gestational-carrier arrangements (in which the pregnancy is carried by someone other than the intended parents).

Many women requesting fertility consultations in ART clinics in Nigeria are menopausal while significant amount of men have severe male factor not amenable to IVF/ICSI.
Indications for TPR include but not limited to severe male factor infertility, Premature ovarian failure, Menopause and Advanced maternal age, Undesirable sex-linked genetic disorders, Repetitive fertilization or pregnancy failure, Incapacitating medical conditions, Single women/ LGBT.

In 1984, researchers in Australia reported that the first recipient of a successful OD through IVF was a 25-year-old woman with premature ovarian failure.2

Studies have shown that children conceived through third party reproduction are doing well psychologically and developmentally and do not appear to be adversely affected by the lack of a genetic or gestational link to the intended parent.3,4

The first recorded use of donor sperm in a medical setting occurred in the USA in 1884.5

The use of donor sperm in assisted conception procedures is an important treatment option in cases of severe male factor infertility or where the male partner has a serious inheritable genetic condition that is not amenable to preimplantation genetic diagnosis or where this is ethnically unacceptable.

Open documentation of use donor semen in male factor infertility treatment started in 1945.6

Egg donation- The Monash IVF team achieved the first pregnancy in a woman without ovaries by using donor eggs in1983.7

Acceptance and perception of recipients and society at large on TPR varies based on culture, religion, educational background.

Many would-be TPR users would seek information on safety issues from health workers

**Objective of study**

The study set out to determine Knowledge, Perception and Acceptability of Third-Party Reproduction (TPR) among Nurses working in Osun State.

**Methodology**

A cross sectional study with the use of self-administered questionnaire given to nurses during 2017 mandatory update course (MCPDP) Osun state Nurses (NANNM) week.

One hundred and thirty questionnaires were administered to all consenting participants. (Questionnaire validated with pre-testing among ten nurses of female medical ward of Lautech Teaching Hospital, Osogbo.

Questionnaire consisted of thirty-one stem questions divided into four sections testing Knowledge, Perception and Acceptability of TPR.

Grading of Knowledge used: 80-100% Excellent; 60-79 Good; 40-59 Fair; <40 Poor.

Four-stem questions on acceptability of TPR were weighted and score of or more than 50% of total score was considered positive attitude.

Analysis of data was done with SPSS version 23.

**Research population**

One hundred and thirty Self-administered questionnaires were distributed among nurses from different cities and levels of hospitals who gathered for the annual mandatory update course organised by Nursing & Midwifery council at National Association of Nigerian Nurses and Midwives house, Osogbo.

**Research setting**

A private fertility specialist hospital ‘AyomideWomens’ health IVF center and fertility hospital. The hospital is located in Osogbo the state capital of Osun state. This hospital major mainly in various aspects of fertility care and investigations.

The hospital has three main theatres first occupying the ground floor of the hospital is the laparoscopy and hysteroscopy theatre where closed surgeries and diagnostic laparoscopy is carried out.

The second theatre is the IVF theatre where follicular aspiration is done for IVF treatments. Attached to the IVF theatre is the andrology laboratory where the embryologist work on the aspirated eggs and semen preparation is carried. The third theatre is where various obstetrics and gynecological
open surgeries such as caesarian section, myomectomy, subtotal abdominal hysterectomy, Total abdominal hysterectomy, vaginal hysterectomy, adhesiolysis for intrauterine and pelvic adhesion.

Other investigations and procedures include Hormonal assay, follicular tracking, abdominal and transvaginal scans, intra uterine insemination-IUI. Ante natal care is rendered to pregnant women on Mondays while Gynecological clinics holds on Wednesdays and Fridays of every week.

The hospital is covered by a consultant Obstetrician and gynecologist who is also a fertility specialist.

Other doctors are a senior medical officer and two medical officers. The hospital has six Registered Nurses and midwives, three with BNSc.

The hospital has five private rooms, four bedded post-natal ward, four bedded post embryo transfer wards, a labour ward, one neonatal ward with two phototherapy kits. All resuscitative measures such as multi parameter monitor, 100percent oxygen, suctioning machine etc. are always available to meet clients need. The hospital has recorded several successful IVF pregnancies with deliveries of live infants.

The hospital has two certified embryologists and two trainees. There are four ward orderlies and two security men.

**Research sampling and sampling technique**

All consenting participants at the 2017 mandatory update course (MCPDP) Osun state Nurses (NANNM) week were included by convenience sampling.

**Method of data collection**

A Cross sectional study. One hundred and thirty Self-administered questionnaires were distributed among nurses from different cities and levels of hospitals who gathered for the annual mandatory update course organised by Nursing & Midwifery council at National Association of Nigerian Nurses and Midwives house, Osogbo. Questionnaire consisted of eighteen stem questions divided into four sections testing knowledge, perception and acceptability of third-party reproduction.108 questionnaires were duly filled and returned.

**Method of data analysis**

The retrieved data were entered into SPSS version 23 version. Descriptive analysis using frequency to summarize socio demographic data, knowledge and attitude levels, cross tabulation was used to explore association between sociodemographic data and level of knowledge and attitude of the nurses in Osun state to third party reproduction.

**Ethical consideration**

The Ethical committee of Ayomide Women’s Health Specialist Hospital and the local organizers of 2017 mandatory update course (MCPDP) Osun state Nurses (NANNM) week gave permission for the administration of the questionnaires to the participating nurses.

The participants were approached individually for permission, filling the questionnaire was taken as evidence of consent.

**Results**

From the socio demographic data 68.6 % of respondent were aged between 30 to 49 while one of every five respondents were age 50 or more. There were 96.3% of female and only 3.7%. We also have 92.5% that were married and 4.7% single.

*(Table I)* All the participants had tertiary level of education 51.4% of respondents were junior cadres (NOII, NOI, SNO) of nurses while the rest were in the senior cadre. Over 90% of respondents have been practising nursing for five years or more and about 60% of respondents possessed BNSc degree in Nursing.

Knowledge analysis- The respondents answered correctly questions related to knowledge about third party reproduction on the average of 63.99% (good knowledge). Of the 18 stem questions, respondents had poor knowledge in four as follows.
1) Oligozoospermia is an indication for third party reproduction (11.1% correct answers),
2) Bilateral tubal blockage is an indication for TPR (13% correct answers),
3) Intrauterine insemination of washed husband semen is a form of TPR (25% correct answer),
4) TPR could be achieved using timed intercourse (25.9% correct answer).

Attitude and Practice of TPR- The respondents agree that donor of human gametes should be
screened regularly and should be in the age range of 18 to 30 years. However, the respondents
(82.4%) preferred that gametes donors be rewarded adequately rather than being given inconvenience
allowance. Over a third of respondent said no to inconvenience allowance. Fifty percent of respondent
do not know if TPR is acceptable in Islam while a quarter of them also do not know if TPR was
acceptable to Christianity.

The respondents consider the products of conception from TPR to belong to the couples rather the
donors who assisted in one form or the other. (Fig 2).

Almost half of the respondents think that the babies from TPR only resemble the genetic parents
and also think that egg donors are at higher risk than semen donors. Majority (63%) think that embryo
adoption is foreign to our culture.

Cross tabulation analysis- Women aged 50 or more were less likely to miss the four stem questions
missed by majority of respondents ($X^2$= 40.676, $p=0.000$). Cadre in Nursing profession whether
Junior or Senior cadre did not affect tendency to miss the four stem questions.

Discussion

The generalist nurse possesses basic knowledge about third party reproduction to help in provision
of basic information for couples who may require it in our society. Few misconceptions concerning its
scope and indications can be corrected by Fertility Nurse Counsellors in fertility clinics.

Our findings are similar to that of Obioha et al⁸ who found good knowledge of IVF among nursing
staff of NAUTH, Nnewi.

Karin Hammarberg et al⁹, 2016 said as experts in preventive care, nurses working in primary health
care are well placed to promote awareness about factors that influence fertility and reproductive life
planning to help people achieve their reproductive goals. Few misconceptions concerning scope of
and indications for TPR can be corrected by Fertility Nurse counsellors in ART clinics

Conclusion

Nurses in Osun State have good knowledge about third party reproduction, they accept gametes
donation as part of treatment but think that embryo adoption is foreign to our culture.

They would want gametes donors properly rewarded for their services rather than inconvenience
allowance

Recommendation

There should be training and retraining of Nurses in conferences, seminars and workshops to
improve their knowledge on current trend in Assisted Reproduction Technology to be able to stand as
educators to those who may need Assisted Reproduction Technology to be able to lead the people
aright in their decision.

The health sector should create more awareness on the possibility of third party Assisted
Reproduction Technology, so that they can take advantage of it.

There should be rules and legislations on Assisted Reproduction Technology so that the healthcare
sectors will be guided in the kind of care given and their practices.
Figures and table

**Figure 1.** Years of practice post degree in nursing: 59.8% of respondents had BNSc nursing

**Figure 2.** Attitude of respondents to TPR
Table 1. Sociodemographic data

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<td>31 - 40</td>
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<tr>
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<td><strong>Total</strong></td>
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[15]. Kilda Road, Melbourne, Victoria, Australia karin.hammarberg@monash.edu Australian journal of advanced nursing Volume 34 Issue 1.
Assess the Knowledge of Primi Post Natal Mothers Regarding Perineal Hygiene after Delivery in Selected Hospital Odisha

Article by Mousumi Pradhan
Assistant Professor, DRIEMS School and College of Nursing, Utkal University, Odisha
E-mail: mousumi18pradhan@gmail.com

Abstract

Life everywhere begins with women. Women as one half of the population have a tremendous role to play in the dynamic process of social change. She has repeated pregnancies and her circumstances are disadvantaged where the basic amenities are not within her Economical and social needs. There is water shortage which depletes her access to promote hygiene measures wearing clean cloths, perineal care during the puerperium. The second most common direct cause is infection, which is responsible for late postpartum deaths so perineal hygiene has most significant role among post-natal mothers. A descriptive design with a non-experimental approach as considered appropriate for the present study. A structured interview schedule was structured to assess the knowledge of primi postnatal mothers regarding perineal hygiene after delivery. The data was analysed by calculating Mean and standard deviation was used to identify the Knowledge of primi postnatal mothers. The Chi-square test was to find out association between knowledge of primi postnatal mothers and selected demographic variables & level of significance was set at 5% level. The finding of the study Maximum 53% of mothers got Poor score (21%-40%) and minimum 0% of mothers obtained Good score (61%-80%),47% of mothers obtained Average score (21%-40%) and not even single mother score Very Poor (0%- 20%) and Very Good (81% - 100%). The conclusion of the study knowledge of primi postnatal mothers needs to be updated and improved related to health services.

Keywords: Assess, Knowledge, Primi Postnatal Mothers, Perineal Hygiene.

Introduction

Life everywhere begins with women. Women as one half of the population have a tremendous role to play in the dynamic process of social change. Bhore committee (1946) pointed out that an Indian woman must have a better access to health facilities with the advent of the need of the health for all by 2000 AD. Many diseases can be combated, pregnancies safer with lesser morbidity. The most common cause of maternal death is severe bleeding. Postpartum bleeding can kill a healthy woman within 2 hours, if she is not appropriately attended. The second most common direct cause is infection, responsible for late postpartum deaths. The common disorders for which postpartum women sought tertiary health care were puerperal sepsis, secondary postpartum hemorrhage, and postpartum eclampsia. Most common causes of sepsis were infected episiotomies at health care facilities where deliveries took place or infected vagina/ perineal tears in home deliveries. Secondary postpartum hemorrhage in some cases was from perineal and or vaginal tears and in others from retained placental pieces. The maternal mortality ratio in India is 407 per 100,000 live birth. The major causes of these deaths have been identified as hemorrhage, toxemia, anemia, obstructed labour, puerperal sepsis and unsafe abortion. According to national centre for health statistics, there were almost 6.4 million normal deliveries in 2005 among woman of all ages. The number of normal delivery rate being very high 72.30% per thousand births. Following vaginal delivery, the risks of perineal infections ranges from 2.8% to higher than 18%, the risk of infection can be as high as 20%. All the maternal death in Asia is due to high population density, poverty, low female literacy and poor health services (World Health Organization). The maternal mortality estimates were developed by WHO and UNICEF. The very high level of maternal mortality over 500 maternal deaths per 1,00,000 live births are generally associated with perineal sepsis.

Considering all the above factors the researcher had a genuine interest and felt the need to assess the knowledge and practice of personal hygiene and new-born care among postnatal mothers.
Need for the study

Perineal hygiene is maintaining hygiene between anus and the genitals. Puerperal sepsis, puerperal pyrexia and puerperal death are the most common cause of maternal morbidity and mortality due to poor perineal hygienic practice.  

Maharaj D (2007) In India a study showed that 50% of maternal sepsis were related to unsafe induced abortion sepsis has been shown to have a very high case fatality rate.  

Andy W Wong, MD (4 April 2010) Postpartum infections comprise a wide range of entities that can occur after vaginal and caesarean delivery or during breastfeeding. In addition to trauma sustained during the birth process or caesarean procedure, physiologic changes during pregnancy contribute to the development of postpartum infections.1 The typical pain that many women feel in the immediate postpartum period also makes it difficult to discern postpartum infection from postpartum pain.  

Wikipedia (6 January 2011) The incidence of puerperal sepsis shows wide variations among published literature — this may be related to different definition, recording etc.  

Today in the United States, puerperal infection is believed to occur in between one and 8 percent of all deliveries. About three die from puerperal sepsis for every 100,000 deliveries. The single most important risk factor is Caesarean section.  

A study Conducted on survey on postnatal perineal morbidity. 482 women responded to questionnaire, overall high level of perineal morbidity was reported 87% complaining of morbidity, Instrumental birth high level of perineal morbidity. So the findings highlight the need for further research and provides a number of challenges for health care services and workers. Obstetric deaths are due to obstetric complications of puerperium infection maternal mortality rate is increase.

Material and methods

Objectives

1. Assess the knowledge of primi post-natal mother regarding perineal hygiene.  
2. Find out association between knowledge of primi post-natal mother regarding perineal hygiene and their demographic variables.

Assumption

1. Primi postnatal mothers have some knowledge about perineal hygiene.

Methodology

A descriptive design with a non-experimental approach as considered appropriate for the present study to assess the knowledge of primi postnatal mothers regarding perineal hygiene after delivery. A structured interview schedule was structured to assess the knowledge of primi postnatal mothers regarding perineal hygiene after delivery. Dorothea E Orem” Self Care Deficit” provided the basis of the conceptual framework. Data was collected from 100 Primi postnatal of SCB Hospital, Cuttack(Odisha.). Data was collected through purposive sampling technique.  

Pilot study was conducted to confirm the feasibility of the study and to assess the reliability and the validity of the tool. The prepared questionnaire was validated by the subject experts and reliability of the test was tested by using Test-retest method.
Method of data collection

Data collection procedure

Phase I

A formal permission to conduct the study was obtained from Head of the department in SCB Hospital, and then Permission was taken from Head of the department of Gynaecology prior to the data collection.

Phase II

Investigator introduced herself and developed rapport with subjects. The investigator conducted the main study after getting consent from 100 samples by purposive sampling method at SCB Hospital, Cuttack, (Odisha.).
Phase III

Data collection is the gathering of information needed to address a research problem. A validated structured interview schedule was conducted to collect data about knowledge of perineal hygiene since this technique is feasible and suitable to collect data from all samples. Total samples of main study consisted of 100 primi postnatal mothers. Data was collected from the samples by administering structured interview schedule after obtaining consent from participants. Each day around 4-5 mothers were interviewed and each section lasted for 30-40 minutes and then afterwards 3-5 minutes were utilized to provide verbal guidelines to the respondents by investigator regarding perineal infection, its causes, and prevention and control. It took 1 months to complete the study.

Method of data analysis

Collected data was analysed on the basis of objectives of the study using descriptive and inferential statistics.

1) Interrelated data was illustrated in the form of tables and figures.  
2) Frequency and percentage distribution was used to analyse demographic variables  
3) Mean and standard deviation was used to determine the knowledge of primi postnatal mothers regarding perineal hygiene.  
4) Chi square test was used for finding the association of knowledge of primi postnatal mothers and selected demographic variables.

Results

The data was analysed by calculating Mean and standard deviation was used to identify the Knowledge of primi postnatal mothers. The frequencies and percentage for the analysis of demographic data of the primi postnatal mothers. Chi-square test was to find out association between knowledge of primi postnatal mothers and selected demographic variables & level of significance was set at 5% level. The significant findings expressed in table and graphs.

Objective 1. Assess the knowledge of primi postnatal mothers regarding perineal hygiene after delivery.

Table 1. Frequency and percentage distribution of Level of knowledge of primi postnatal mothers regarding perineal hygiene after delivery  
\[(N = 100)\]

<table>
<thead>
<tr>
<th>S. No</th>
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<td>01</td>
<td>Very poor 0-20% (score 0-6)</td>
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<td>0</td>
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<tr>
<td>02</td>
<td>Poor 21-40% (score 7-12)</td>
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<td>53</td>
<td>9.68</td>
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</tr>
<tr>
<td>03</td>
<td>Average 41-60% (score 13-18)</td>
<td>47</td>
<td>47</td>
<td>15.13</td>
<td>1.36</td>
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<tr>
<td>04</td>
<td>Good 61-80% (score 19-24)</td>
<td>0</td>
<td>0</td>
<td></td>
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<tr>
<td>05</td>
<td>Very good 81-100% (score 25-30)</td>
<td>0</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Maximum Score: 30  
Minimum Score: 0

Table 1. Figure 1: Shows the frequency and percentage distribution of level of knowledge of primi postnatal mothers regarding perineal hygiene after delivery. 0% of mothers obtained Very poor score (0-20%), 53% of mothers got Poor score (21%-40%), 47% of mothers obtained Average score (41%-60%), 0% of mothers obtained Good score (61%-80%), 0% of mother obtained Very Good score (81%-100%), and mean knowledge score of mothers regarding malnutrition.
The data presented in the table no 03 fulfil the objective (1) clearly indicates that 53 primi postnatal mothers of have poor knowledge regarding perineal hygiene after delivery.

**Figure 1.** Percentage distribution of level of knowledge of Level of knowledge of primi post-natal mother regarding perineal hygiene.

**Objective 2.** Associate the knowledge of primi post-natal mothers regarding knowledge of perineal hygiene specific demographic variables i.e. age, education, type of family, income, & occupation

**About the demographic variables** According to age of mothers, depicts that maximum of mothers (80%) were in the age group of 26-30 years followed by minimum (2%) in the age group of 15-20 years. Regarding educational status, maximum (53%) of subjects has higher education and minimum (14%) of subjects has secondary education. As regard to types of family (63%) of subject belong to nuclear family and minimum (37%) belong to joint family. As per income maximum (34%) of mothers earn above 6000 and minimum (6%) of mothers earn below 2000. Regarding occupation of mother’s Maximum (76%) of mothers were house wife’s and minimum (%) of mother was on business.

**According to frequency and percentage of knowledge of mothers regarding malnutrition with demographical variables**

The highest frequency & percentage 80 (80%) of mothers were in age group of 21-25 years followed by lowest frequency & percentage 18 (18%) of mothers were in age group of 26-30 years. The difference in knowledge score was tested and found statistically most significant at 0.05 levels (p-value 0).

The highest frequency & percentage 53 (53%) was found among the mothers with educational status of higher secondary education followed by lowest and lowest frequency & percentage 14 (14%) of those mothers who have higher secondary education. The difference in the knowledge score of mothers according to educational status was tested and found statistically non-significant at 0.05 level (p-Value 0.26).

The maximum frequency & percentage 63 (63%) was found in mothers who belonged to nuclear family followed by minimum frequency & percentage 37 (37%) of mothers who belonged to joint family. The difference in the knowledge score of mothers according to type of family was tested and found statistically non-significant at 0.05 level (p-value 0.32).

The maximum frequency & percentage 34 (34%) was found in mothers who has monthly income above 6000 followed by minimum frequency & percentage 6 (6%) in those mothers who earn below Rs 2000. The difference in the knowledge score of mothers according to income was tested and found statistically non-significant at 0.05 level (p-value 0.16).
The highest frequency & percentage 76 (76%) was found among mothers who are house wife’s followed by lowest frequency & percentage (2%) of those who were in a private job. The difference in the knowledge score of mothers according to occupation was tested and found statistically Non-significant at 0.05 level (p-Value 0.47)

Discussion

The present study was conducted to assess the knowledge of primi postnatal mothers of under five children regarding perineal hygiene. The non-experimental, descriptive method with Purposive sampling technique was used to select the sample. The data was collected from 100 primi postnatal mothers by using a structured interview schedule. The findings of the study have been discussed with reference to the objectives and assumption and with the findings of the other studies. The data is organized, analysed and presented in three sections.

Section A. Demographic profile of primi postnatal mothers.

Section B. Knowledge of primi postnatal mothers regarding perineal hygiene.

Section C. Association of demographic variables with levels of knowledge of primi postnatal mothers regarding perineal hygiene.

Section A. Demographic profile of primi postnatal mothers.

The characteristics of the demographic variables described in terms of their frequency and percentage of distribution which showed that 80 (80%) of mothers were in age group of 21-25 years, 53 (53%) of mothers were with educational status of higher secondary education, 63 (63%) of mothers were living in nuclear family, 34 (34%) of mothers has monthly income above Rs 6000, 76 (76%) of mothers were house wife’s.

Section B. Knowledge score of primi postnatal mothers regarding perineal hygiene.

The first objective of the study was to assess the knowledge of primi postnatal mothers regarding Perineal hygiene.

The findings of the study revealed that the knowledge score of mothers regarding Perineal hygiene was 47 and Mean knowledge score of women regarding Malnutrition was15.13 (SD-1.36).

Section C. Association of demographic variables with levels of knowledge of mothers regarding malnutrition.

The second objective of the study was to associate the knowledge of primi postnatal mothers regarding Perineal hygiene with specific demographic variables i.e. age, education, type of family, income, and occupation.

Association of demographic variables with level of knowledge was done by using Chi- Square Test. Although there was no statistical significant association found between level of knowledge and demographic variables such as education, type of family, income, occupation. There was a significant association found between level of knowledge and demographic variable such as marital status and religion at 0.05 levels. There was a most significant association found between level of knowledge and demographic variable such as Age of mother at 0.05 levels. This indicates that the level of knowledge of mothers varies according to Education, type of family, income and occupation.

Findings related with age The highest frequency & percentage 80 (80%) of mothers were in age group of 21-25 years followed by lowest frequency & percentage 2 (2%) of mothers were in age group of 15-20 years. The difference in knowledge score was tested and found statistically Most-significant at 0.05 levels (p-value 0).

Findings related with education the highest frequency & percentage 78 (53%) was found among the mothers with educational status of higher secondary education followed by lowest and lowest frequency & percentage 14 (14%) of those mothers who have secondary education. The difference in the knowledge score of mothers according to educational status was tested and found statistically Non-significant at 0.01 level (p-Value 0.26).

Findings related with type of family the maximum frequency & percentage 63 (63%) was found in mothers who belonged to nuclear family followed by minimum frequency & percentage 37 (37%) of
mothers who belonged to joint family. The difference in the knowledge score of mothers according to type of family was tested and found statistically non-significant at 0.05 level (p-value 0.32).

Findings related with income The maximum frequency & percentage 34 (34%) was found in mothers who has monthly income above 6000 followed by minimum frequency & percentage 6 (6%) in those mothers who earn below 2000. The difference in the knowledge score of mothers according to income was tested and found statistically non-significant at 0.05 level (p-value 0.16).

Findings related with occupation The highest frequency & percentage 76 (76%) was found among mothers who are house wife’s followed by lowest frequency & percentage 2 (2%) of those who were in a business. The difference in the knowledge score of mothers according to occupation was tested and found statistically Non-significant at 0.05 level (p-Value 0.47).

Conclusion

The study findings concluded that primi post-natal mothers had average knowledge regarding perineal hygiene. So there is need of improve knowledge regarding perineal hygiene. The study was concluded by finding the knowledge level of primi post-natal mothers regarding perineal hygiene.

References

Flipping the Classroom: A Strategy to Motivate Nursing Students to Learn Independently and Promote Active Learning

Article by Messina Sehunwe
PhD, Nursing, Texila American University
E-mail: messinahg@yahoo.co.uk

Abstract

The constantly changing healthcare environment poses a huge challenge to the nurses to be able to respond to the rapidly changing patient’s conditions and needs. The nursing graduates therefore are forced to possess high level competence in order to provide safe and efficient nursing care. The Nurse Educators are also challenged to apply teaching strategies that can facilitate and encourage high level of critical thinking and clinical judgement skills. Flipping the classroom or inverted class is a strategy that is currently gaining popularity in an effort to motivate learners to learn and engage independently. This approach requires nursing students to actively participate in activities that push them beyond the level of memorization. Direct instruction is moved from the group space to the individualized learning space resulting in a dynamic transformed interactive environment where the Nurse educator becomes the guide instead of a distributor of information.

The Flipped learning has been viewed as an important pedagogical approach in increasing nursing student’s achievement, motivation, collaboration and improving their skills necessary for further knowledge construction.

The purpose of this paper is to describe the current state of knowledge and practice of Flipped learning approach in nursing education and how the strategy can promote nursing students to learn independently.

Keywords: Flipping the classroom, Inverted Classroom, Self-directed learning, Active learning, Learner engagement.

Introduction

The constantly changing environment in healthcare poses a challenge to the nurses to be able to respond to the rapidly changing patient conditions and needs. The Nursing graduates are forced to adjust their techniques and mindset in order to provide safe and efficient nursing care. (Naber and Best, 2016). The Nurse Educators are challenged to also apply teaching strategies that can facilitate and engage high level of critical thinking, clinical reasoning and clinical judgement skills. (Matthews, 2016). It is essential that Nurse Educators be conversant with current evidenced based pedagogies which improves critical thinking and utilize active learning. Flipping the classroom or inverted class is a strategy that is currently gaining popularity in an effort to motivate learners to learn independently.

The Purpose of this paper is to describe the current state of knowledge and practice of flipped learning approach in nursing education and how it can promote nursing students to learn independently.

Background and significance

The Flipped classroom also referred to as flipped learning or inverted classroom is a pedagogical approach which has been described by several scholars as a strategy in which face to face instruction moves the group learning space (classroom) to an individual interactive learning environment (Ouda and Ahmed, 2016). Inverting the classroom implies that all the activities which traditionally were used to take place in the classroom are transferred outside the classroom space.

The main purpose of this approach is to allow self-paced and independent learning while dedicating classroom time effectively by engaging students using several activities such as discussions, debates and other active learning exercises. Flipping the classroom is viewed as active learning at its best. (Naber and Best, 2016) as it is an instructional method which engages students
learning. It requires learners to actively participate in meaningful learning activities and push them beyond the level of memorization (Demski, 2013).

**Literature review**

The concept of Flipped classroom is viewed as a strategy which has developed and evolved over time. (Ouda and Ahmed, 2016). However, its popularity is credited to Jonathan Bergmann & Aaron Sams who used live video recordings and screen casting software to record lecture for students who missed their lessons. In most disciplines especially those related to healthcare including nursing education teaching facts and content utilizing the traditional lecture method is no longer effective in producing graduates who possess creative and critical thinking skills. There is need for a paradigm shift towards Flipping the classroom to reduce the “teacher should tell me what I need to Know to pass the test syndrome. (Bristol, 2014).

In nursing education radical transformation towards effective teaching strategies which enhance educational quality and ensures that graduates are prepared for the current complex nursing practice is of utmost importance. Belinda and Hermanns,2015, supports the observation that the nursing curricula is overloaded with content which is mostly delivered using ineffective teaching strategies. The Flipped classroom is preferred as an alternative instructional strategy which can encourage learner centred active learning resulting in improved clinical reasoning. (Jerri, et al 2015). Flipping the classroom has been further described by Naber and Best, 2016 as a technique which can improve critical thinking skills and recommended its utilization in nursing education to better educate future health care workers.

A study conducted by Davey, 2015 on exploring the extent to which flipping classroom stimulates student’s learning activity supports the idea that this model motivates students to learn independently. This is in agreement with the findings by Mikkelsen, 2015 who explored nursing student’s experiences towards flipping the classroom. It was revealed that this approach is valuable and resulted in high levels of satisfaction and engagement. However, several studies have indicated significant differences between student’s preferences and their perception regarding using the Flipped classroom. (Yacout and Shosha, 2016). Despite the variations several studies have outlined several benefits associated with this method as follows: Flexibility, Access to course material, improvement in professional skills and interpersonal skills, enhanced student engagement. (Karabulut, et al 2017).

Even though Flipping classroom as strategy has been described as beneficial some studies have reflected some of the common challenges as experienced by both learners and lecturers such as heavy workload, technical issues and insufficient knowledge about the new method. Learner resistance, deprived interaction with fellow students and reduced exposure to their teachers has been outlined as challenges faced by the learners. (Burak, et al, 2017).

**Literature synthesis**

The current literature demonstrates agreement that flip classroom model may be effective in promoting active learning and increasing student engagement. (Presti, 2016). Some studies reflect that just like any new method there are both challenges and benefits associated with this approach and that learners perceive its impact differently. However, despite the challenges flip classroom strategy remains an alternative strategy to be used for better development of clinical reasoning and judgement skills. It is also important to note that not all content or learning activities requires flip learning. Educators should be in a better position to identify and determine learning activities that fit well with flipping model. There is also an encouragement from various scholars to establish consistent instructional design for effective implementation of this approach.

**Essential components of flip learning**

The Flip Learning Network (FLN, 2014) suggested the four essential Pillars for effective Flip learning as follows

1) Flexible Environment which illustrates the flexible and adaptable learning environment where an educator re arranges their learning space in order to accommodate the learning needs of the students.
2) Learning culture depicts the paradigm shift from a student being a recipient of teaching to an active participant in the learning process. There is deliberate shift from teacher centered to learner centered approach.

3) Intentional Content allows the educator to decide on what and how to present concepts to the learners. Varieties of instructional methods are utilized to enhance effectiveness in learning.

4) Professional Educator describes the importance of the role of an educator in efficiently directing the Flip instruction. Educators though their role is less prominent but are viewed as essential ingredient that enables the Flip learning to occur.

**Benefits of flipping the classroom in nursing education**

Several studies have outlined numerous benefits associated with this approach which includes the following

1) Classroom time can be utilized in discussing higher order thinking skills rather than wasting time on lower order activities.

2) Flip Model allows diversity in learning as variety of learning resources are provided.

3) Learners are actively engaged in a realistic learning experience.

In addition to the above benefits Jamaludin and Osman, 2014 further described flipped learning as increasing student engagement in all its dimensions which include behavioral, emotional, cognitive and agentic engagement.

Even though Flip learning is viewed as an important approach it does have some challenges just like any new method. Some authors have highlighted challenges which include resistance from students, unprepared students, lack of access to technology, heavy workload prior to and during class, and insufficient knowledge regarding the new approach. (Berge, 2015, Davey, 2015, Karabulut-Ilgu, et al, 2017).

Recommendation for further research

1) There is need for consistent and appropriate instructional design for effective implementation of this pedagogy.

2) Further development of the theoretical underpinnings of the approach in nursing education is required to strengthen the implementation framework.

3) Computer centers should be upgraded to the level which can encourage student interaction.

**Conclusion**

Flipped learning is no doubt gaining popularity in most disciplines including nursing education. However, Sams and Bergmann, 2013 suggested that it is important to start slow and consider the fact that flip classroom does not need to be flipped all the time. They also encourage the educators to know that not all material works well with flip approach therefore it is essential for educators to be able to determine when and what content to consider when using the approach. It necessary for facilitators to assist the learners to relate didactic content to clinical activities so as to enhance development of clinical reasoning and judgement.

It is important to note that flipped learning provides several benefits and challenges for both the instructors and students. Literature has revealed that learners perceived the approach differently some demonstrated satisfaction with its use while others prefer the traditional methods.

**References**


A Study to Determine Possible Key Factors Affecting Malaria Intervention and Control among Communities in Ntambu Area of Mwinilunga District

Article by Sr Chrisphine Kamwanga
Nursing, Texila American University, Zambia
E-mail: philokams@yahoo.co.uk

Abstract

The aim of this study is to determine key factors affecting malaria interventions and control among communities in Ntambu Area of Mwinilunga District. An equal status sequential mixed methods design was adopted for this study. Three and fifty-eight respondents were enrolled from 109 villages as clusters using systematic sampling as well as purposeful sampling. Data was collected using a guided structured questionnaire and in-depth interviews. The findings are that social economic status, spray operator selection, and performance, negative experiences from previous IRS campaigns and political factors were negative factors whereas community solidarity was a positive factor for acceptance of IRS and ITNs. What can be inferred in this study is that the success of any malaria intervention in Ntambu area relies a lot on how the benefitting communities view and embrace the interventions. Individual factors like sex and level of education of household head are associated in varying ways with willingness to take up the interventions. This should be noted considering that level of education was associated with acceptance of IRS and yet not associated with repeat IRS as well as gender. The availability of antimalarial drugs, ITN, IRS acceptance and refusal in Ntambu, leave much to be desired. ITN use and availability appears to be the most accepted and easily available intervention though a few respondents appeared not to be aware or sure of what was happening in the area.

Background

Mwinilunga is a town in the North-Western Province of Zambia and headquarters of a district of that name. It lies on the West Lunga River, not far from the borders with the Democratic Republic of the Congo and Angola. Mwinilunga District in particular has a population of 133,169. Ntambu is about 145 Km south east of Mwinilunga town and 220 Km west of Solwezi the provincial capital of north western province. Ntambu area consist of the following neighbourhood health committees; Ntambu central, Nyantombu, Kapidi A, Kapidi B, Ndonu, Shilungu, Mumpulumba, Kewundu, Makuya, Muteba and Muchanka. Ntambu area is developing with a lot of activities taking place, farming and fishing are the major occupation and has a population of 21,228 (CSO, 2010). Mwinilunga is a high-risk malaria area in the Solwezi district.

The Zambia National Malaria Indicator Survey 2006 represented the first nationally representative assessment of the coverage of the key malaria interventions in combination with the measures of malaria-related burden using malaria parasite and anaemia prevalence testing among children under-five years of age (ZNIS, 2006).

Review of relevant literature

The goal of most current National Malaria Control Programs and most malaria activities is to reduce the number of malaria-related cases and deaths. To reduce malaria transmission to a level where it is no longer a public health problem is the goal of what is called malaria “control.” Recent increases in resources, political will, and commitment have led to discussion of the possibility of malaria elimination and ultimately eradication.

Where malaria exacts the largest burden, Africa, it has been extremely difficult to control. Many reasons account for this: an efficient mosquito that transmits the infection, a high prevalence of the deadly species of the parasite, favourable climate, weak infrastructure to address the disease, and high intervention costs that are difficult to bear in poor countries.
The effect of malaria control is poorly understood

Malaria remains a public health crisis in areas where it has resisted control efforts. In Nchelenge District, a high-transmission area in northern Zambia, malaria accounts for more than one-third of paediatric hospitalizations and nearly one-half of hospital deaths in children Mulenga, et’al, (2018). To identify risk factors for death due to malaria, they conducted a retrospective time-matched case-control study of 126 children hospitalized with malaria who died (cases) and 126 children who survived (controls). There were no differences in age, gender, haemoglobin concentration, or prevalence of severe anaemia between cases and controls. Children who died were more likely to come from villages located at greater distances from the hospital than children who survived (median 13.5 versus 3.2 km). Each additional kilometre of distance from the hospital increased the odds of death by 4%. Zingani, et al, (2017) in their study states that malaria remains one of the leading causes of morbidity and mortality in Zambia. Despite Zambia implementing a number of interventions aimed at controlling malaria, the disease prevalence remains high (above 50%) in Milenge district, Luapula province. This is a cause of great concern.

Study design

This was a mixed methods study design. The Triangulation Design (Quan to Qual) (Creswell et al., 2003) was used in this study. The purpose of this design is “to obtain different but complementary data on the same topic” (Morse, 1991: 122) to best understand the research problem. The intent in using this design is to bring together the differing strengths and non-overlapping weaknesses of quantitative methods (large sample size, trends, generalization) with those of qualitative methods (small N, details, in depth) (Patton, 1990). This design was chosen because the researcher wanted to directly compare and contrast quantitative statistical results with qualitative findings or to validate or expand quantitative results with qualitative data.

Study site

The study was conducted among communities within Ntambu Area of Mwinilunga District in North-western province, Zambia. Ntambu is about 145 Km south east of Mwinilunga town and 220 Km west of Solwezi the provincial capital of north western province, with population of 21,228. Ntambu area consist of the following neighbourhood health committee; Ntambu central, Nyantombu, Kapidi A, Kapidi B, Ndona, Shilungu, Mumpulumba, Kewundu, Makuya, Muteba and Muchanka. Ntambu was estimated to have a population of about 3 000 from 109 villages. Ntambu area was chosen purposefully because it is one of the places in the rural areas of Zambia in which malaria cases are very high though it lies in low to moderate transmission based on the provincial

Study target population

The target population in this study were heads of households. The inclusion criterion was that heads needed to be men and women of reproductive age group.

Sample size

From the population that was estimated to be just over 3 000, the sample size was n = 358 was considered ideal under this study as shown in the formular.

\[ n = \frac{N}{(1+N(e)^2} \]

Where n is the designed sample
N is the known population
e is the precision set at 0.5

In this study, sampling as done in the villages as clusters and based on the register that was available in the village, simple random sampling with replacement was done until the desired sample size was reached. Households were selected at random from a regularly updated housing list maintained in the communities by chairpersons.
The sample size for in-depth interviews was set at 18 and Creswell (1998) advises qualitative researchers desiring to conduct 5 to 28 in-depth interviews and in this study, the researcher was within the limits.

Data collection tools

Data was collected by the researcher using a guided structured questionnaires and in-depth interviews with respondents. Interviews were done with purposefully selected respondents who seemed to exhibit deviant positions as well as ideal positions on the subject under inquiry.

Trustworthiness of the quantitative part

Since this study is a mixed methods study, trustworthiness was handled in two ways. One way relates to the quantitative part and the second way relates to the qualitative part. Below is the description.

Trustworthiness for the quantitative part

Validity

Validity was measured by ensuring that the same questions are asked to each respondent in the same sequence. Questions were clearly constructed to avoid ambiguity. Simple terms, translated in vernacular language when necessary, were instituted instead of medical language so that the community respondents understand the questions.

Reliability

In this research, the researcher ensured consistency, stability and repeatability of the results by standardizing the instrument. The research tools were tested before the main study was conducted using a Pre-test study in a different environment with similar characteristics.

Trustworthiness of the qualitative part

Credibility

Credibility refers to the conscious effort to establish confidence in an accurate interpretation of the meaning of the data (Carboni, 1995). It corresponds to internal validity in quantitative research. Credibility in this study was achieved by rendering thick descriptions. This was involved by providing descriptions not only of respondent’s’ experiences of phenomena but also of the contexts in which those experiences occurred. The “thickness” of the descriptions relates to the respondents’ thoughts, intentionality to the observed behaviour, the multiple layers of culture and context in which the experiences were embedded (Carboni, 1995).

Authenticity

The authenticity of this study was about convincing readers, not only that the interpretation is drawn from the data, but also that the researcher has spent time in the field and has really experienced the “lived worlds” of the informants. In this study, authenticity was met by conveying clearly depicting the processes of data collection and analysis, together with demonstrating the researcher’s thoroughness in these processes and qualifying anything that might compromise this, i.e. personal biases. (Hogg and Maclaran, 2008).

Confirmability

Confirmability, which is the counterpart of objectivity, is based on the acknowledgment that research is never objective. It addresses the core issue that “findings should represent, as far as is (humanly) possible, the situation being researched rather than the beliefs, pet theories, or biases of the researcher” (Gasson, 2004: 93). It was based on the perspective that the integrity of findings which were rooted in the data and that the researcher must adequately tie together the data, analytic processes, and findings in such a way that the reader is able to confirm the adequacy of the findings.
Transferability

Transferability is considered parallel to external validity or generalisability in quantitative research. This parallel criterion refers to the extent to which the reader is able to transfer or extrapolate the findings of a study to her or his own context or another setting (Gasson, 2004: 98). Transferability was achieved in this study because the researcher would provide sufficient information about the research setting (Firestone, 1993).

Data collection

Data was collected in two phases. The first phase was a piloting experience and the second phase was the main study.

Pre-test study

A pre-test study was conducted before the actual research just after ethical approval. It was observed that the initial questionnaire that was designed could not render the ideal picture. However, the initial questionnaire was adjusted using a round robin with other health staff. Necessary adjustments to the questionnaire were made after the pre-test study (see Appendices I and II). Thirteen people five men and 8 women participated in the study a village Ntambu Area. The adjustments were made further following a review of the pilot with health centre staff.

Plans for data processing and analysis

Qualitative data was analysed using content analysis to show how things are on the ground. Quantitative data was coded and analysed using the Statistical Package for the Social Sciences (SPSS). Unlike the rule of thumb that is applied in small scale explorative studies whereby the results are analysed without conducting any formal statistical tests, this study was set to conduct statistical tests in order to accord the sought reliability and validity for future wide scale research. Measures of dispersion and central tendency, Odds ratios, chi square tests and Logistic regression was computed.

Ethical matters

The fact that humans are the objects of study. The researcher in planning this study paid special attention to ethical matters. Ethical considerations that were focused on cover obtaining informed consent and maintaining participant confidentiality. Informed consent is defined as “the voluntary and revocable agreement of a competent individual to participate in a therapeutic or research procedure, based on an adequate understanding of its nature, purpose, and implications”. Informed consent may be broken down into four constituent elements: disclosure (providing adequate information), comprehension (understanding of information), and competence (ability of participants to make a rational decision), and voluntariness (no coercion).

All participants were provided with information sheets detailing the aims of the study and the process. These information sheets were provided to the participants directly. All participants were given the opportunity to ask questions about the study, and that they could withdraw from this study at any time without negative consequences. And the full details appear in the Appendices.

Research findings

The study was conducted in Ntambu area of Mwinilunga district, located in the Northeast rural area of the district. Agriculture is the backbone of the area’s economy and most of the villages’ produce is consumed locally or sold to cooperatives within Mwinilunga. The climate of the study area is of the tropical type with a single rainy season lasting from November to March. The monthly mean temperature ranges from 24 °C (November–March) to 4 to 15 °C (April –July). The main agricultural crops in the study area are millet, maize, and sorghum. The area is embraced with numerous scattered villages. Each village has 20 to 150 households. At the time of the study, there were malaria hotspot villages, defined as localities which have reported at least 8 malaria cases in a day during the previous rain season. There was a regular spraying in the previous season according to the records and each dwelling was treated by trained sprayers who were hired locally from the village communities within each of the villages.
The training/refreshing of locally hired spray operators took place one to two months before the starting of each Indoor Residual Spraying (IRS) campaign and lasted at least 1 or 3 weeks based on the previous experience of sprayers. The training sessions were animated by the District Health Management staffs of Mwinilunga, who are highly trained in the implementation of IRS.

Baseline data

This study enlisted 358 participants of whom n = 270 (75.4%) were females and n = 88 (2.6%) were males. Of the female’s sample, n = 163 (45.5%) were expecting and n = 107 (29.9%) were not at the time of the study. The youngest expectant mother was 18 and the oldest was 58. This shows a wide age range difference of 40 years. However, the sample mean age was 31 (SD ± 7.4). This sample was relatively homogenous in important socio-demographic characteristics, such as education, religion and level of education as shown below. Most of the respondents lived outside the expected 5km radius to the health facility. The mean distance from the facility was 8 (2.7) km

Extent malaria interventions available to the community in Ntambu area of Mwinilunga district

This section looks at research question number one which is “to what extent are malaria interventions available to the community in Ntambu area of Mwinilunga district?” The findings are presented below.

Availability of ITNs

Just over half of the respondent’s n = 214 agreed that mosquito nets were readily available in homes for under 5s, and that mosquito nets were also available for the elderly and expectant mothers. Fewer elderly people as compared to expectant mothers had mosquito nets.

Table 1. Availability of ITNs

<table>
<thead>
<tr>
<th>Frequency</th>
<th>I am not sure</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Are mosquito nets readily available in your home for under 5s</td>
<td>-</td>
<td>-</td>
<td>214</td>
</tr>
<tr>
<td>Those who are eligible for mosquito nets at the facility include the elderly</td>
<td>-</td>
<td>-</td>
<td>142</td>
</tr>
<tr>
<td>Those who are eligible for mosquito nets at the facility include children under 5 years</td>
<td>-</td>
<td>-</td>
<td>346</td>
</tr>
<tr>
<td>Those who are eligible for mosquito nets at the facility include expectant mothers</td>
<td>60</td>
<td>16.8</td>
<td>292</td>
</tr>
<tr>
<td>Are mosquito nets readily available from the nearest facility?</td>
<td>-</td>
<td>-</td>
<td>189</td>
</tr>
<tr>
<td>Mosquito nets are</td>
<td>a) Sold</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>b) Given free</td>
<td>-</td>
<td>-</td>
<td>214</td>
</tr>
</tbody>
</table>

Apart from accessing ITNs from the health facilities, n = 144 (40%) noted that ITNs were available from the market and n= 215 (60%) said that they were available from NGO distributors (Figure 4). Those from the market were actually for sale and from NGO distributors were given free and mostly to elderly people and very vulnerable members of the communities.
The use rate of ITNs in the households is rather low as it stands at 43.8% (those who use them always and frequently) when compared to n = 56.1% those who use them occasionally and rarely.

Indoor Residual Spraying (IRS) The study revealed that the district embarked on IRS seasonally. Over three quarters of the respondent’s n = 268 (74.9%) agreed that spraying was as compared to n = 142 (39.7%) who said no. Majority of the respondent’s n = 256 (71.5%) agree that spraying is done regularly as compared to those n = 102 (28.5%) who see it done once in a while (Table 2).

<table>
<thead>
<tr>
<th>I am not sure</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Has your home been sprayed in each of the spraying seasons?</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spraying is done</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Regularly</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Factors influencing malaria intervention and control among communities in Ntambu area of Mwinilunga district

This section is looking at the second research question which is “what are the factors influencing malaria intervention and control among communities in Ntambu area of Mwinilunga district?”

When some heads of households were interviewed, a number of barriers and facilitators were noted for the three interventions and these are presented below:

a) Spray operator selection and performance
b) Negative experiences from previous IRS campaigns
c) Community solidarity and Acceptance of IRS and ITNs

Generally, the villagers seemed to be satisfied with the outcomes of the interventions even though there were points of dissatisfaction with the program. Each of the factors is discussed below.

Community solidarity and Acceptance of IRS and ITNs

The most frequently mentioned motivation for acceptance of IRS and ITNs was solidarity among neighbours. The respondents reported that when a house was not sprayed, mosquitoes from that house could go to the neighbours’ homes and infect residents with malaria, underscoring the importance of IRS for community protection. Community members also influenced one another’s acceptance by describing their positive experiences. They also supported the need for children and mothers (as well as fathers) to sleep under the net. They argued that death did not only affect one household as it strained the neighbourhood.

At first I did not mind if my neighbour house was not sprayed. Now, this is not my position. I encourage every member in the village to do so. These mosquitoes can fly all over the villages and therefore every home must be touched.
Preference for ITNs over IRS

Lastly, respondents mentioned preference for other, non-IRS malaria prevention methods such as ITNs as one of the barriers to the acceptability of spraying. Respondents in nearly every village expressed reticence to accept IRS because they believed that by accepting such a method of prevention, they would not receive ITNs. One community leader explained,

“Here the people want more mosquito nets instead of spraying, so they don’t accept the spray, stating that ‘we are waiting for the nets’.

The preference for ITNs was generally because they had more comparative multipurpose uses. ITNs were used as fishing nets, protectors of seedlings and grain. Below are some pictures of the uses.

![Use of ITNs for seedling protection](image)

Desire to reduce insect population of homes and Incidences of malaria

Some respondents accepted Coartem/fansidar, IRS and ITNs because of a desire to reduce the number of mosquitoes and cases of malaria in the community. As for IRS, they accepted because it killed other insects inside houses. Even though IRS was promoted by health workers as a malaria prevention tool, respondents were often motivated to accept because of perceived collateral benefits of IRS such as the killing of fleas and other insects.

“I was very happy because there were lots of cockroaches, fleas and mosquitoes in my house. All the mosquitoes and fleas and cockroaches have already died from this spraying.”

Interviews revealed that the main motivation for many respondents to accept ITNs and spraying was to eliminate other insects and reduce contact from mosquito bites which were responsible for malaria and death. Nevertheless, respondents were also motivated by the desire to provide protection from malaria for their children.

My kids used to be sick often, but now I’m happy. They do not fall sick as often as before.

Another motivation for IRS acceptance was the perceived expenditure. The latter was very prominent as spray acceptance was also attributed to the fear of future problems with district health authorities in case a household member got malaria.

In many cases, some of the respondents justified their decision to accept the spraying as an important perquisite for future government services.

These health workers keep a record of all who have received ITNs and which homes have been sprayed. We have to accept, if you don’t accept IRS and use ITNs. This is because if tomorrow you go to the hospital with malaria they will send you away, they will say you are the one who denied the spraying, and have sold or used the net for other things ...so you will treat yourself.
We have tried to advance the agenda of free ITNs. When it comes to voting time, this is when we make sure that every household has at least one or two ITNs...we do not care this time whether one belongs to the opposition.

There are disagreements at the district office especially when there are representatives from the ruling party and the opposition as it is in most instances tense to come to an agreement in terms of where the interventions have to begin from or be intensified. This is evidenced in the excerpts below.

**Discussion and conclusion**

**Discussion**

The aim of this study is to determine key factors affecting malaria interventions and control among communities in Ntambu Area of Mwinilunga District. The study has established that social economic status, spray operator selection, and performance, negative experiences from previous IRS campaigns and political factors were negative factors whereas community solidarity was a positive factor for acceptance of IRS and ITNs.

What can be inferred in this study is that the success of any malaria intervention in Ntambu area relies a lot on how the benefitting communities view and embrace the interventions. Individual factors like sex and level of education of household head are associated in varying ways with willingness to take up the interventions. This should be noted considering that level of education was associated with acceptance of IRS and yet not associated with repeat IRS. Gender on one hand was associated with repeat IRS.

These results are similar to barriers noted in studies from other countries such as Tanzania, Uganda (Kaufman et al., 2012; Larsen et al., 2017; Wadunde et al., 2018). Interestingly, these findings are similar to those that were noted in lower transmission areas in Ntambu, providing some evidence that local malaria burden may not be the most important influence on IRS acceptance (WHO, 2015b).

While some community members were motivated by perceived malaria-related benefits of IRS, others reported that they accepted IRS because of their desire to reduce other household insects like fleas and to comply with governmental and community expectations.

Motivators of acceptance of spraying in Ntambu as a high transmission areas are similar to those noted for acceptance of IRS in a low transmission area in previous research (WHO, 2015a; Larsen et al., 2017; Bridges et al., 2018), which found that adherence to ITN use and IRS acceptance were driven by trust in local health authorities, the need for solidarity and the influence of community leaders. This was not the case in Ntambu only in one instance relating to very little trust in local health authorities. This finding on the importance of community solidarity across transmission settings has implications especially for ITN and IRS communication strategies and overall engagement with communities. For example, in Ntambu, key messages for future campaigns might better capitalize on this solidarity by emphasizing that by accepting more of IRS, community members are being good neighbours and helping to protect their communities, rather than only emphasizing individual or familial benefits. This is true when one looks at the numerous households that have varying reasons for not accepting IRS. This is particularly relevant given the importance of high community acceptance for IRS to be effective. Additionally, it underscores the value of having strong buy-in from community leaders as these individuals can leverage community cohesion for the benefit of the campaign when sufficiently engaged, or can influence widespread refusal when the leaders do not have sufficient buy-in in the campaign. For example, studies elsewhere found that acceptance of IRS and ITN was motivated by delivery by known individuals (WHO, 2015a; Larsen et al., 2017; Bridges et al., 2018), like women NGOs or other local NGOs underscoring the important role of community leader engagement.

A notable finding of this study is that many respondents did not perceive IRS to be very effective and many reported preferences for ITNs and showed low to consent to spraying. This acceptance of IRS, despite the perception of its lack of effectiveness has also been noted in other African settings (Ediu, 2013; Wadunde et al. 2018) and not only Ntambu. In particular, respondents in this study reported concerns about the residual efficacy of IRS like smell, movement of furniture and skin allergy among others. This is an interesting finding given that residual efficacy of IRS campaigns elsewhere.
Findings across countries underscore the importance of education and IRS knowledge on IRS acceptance. For example, respondents in this study and others (Kaufman et al., 2012) were able to explain the IRS procedures, but they often did not understand the residual efficacy of IRS or the fact that it only killed mosquitoes that rest indoors. Thus, families may not perceive the benefit of IRS if they continue to have many mosquitoes in or near their homes following the campaign, as was also noted in other studies (Bridges et al., 2018). This low perceived effectiveness underscores the complexity in communication promoting IRS acceptance.

Following these observations, in order to promote IRS without raising false expectations, communication should specify that IRS prevents the mosquitoes that cause malaria. This nuanced message is, however, often lost since it is more complicated and less salient than messages such as the common IRS mantra in Ntambu, “kuzaha g’wennen!” (Kill mosquitoes!).

**Recommendations**

Looking at the data that shows low uptake of fansidar, and ITN as well as IRS coverage, there numerous lessons learnt and a number of recommendations to be made. While governments and donors may be willing to subsidise ITNs, low availability of ITNs limits the community’s potential to benefit from interventions, implying that those who need ITNs continue to buy them at a higher price and not from more trustworthy and acceptable sources. This would often require additional costs that may have been unnecessary if the subsidised ITNs matched communities' needs, and if the community trusted the distributing NGO agency.

Regarding the misuse IRS and ITNs, it is recommended that incorporating community preferences when designing interventions by providing timely and adequate information can help address some of the misuses in this study, minimise rumours and suspicions, strengthen trust in the distribution agencies, and ultimately promote acceptability and ITNs use and acceptance of IRS.

Gender differences in access to resources can hinder ITN ownership and use. Though this study did not address this aspect, the data seems to suggest so. In the study setting, as elsewhere in sub-Saharan Africa, men control resources and are the main decision makers in the households (see Moluneux, 2002). There is concern that information regarding malaria control interventions is often given to women mainly during maternal and child health clinics, yet it is the men who have money and make decisions on whether or not to buy ITNs. This study is recommending engaging men more actively in malaria control through education and this could empower them to accept IRS and buy ITNs when resources are available, and be more willing to use them when they share a bed with a young child and their spouses.

**Limitations and significance of the findings**

This study was limited to Ntambu and as such, the findings do not reflect the happenings in Mwinilunga district. Interpretations of these results therefore, need to be handled with caution. It is important to note that this study has not looked at the effectiveness of the interventions and despite these limitations, this study still found key information for programmatic review.

This case study has provided factors that were found to be significantly associated with malaria interventions which were not known and could be linked to the high incidence rate of malaria. The findings of this study demonstrate the complexity of the drivers of malaria interventions; while interventions like fansidar/Coartem, ITNs and IRS have been demonstrated to bring down malaria, the true malaria point prevalence may, therefore, may not have been overestimated.

**Conclusion**

The findings from this study highlight important factors associated with the malaria prevention and control program in Ntambu. The availability of antimalarial drugs like fansidar/Coartem, ITNs, IRS acceptance and refusal in Ntambu, leave much to be desired. A large proportion of the respondents appear not to have benefitted from the program. ITN use and availability appears to be the most accepted and easily available intervention though a few respondents appeared not to be aware or sure of what was happening in the area. Antimalarials are not readily available and IRS is the least accepted intervention.
References


Looking at Neonatal Sepsis with New Eyes: A Case Study of Kaoma District Hospital -Zambia.

Article by Patricia Mambwe
Rusangu University, Department of Nursing Sciences, School of Health Sciences, Monze, Zambia
E-mail: mambwepatricia105@gmail.com

Abstract

Background: Neonatal sepsis is a huge threat to the survival of neonates. If not timely detected and treated, neonatal sepsis becomes the source of increased neonatal morbidity and mortality. Research shows that neonatal sepsis is a global problem. However, the burden weighs more heavily in sub-Saharan Africa. Zambia stands unspared by this problem because of home deliveries in rural communities.

Objective: The study objective was to investigate contributory factors responsible for neonatal sepsis at Kaoma District Hospital, Zambia.

Materials and Methods: The research used a cross-sectional study design. The sample size was 50 selected using convenient sampling. The study units consisted of 50 Post natal mothers. A self-administered questionnaire was used to collect data from the respondents. Statistical Package for Social Sciences (SPSS) version 22 was used to analyse data.

Results: The study found a triangulated relationship: maternal socio-cultural practices, place of delivery and shortage of midwives with emergence of neonatal sepsis.

Recommendations: The study recommends training of more midwives to handle an increased number of pregnant women seeking assisted skilled delivery. The study also recommends for expanded EmONC and neonatal care workshops for equipping midwives and nurses with knowledge and skills to handle neonatal sepsis.

Finally, the study recommends for community sensitization on socio-cultural endanger maternal and neonatal wellbeing.

Keywords: neonate, sepsis, midwives, nurses, morbidity, mortality.

Introduction

Neonatal sepsis is an infection occurring in the first 28 days of life. Worldwide, neonatal sepsis accounts for an estimated 26% of under five deaths, with sub-saharan Africa having the highest mortality rates (Adatara e tal., 2019). Neonatal sepsis contributes to more than 1.6 million deaths annually in the developing countries and is therefore an important cause of newborn mortality. The third Sustainable Development Goal (SDG) for child health aims to end preventable deaths of new borns and children under five years of age by 2030 (Ranjeva e tal., 2017). Multiple factors such as prematurity, invasive life-saving medical interventions, and immaturity of the innate immune system put these infants at greater risk of developing infection. In spite advanced neonatal care that facilitates saving even the most preterm neonates, the very interventions sustaining those who are hospitalized concurrently expose them to serious infections due to common nosocomial pathogens, particularly coagulase- negative staphylococci bacteria.

Despite different mitigation interventions over years, the new born mortality rate is high at 27/1,000 and new born sepsis contributes to 31% (Mukanga, 2013). The third SDG may not be attained without significant reduction of neonatal mortalities directly related to infection in developing countries (Ranjeva e tal., 2017). This study was carried out to determine factors contributing to neonatal sepsis at kaoma district hospital, west part of Zambia.
Statement of the problem

Neonatal sepsis is one of the major global health problems that need concerted efforts by care providers in order to reduce the burden. Every year an estimated 30 million newborns acquire infection and 1-2 million of these cases die. Neonatal sepsis has remained a major cause of infant morbidity and mortality despite the development of broad-spectrum anti-microbial agents and tremendous advances in technology (Lawn et al, 2005).

In Zambia and many other developing countries, neonatal sepsis still remains one of the leading causes of neonatal morbidity and mortality, it is estimated that 99% of neonatal deaths occur in developing countries (Adatara et al., 2019). According to WHO (2009), neonatal mortality for different African countries ranges from 11 / 1000 live births in South Africa to 68 / 1000 live births in Liberia. Anita et al. (2011) reported that Zambia recorded 41% of neonatal deaths due to different conditions of which 6% was from neonatal sepsis.

The problem did not spare rural Zambian hospitals like Kaoma district hospital that according to the HMIS report, the trends of the infections were as follows: 70% in 2016; 80% in 2017 and 71% in 2018 were reported by the fourth quarter. The above statistics for Kaoma district Hospital indicated that neonatal sepsis was a problem necessitating investigations. To this effect, the research was conducted to determine the factors contributing to neonatal sepsis at the health facility.

Materials and methods

A cross sectional study was conducted at Kaoma District Hospital of Zambia. Convenience sampling method was used to select participants. All postnatal mothers with their babies aged 0-28 days who came for postnatal care were included in the study. The sample size of 50 Post-natal mothers was used. A closed ended questionnaire was used to collect data.

Study setting

Kaoma is one of the 16 districts of Western part of Zambia. Kaoma district hospital was built in the 1950s as a health Centre. It is a 2nd level referral hospital with bed space of 120 beds. The hospital had a total number of 2 Doctors, 1 Nursing Officer (Acting), 8 Clinical Officers, 7 Registered Midwives, 5 Enrolled Midwives, 24 Registered Nurses, 37 Enrolled Nurses and 8 Laboratory Technicians. The remaining staff comprises of Administrative personnel, cleaners, security personnel, kitchen personnel and other support staff.

Data analysis

Bivariate analysis was used to examine the service related, Socio-cultural and Social -economic factors that were associated with neonatal sepsis.

All variables that were significant (p <0.05) at bivariate level were then retained in the multifactorial logistic regression model. Data analysis of this study was done in STATA 13.1.

Results

Having a P-value of 0.001 clearly affirms that there is a relationship between social-economic status of postnatal mothers, cultural practices either during labour or application of traditional medicine of the baby’s cord, service-related factors and the neonate developing sepsis.

Presentation of the research findings

The study solicited for information from the postnatal mothers on their socio-economic status

The results have been shown in figures and graphs as follows;
Figure 1. Respondent’s occupation (N=50)

Figure 1 shows that most of the respondents 25(50%) were housewives, with the least 3(6%) in formal employment.

Figure 2. Housing (N=50)

Figure 2 shows that the majority 34 (68%) of the respondents has houses with 1 to 2 rooms.

Section B. Cultural related factors

This section has responses on Cultural and traditional practices by postnatal mothers

Figure 3. Cultural practices done to speed labour (N=50)

Figure 3 shows that the majority of respondents 23(46%) introduced fingers to enlarge the birth canal and to accelerate labour.
Figure 4. Traditional practices performed on a neonate? (n=50)

Figure 4 shows that the majority (76%) of respondents practiced application of substances on the cord stump.

Section C: Service-related factors

This section contains responses on service-related factors.

Figure 5. Place of delivery (N=50)

Figure 5 shows that majority of respondents 27(54%) delivered at the hospital.

Figure 6. Number of midwives on duty (N =50)

Figure 6 shows that 22(44%) were not attended to by trained midwives.
Figure 7. Midwives who attended to the baby (N=50)

Figure 7 shows that the majority of the respondents’ babies (48%) were attended to by 1-2 nurses per shift.

Figure 8. Number of vaginal examinations performed (N=50)

Figure 8 shows that 1(2%) had more than 4 times vaginal examinations performed in labour.

Discussion

This study's first objective was to assess whether service-related factors contribute to neonatal sepsis. The findings of this study revealed that most respondents (50%) did not have a stable income as they were not in formal or informal employment. This is attributed to most women becoming pregnant either while at school or after dropping out from school thereby not finding employment for themselves. These findings are also supported by Javed & Memon (2009) whose study revealed that babies born from women of lower social economic status are predisposed to neonatal sepsis without unstable income. This is evidenced by the highest number of respondents.

The majority of the respondents (68%) lived in one or two roomed houses as shown in figure 8. These findings are consistent with rural life situation were houses are consisting of 1 or 2 rooms and are made from poles and mud and are grass thatched. Concerning Antenatal attendance, figure 10 showed that 5(10%) of the respondent had only one antenatal attendance while 6(16%) and 16(32%) had two and three antenatal attendances respectively. This is consistent with the prevailing situations in the villages were women shun attending antenatal care. Others are kept busy with house chores while others feel it is not important unless they are ill.

These behaviours deprive women of the much-needed health care which helps to identify illness early and institute treatment which in turn prevents maternal infections. These findings are consistent with a study by Herbst 2003 whose study revealed that women who had no pre-natal care were more likely to have low birth weight or pre mature infants and were predisposed to neonatal sepsis because of lowered immunity.

The study went on to assess whether cultural and traditional practices contribute to neonatal sepsis. It was found that 15(30%) of respondents inserted herbs in the vagina to speed up labour. This is a common trend in the villages where pregnant women who are in labour insert herbs in the vagina so that they do not take in labour. Such practices are harmful as the lead to atonic uterine contractions
which do not correspond to the rate of cervical dilation. This can cause uterine rupture or death of the fetus. The foetus can also aspirate the herbs during labour thereby predisposing itself to neonatal infections. These findings as complemented by the study of Maimbolwa et al, (2003), which revealed that most people from resource challenged homes delivered in homes and were attended by non-trained birth attendants who practice a lot of traditional practices of labour. 
Looking at traditional practices, only 4(8%) of the respondents did not practice traditional practices on the newly born child as shown in figure 4. The majority 38(76%) did practice traditional practices of applying substances such as cow dung, chicken droppings or saliva on the umbilical stump to enhance heeling. These practices are a hazard to the health of the neonate because they predispose the baby to infections such as tetanus and neonatal sepsis.

Service-related factors
Concerning deliveries, figure 5 shows that 22(44%) of the respondents delivered from their homes against 27(54%) and 1(2%) who delivered from institution. These findings are still happening in many places Kaoma inclusive where pregnant women shun delivering from the health facilities. Some attribute this to long distances while others have a negative perception of institutional deliveries. More also because of attitudes of not wanting to be monitored by staff during labour. These women end up having unsafe deliveries which predisposes them and their babies to infections and complications.
Respondents 22(44%) were not monitored by trained staff during labour. This practise is not safe because labour can have complication which may need urgent medical or surgical attention. Furthermore, home deliveries are prone to traditional and cultural practices which can be harmful to both the woman and the foetus such as use herbs to accelerate labour. The women are also likely to be supervised by untrained birth attendants who cannot identify complications early.
Concerning care during labour, figure 8 showed that of those who had institutional deliveries 1(2%) had more than 4 vaginal examinations. These practices also predispose the woman to infections especially if done frequently and more especially if aseptic techniques are not followed. These findings are support by an article by (MCHIP, 2010) which limits the number of vaginal examinations and only done at the appropriate times and whenever necessary.
Concerning neonatal admissions, 14(28%) of the respondents’ babies were admitted once in the hospital. These findings reveal the health seeking behaviour of women when the children are sick. Some mothers only seek medication attention when the situation of the baby worsens. Some would prefer traditional medicine to conventional medicine.
Having a P-value of 0.001 clearly affirms that there is a relationship between social-economic status of postnatal mothers, cultural practices either during labour or application of traditional medicine of the baby’s cord, service-related factors and the neonate developing sepsis is statistically significant.
Any serious intervention to reduce the mortalities should consider methods that will increase knowledge in this particular important dimension.

Conclusion and recommendations
This study revealed that the current rate of neonatal sepsis was still high and that there is a relationship between cultural, service and social economic factors with the development of neonatal sepsis.
It is therefore imperative to train more midwives in EmONC and Neonatal care to equip them with knowledge and skills to handle neonatal sepsis.
Finally, the study recommends for community sensitization on socio-cultural practices that endanger maternal and neonatal wellbeing.
References


Effectiveness of Orthopedic Rehabilitative Nursing Care on Wellbeing of Patients with Lower Limb Fractures in Selected Hospitals at Bhubaneswar, Odisha

Article by Anasuya Pattanayak
Principal, DRIEMS School and College of Nursing, Tangi, Cuttack-754022, Odisha.
E-mail: anasuyagautam@gmail.com

Abstract

Health as defined by each person integrates all the human dimensions physical, intellectual, emotional, socio cultural, spiritual and environmental aspects of the whole person. The nurse giving holistic nursing care must be equally considered all these inter-related and interdependent dimensions of the whole person. Rehabilitation is the process of achieving maximum restoration of physical, psychological and social function must be carefully planned and executed. It should be goal directed and based on a thorough assessment of the patient’s medical, functional and psychosocial status. A pre-experimental research design with one group pretest and posttest is adopted for the study. The sample size for the study comprises of 120 patients admitted in ortho ward with the diagnosis of fracture femur and Convenient Sampling Technique used in this study. The result shows that 1st post-test and 4th post test scores of level of orthopedic rehabilitative nursing care of patients with lower limb fractures difference in mean percentage found that for social wellbeing was 41%, spiritual wellbeing was 56%, mental wellbeing was 48% and activities of daily living was 37%. The present study was conducted to assess the effectiveness of orthopaedic rehabilitative nursing care on wellbeing of patients with lower limb fractures. The study concluded that orthopaedic rehabilitative nursing care is highly effective and wellbeing of patients is independence, physically and socially, mentally, spiritually allowing them to return to their normal place of living where ever possible.

Keywords: Orthopaedic rehabilitative nursing care, lower limb fractures, Social, Mental, Spiritual wellbeing, Activities of daily living.

Introduction

Health as defined by each person integrates all the human dimensions physical, intellectual, emotional, sociocultural, spiritual and environmental aspects of the whole person. The nurse giving holistic nursing care must be equally considered all these inter-related and interdependent dimensions of the whole person. Rehabilitation is the process of achieving maximum restoration of physical, psychological and social function must be carefully planned and executed. It should be goal directed and based on a thorough assessment of the patients medical, functional and psychosocial status.

The incidence of accident in every 90 seconds and every 7 minutes a fatality with just 1% of the global vehicle population. India has 6% of the total accident in the world. The annual incidence is highest among school and the graduate students, 62.2 % had lower limb fracture followed by accident, superficial injuries were most common in 47.4%, crush injuries 14.1% and concealed injuries 12.4%. Majority of the injured victims 92.4% had treatment within 6 hours while 70% availed treatment within one hour after injury. In view of the above facts in mind, the investigator interested to do this particular study that is orthopedic rehabilitation nursing care. The aim of nursing care is to maximize the client’s independence, physically and socially, mentally, spiritually allowing them to return to their normal place of living where ever possible. Rehabilitation care must include the cognitive and emotional aspects of recovery.

Statement of the problem

“A study to assess the effectiveness of orthopaedic rehabilitative nursing care on wellbeing of patients with lower limb fractures in selected hospitals at Bhubaneswar, Odisha”
Objectives

1) To assess the social, mental, spiritual wellbeing and activities of daily living of patients with lower limb fractures.
2) To evaluate the effectiveness of orthopedic rehabilitative nursing care of patients with lower limb fractures.
3) To find the association between the social, mental, spiritual wellbeing and activities of daily living with selected set of socio-demographic variables like age, gender, religion, occupation, income education status, marital status, personal habits.

Methodology

Research approach. Quantitative research approach was adopted for the study.
Research design. A pre-experimental research design with one group pretest and posttest is adopted for the study.
Population. In this study all patients who have Muscular skeletal injury like fracture femur underwent open reduction and internal fixation admitted in ortho ward in selected hospitals at Bhubaneswar
Sample. The sample for the study was patients underwent open reduction and internal fixation with fracture femur that is fulfilling the inclusion criteria.
Sample size. The sample size for the study comprises of 120 patients admitted in ortho ward with the diagnosis of fracture femur.
Sampling technique. Convenient Sampling Technique.

Criteria for sample selection

Inclusion criteria

1) Orthopedic patients with fracture femur underwent open reduction and internal fixation.
2) Those who are speaking Tamil / English only selected.

Exclusion criteria

1) Orthopedic patients who have multiple fracture.
2) Pediatric Orthopedic patients.
3) Patients with pin traction and external fixation.
4) Patients undergo closed reduction.

Data collection instrument and techniques

The tool will be used for the study is,
1) Demographic data
2) Social support scale
3) Mental well-being scale
4) Spiritual well-being scale
5) Activities of daily living scale
6) Orthopedic rehabilitative nursing care

Data collection procedure

The pre-test was conducted in patients with fracture femur admitted in selected hospital and underwent open reduction and internal fixation will be listed every day. Socio demographic variables, clinical details of the patients like social well-being, mental well-being, spiritual well-being and physical wellbeing of patients will be assessed after 48 hrs. of surgery.
Implementation of orthopedic rehabilitative Nursing care patients will be given training on early ambulation with weight bearing exercises, and isometric exercises to improve the physical wellbeing, the family members and friends will be involved with family counseling in order to improve the social well-being, teach and those clients with Bensons relaxation therapy to improve mental well-being and train the patients to do meditation by telling mantras in order to improve spirituality. Posttest will be assessed at the time of discharge and first follow up by using social support scale, mental well-being
scale, spiritual well-being scale, and activities of daily living scale in order to check the significant improvement in social, mental, spiritual, and physical wellbeing. Descriptive and inferential statistics were used for data analysis.

![Figure 1. Frequency and percentage wise distribution regarding orthopedic rehabilitative nursing care of patients with lower limb fractures according to their demographic data](image)

**Results**

The result shows that 1st post-test and 4th post test scores of level of orthopedic rehabilitative nursing care of patients with lower limb fractures difference in mean percentage found that for social wellbeing was 41%, spiritual wellbeing was 56%, mental wellbeing was 48% and activities of daily living was 37%.

The data revealed that in pretest the level of social, spiritual, mental wellbeing and activities of daily living for orthopedic rehabilitative nursing care of patients with lower limb fracture had inadequate orthopedic rehabilitative nursing care, but the 1st post-test had moderately adequate and 2nd, 3rd, 4th post-test had adequate orthopedic rehabilitative nursing care. There was no association between level of social, spiritual, mental wellbeing and activities of daily living for orthopedic rehabilitative nursing care of patients with lower limb fracture. Correlation was found in 1st, 2nd, 3rd, 4th post test with level of social, spiritual, mental and daily living activities. Results reveal that our alternative hypothesis was accepted.

**Conclusion**

The present study was conducted to assess the effectiveness of orthopaedic rehabilitative nursing care on wellbeing of patients with lower limb fractures. The study concluded that orthopaedic rehabilitative nursing care is highly effective and wellbeing of patients is independence, physically and socially, mentally, spiritually allowing them to return to their normal place of living where ever possible.

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Effectiveness of A Planned Teaching Programme on Knowledge Regarding Safety and First Aid Measures on Selected Emergency Conditions among School Teachers in Bhubaneswar, Odisha

Article by Santhosh Kumar J
Ph.D. Scholar, Vinayaka Mission Research Foundation, Salem, Tamilnadu
E-mail: santhosh.sbi2019@gmail.com

Abstract

Children are the future of every country and all societies strive to ensure their health and safety. Most of the accidents occur among the children during the age group of 5 to 14, when they spend most of their time in the school campus. Children ages 5 to 14 account for nearly 40 percent of all sports-related injuries treated in hospitals. An average of the rate and severity of injury increases with a child’s age. Injuries are responsible for nearly half of all sports injuries to middle and high school students. The aims of first aid are to preserve and protect life, prevent further injury or deterioration of illness and help to promote recovery. So, first aid training is necessary to protect the child and promote the recovery period thus to reduce the injury in schools. In this study, a research design selected was one group pre-test and post-test design which belongs to the quasi-experimental design. The samples of the study comprised all teachers working in the selected high schools and those who are fulfilling the inclusion criteria and 51 high school teachers selected in Simple Random Sampling Technique. The finding of the study overall knowledge of high school teachers reveals that 73.6% of subjects had moderately adequate knowledge, 19.4% of subjects had inadequate knowledge, and only 5.9% of subjects had adequate knowledge. After the planned teaching program, the overall improvement means the score was 26.6 with a standard deviation of 1.08. The paired “t” test value was -22.96 which is highly significant at p<0.001. The conclusion of the study planned teaching program was effective thus to improve the teacher’s knowledge and apply that while any crisis occurs in the school premises.

Keywords: Children, Planned Teaching Programme, Safety, First Aid Measures, Knowledge, Emergency Conditions, School Teachers

Introduction

Children are the future of every country and all societies strive to ensure their health and safety. India is home to nearly 500 million young people among whom children less than 15 years are around 370million.

According to WHO statistics published by the Health and safety executive, there were 35,041 reported accidents involving children. In reality, the number of accidents is probably higher, as non-fatal accidents are significantly under-reported. Slips, trips and falls are the most common accidents, constituting 40% of all reported injuries. The increasing number of accidents in schools has had a serious effect on the attitude.

Knowledge of first aid, which constitutes life-saving treatments for injuries or unexpected illnesses, is important for every individual at every age. First aid and basic life support are so important that teaching basic first aid should be made compulsory in all schools. School teachers who are present when the accident happens; have limited knowledge regarding the recommended course of action in such situations. It is therefore of fundamental importance for teachers to be duly informed concerning the correct first-aid measures.

Statement of the problem

A study to assess the effectiveness of a planned teaching programme on knowledge regarding safety and first aid measures on selected emergency conditions among school teachers in Bhubaneswar, Odisha
Objectives

1) To assess the existing knowledge of school teachers regarding safety and first aid measures in selected emergency conditions.
2) To determine the effectiveness of planned teaching programme on knowledge of school teachers regarding safety and first aid measures in selected emergency conditions.
3) To find the association between the pre/posttest knowledge scores with selected demographic variables

Operational definitions

1. Assess. It refers to judgment of the knowledge of the school teachers about safety and first aid measures on selected emergency conditions.
2. Effectiveness. It refers to the degree of increase in level of knowledge of high school teachers to 90% after the information being disseminated.
3. Planned teaching programme. It refers to set of information ‘s given to the high school teachers regarding safety and first aid measures on selected emergency conditions that commonly occur at the school.
4. School teachers. Teachers working with the children of standard 6th-10th in the selected schools of Bhubaneswar, Odisha
5. Knowledge. It refers to level of understanding of the meaning, causes, signs and symptoms and immediate first aid measures on selected emergency conditions.
6. First aid It refers to the immediate management or treatment given to the victim of trauma or sudden illness before medical help is made available.
7. Safety. It refers to state of being safe. Safety is the conditions of being protected from that are likely to cause danger, risk or injury.

Hypothesis

There is a significant difference between pretest and posttest level of knowledge on safety and first aid.

Review of literature

Literature related to
1. Need for first aid training.
2. First aid measures on selected emergency conditions.
4. Effectiveness of planned teaching programmes in schools.

Methodology

Research approach. In this study an evaluative approach was adopted

Research design. A research design selected was one group pre- test and post- test design which belongs to the quasi-experimental design.

Population. The population of the study was high school teachers working in urban area of Bhubaneswar, at Odisha.

Sample. The samples of the study comprised all teachers working in the selected high schools and those who are fulfilling the inclusion criteria.

Sample size. 51 high school teachers.

Sampling technique. Simple Random Method

Criteria for sample selection

Inclusion criteria

1. Teachers working from 6 -10th standard.
2. Available during the period of study.
3. Only teachers who are willing to participate in the study
Exclusion criteria
1) School teachers who have undergone training on safety and first aid.

Data collection methods
Formal written approval was obtained from Institutional Review Board. Written permission was obtained from Directorate of Education Department and Head Masters of selected schools of urban areas of Bhubaneswar at Odisha. The study was carried out 51 high school teachers working in selected high schools of urban areas of Bhubaneswar. Schools were selected using pick lot method. Self-introduction was given by the investigator; the purpose of the study was explained to the subjects, assuring confidentiality of findings. Written consent was obtained from the samples to participate in the study. Pre-test was conducted by self-administering questionnaire. The planned teaching was given to the teachers by using the structured teaching module. Duration of the teaching was 45 minutes. Post-test was conducted with the same tool after seven day.

Table 1. Frequency and percentage distribution of pretest and post-test knowledge level regarding safety and first aid conditions among school teachers n = 51

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Mean</th>
<th>SD</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>15.8</td>
<td>2.77</td>
<td>-22.96</td>
<td>0.001*</td>
</tr>
<tr>
<td>Post-test</td>
<td>26.6</td>
<td>1.08</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.001 Statistically Highly Significant

Table 2. Mean and standard deviation of pre-test and post-test knowledge level regarding safety and first aid conditions among teachers n = 51

<table>
<thead>
<tr>
<th>Level of Knowledge</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>Inadequate (≤ 50%)</td>
<td>10</td>
<td>19.4</td>
</tr>
<tr>
<td>Moderately adequate (51 -74%)</td>
<td>38</td>
<td>73.6</td>
</tr>
<tr>
<td>Adequate (75 – 100%)</td>
<td>3</td>
<td>5.9</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Implications

Nursing practice
1. Nurses play an important role in providing adequate knowledge to the high school teachers about different aspects of safety and first aid.
2. The school health Nurse should periodically organize special training programme for the school teachers which will help them to improve their knowledge, skills to apply it during emergency situation.

Nursing education
1. The Nurses as an organize and conduct teaching programme for high school teachers in order to enhance their knowledge and keep them aware of health problems, which occurs mostly in schools. So that they themselves will be able to take care.
2. The Nursing students should be made aware of their role in school health programme in present and future years which will help them to improve the health of school children.
Nursing administration

1. The findings of the study help Nurse Administrator for decision making, policy and protocol formulation regarding safety and first aid.

Nursing research

1) Finding of the study suggests that educators and researchers should encourage nurses to read, discuss and conduct research studies. So as to enable the nurses to make data-based decision rather than intuitive decisions.

Recommendations

1. The study can be conducted on larger samples.
2. The study can be conducted to teachers of higher secondary schools and colleges.
3. Comparative study can be done between rural and urban school teachers.

Conclusion

The present study assessed the knowledge of high school teachers regarding safety and first aid measures on selected emergency conditions found 38 (73.6%) of high school teachers had moderately adequate knowledge in pretest and in the posttest 51(100%) of high school teachers had adequate knowledge. It shows that there is a significant improvement in knowledge of high school teachers after a planned teaching programme. Thus, the investigator concludes conducting the planned teaching programme was found to be an effective, appropriate and feasible made to develop knowledge of school teachers about safety and first aid.

References

A Study to Assess the Anxiety Level among Patients who are Newly Diagnosed as Myocardial Infarction and their Primary Care Givers in a Selected Tertiary Hospital, Tamil nadu, India

Article by Saranya R
PhD Scholar, Vinayaga Mission Research Foundation, Salem. Tamil Nadu
E-mail: saranapr26@gmail.com

Abstract

The aim of the study was to assess the anxiety level of newly diagnosed Myocardial Infarction patients and their primary care givers and to compare their anxiety level and to associate the anxiety level of newly diagnosed Myocardial Infarction patients and their primary care givers with selected demographic variables and to compare the level of anxiety among newly diagnosed Myocardial Infarction patients and their primary care givers. A descriptive research design and quantitative non-experimental approach was selected. The study includes 50 patients selected by purposive sampling technique. The study was conducted in Trichy SRM Medical College hospital & Research institute at Irungalur, Trichy. Demographic data, state and trait anxiety scale were used for data collection procedure. To analyze the data, statistical analysis was used. The Johnson’s behavioral system model, which is widely used to study health behavior, formed the theoretical framework for this study. The major findings of the study showed that, there was a significant relationship between the patients and primary care givers in State anxiety level with selected demographic variables. There was a significant association between the level of anxiety and demographic variables like Age, Sex and Education. There was a positive correlation between the level of anxiety of patients and their primary care givers. Symptoms of anxiety were prevalent and persistent problems among newly diagnosed as Myocardial Infarction patients and their primary care givers. This study highlights the importance of routine psychological assessment for newly diagnosed as Myocardial Infarction patients and their primary care givers in hospital and after discharge.

Keywords: Myocardial infarction, Anxiety, primary care givers.

Introduction

Acute myocardial infarction (AMI) is a major cause of morbidity and mortality in the United States. Myocardial infarction affects at least 1.5 million individuals a year and kills more than 500,000. The effect of various clinical and socio-demographic characteristics on the incidence of physical complications has been well-studied. Less attention has been paid to the acute psychological responses that accompany acute myocardial infarction (AMI). Anxiety is one of the earliest and most intense psychological responses to acute myocardial infarction (AMI).

Anxiety and depression are prevalent in patients hospitalized for myocardial infarction (MI) because patients are confronted with a diagnosis that is major, both psychologically and physically. In addition, the experience of a cardiac event is a significant source of stress for family members trying to adjust to the initial diagnosis and confront the uncertainties associated with hospitalization and the initial recovery phase. Anxiety has been demonstrated to predict in hospital recurrent ischemia and arrhythmias and cardiac events during the first year after myocardial infarction (MI). Physicians’ and nurses’ subjective judgments of patient anxiety are not accurate when compared with measurements of anxiety on validated scales.

Statement of the problem

“A study to assess the anxiety level among patients who are newly diagnosed as Myocardial Infarction patients and their primary care givers in a selected tertiary hospital, Tamil Nadu, India”.
Objectives

1) To assess the anxiety level of newly diagnosed Myocardial Infarction patients and their primary care givers.
2) To associate the anxiety level of newly diagnosed Myocardial Infarction patients with selected demographic variables.
3) To associate the anxiety level of primary care givers with selected demographic variables.
4) To compare the anxiety level of newly diagnosed Myocardial Infarction patients and their primary care givers.

Methodology

Research approach. A descriptive research approach was considered appropriate for the present study.

Research design. A quantitative non-experimental descriptive study was found to be appropriate to assess the anxiety level among patients who are newly diagnosed as Myocardial Infarction and their primary care givers.

Variables under investigation

Variables are qualities, properties or characteristic of the person, things or situation that change or vary. In the present study the dependent variable was level of anxiety, the independent variables were newly diagnosed as Myocardial Infarction patients and their primary care givers and demographic variables were age, sex, marital status, education, occupation, income, present illness, relationship to the patient.

Setting. The study was conducted in cardiothoracic department at SRM Medical College hospital & Research institute at Irungalur, Trichy. It is a private hospital. It has 5 floors, and is 1980 bedded hospital. The ICCU includes separate units of Cath ICU and Cardio thoracic ICU. In each unit have 11 beds. The General ICU having 15 beds. It consists of all the specialties including medicine, surgery, ENT, Cardiology, Pediatrics, Nephrology, Neurology, Oncology and Obstetrics and Gynecology. It has the services like outpatient department, inpatient department, emergency and intensive care unit. The hospital is well equipped with modern techniques, competent and complex equipment’s. The present study was conducted in Emergency care unit and cardio thoracic ICU.

Population. In the present study, the target population was the Patients who were admitted in SRM Medical College hospital & Research institute at Irungalur, Trichy. Myocardial infarction and their primary care givers.

Sample and sampling technique

Sample. Samples were the newly diagnosed as myocardial infarction and their primary care givers who admitted cardiac ICU and Emergency care unit in SRM Medical College hospital & Research institute at Irungalur, Trichy. who fulfilled the sampling criteria?

Sample size. The sample for the present study comprised of 50 newly diagnosed as Myocardial Infarction and their primary care givers.

Sampling technique. Non-probability purposive sampling technique was used for selecting samples for this study.

Criteria for sample selection

Inclusion criteria

1. Patients who are newly diagnosed as Myocardial infarction and their primary care givers.
2. The patients who knows Tamil and English.

Exclusion criteria

1. The psychiatric patients.
2. The patients’ who were critically ill.
Description of the tool

The tool consists of two sections.

Section-A

It consists of 8 items of demographic variables like age, sex, marital status, education, occupation, income, Present illness, and Primary care givers.

Section-B

The Speilberger D. Charles State and Trait Anxiety Inventory form developed by Speilberger was used in present study. It consists of two divisions. Form 1 is the State Anxiety Questionnaire. Form 2 is the Trait Anxiety Questionnaire. Each division consists of 20 items on 4 point “Likert Scale”.
1. Not at all
2. Somewhat
3. Moderately so
4. Very much so

Score and interpretation

The Form I State Anxiety Likert scale maximum score is ‘80’, minimum score is ‘20’. For item no.1,2,5,8,10,11,15,16,19 and 20, reverse scoring is given and for the remaining 10 items direct scoring is given. In the same way Form II Trait Anxiety contains 20 items with a maximum score of ‘80’ and a minimum score of ‘20’.

For items no.2,3,4,5,8,9,11,12,14,15,17,18 and 20 direct scoring is given and for item no.1,6,7,10,13,16 and 19 reverse scoring is given as they indicate wellbeing and calmness.

<table>
<thead>
<tr>
<th>Level of anxiety</th>
<th>Score</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>0 - 20</td>
<td>0% - 25%</td>
</tr>
<tr>
<td>Mild anxiety level</td>
<td>21 - 40</td>
<td>25% - 50%</td>
</tr>
<tr>
<td>Moderate anxiety</td>
<td>41 - 60</td>
<td>50% - 75%</td>
</tr>
<tr>
<td>Severe anxiety</td>
<td>61 - 80</td>
<td>75% - 100%</td>
</tr>
</tbody>
</table>

Data collection procedure

The investigator obtained prior permission from the dean of TSRMMCRI. Ethical Clearance was obtained from the research committee. Total 50 samples were selected by using inclusion and exclusion criteria and the investigator met each participant and established rapport with them. The investigator interviewed the newly diagnosed Myocardial infarction patients and their primary care givers to assess the anxiety level with the State and Trait anxiety inventory and analyzed the results. The investigator spent 20 minutes for each sample.

![Figure 1](image.png)

**Figure 1.** Frequency and percentage distribution of sample with reference to age
**Figure 2.** Frequency and percentage distribution of sample with reference to Sex

**Figure 3.** Frequency and percentage distribution of sample with reference to Income

**Figure 4.** Frequency and percentage distribution of sample with reference to Occupation
Figure 5. Frequency and percentage distribution of myocardial infarction patients with reference to previous illness

Section B

Figure 6. Assessment of the anxiety level of newly diagnosed myocardial infarction patients and their primary care givers

Figure reveals that 5 (10%) myocardial infarction patients had mild anxiety; 27 (54%) patients had moderate anxiety; 18 (36%) patients had severe anxiety in state scale. 26 (52%) patients had no anxiety; 24 (48%) patients had mild anxiety in trait scale.

Figure 7. Frequency and percentage distribution of anxiety level of primary care givers
Figure reveals that 3 (6%) patients had mild anxiety; 29 (58%) patients had moderate anxiety; 18 (36%) patients had severe anxiety in state scale. 23 (46%) had no anxiety; 27 (54%) patients had mild anxiety in trait scale.

Section C

Association of the anxiety level of primary care givers with selected demographic variables.

(N= 50)

<table>
<thead>
<tr>
<th>DEMOGRAPHIC VARIABLES</th>
<th>Mild Anxiety</th>
<th>Moderate Anxiety</th>
<th>Severe Anxiety</th>
<th>Chi square test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td>%</td>
<td>NO</td>
<td>%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. &lt;30 yrs</td>
<td>1</td>
<td>2%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>b. 31 to 40 yrs</td>
<td>2</td>
<td>4%</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>c. 41 to 50 yrs</td>
<td>0</td>
<td>0%</td>
<td>15</td>
<td>30%</td>
</tr>
<tr>
<td>d. 51 to 60 yrs</td>
<td>2</td>
<td>4%</td>
<td>8</td>
<td>16%</td>
</tr>
<tr>
<td>e. &gt;60 yrs</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Male</td>
<td>4</td>
<td>8%</td>
<td>18</td>
<td>36%</td>
</tr>
<tr>
<td>b. Female.</td>
<td>1</td>
<td>2%</td>
<td>9</td>
<td>18%</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Single</td>
<td>1</td>
<td>2%</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>b. Married</td>
<td>4</td>
<td>8%</td>
<td>23</td>
<td>46%</td>
</tr>
<tr>
<td>c. Divorced</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. No formal education</td>
<td>2</td>
<td>4%</td>
<td>7</td>
<td>14%</td>
</tr>
<tr>
<td>b. Primary school</td>
<td>0</td>
<td>0%</td>
<td>11</td>
<td>22%</td>
</tr>
<tr>
<td>c. Secondary school</td>
<td>2</td>
<td>4%</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>d. Graduate and above</td>
<td>1</td>
<td>2%</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Government employee</td>
<td>2</td>
<td>4%</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td>b. Private employed</td>
<td>0</td>
<td>0%</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td>c. self-employee</td>
<td>3</td>
<td>6%</td>
<td>13</td>
<td>26%</td>
</tr>
<tr>
<td>d. Un employee</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. &lt;4000</td>
<td>2</td>
<td>4%</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td>b. 4001 to 6000</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>c. 6001 to 8000</td>
<td>0</td>
<td>0%</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td>d. &gt;8001</td>
<td>3</td>
<td>6%</td>
<td>13</td>
<td>26%</td>
</tr>
<tr>
<td>Previous illness?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Diabetes mellitus.</td>
<td>2</td>
<td>4%</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td>b. Hypertension</td>
<td>1</td>
<td>2%</td>
<td>7</td>
<td>14%</td>
</tr>
<tr>
<td>c. Diabetes mellitus &amp;</td>
<td>1</td>
<td>2%</td>
<td>12</td>
<td>24%</td>
</tr>
<tr>
<td>Hypertension</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. None of the above</td>
<td>1</td>
<td>2%</td>
<td>2</td>
<td>4%</td>
</tr>
</tbody>
</table>

Section D

Comparison of the anxiety level of newly diagnosed myocardial infarction patients with their primary care givers.

(N= 50)

<table>
<thead>
<tr>
<th>ANXIETY LEVEL</th>
<th>Mean</th>
<th>S D</th>
<th>‘t’ Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient</td>
<td>2.26</td>
<td>633</td>
<td>P = .046*</td>
</tr>
<tr>
<td>Primary care givers</td>
<td>2.30</td>
<td>580</td>
<td>Significant</td>
</tr>
</tbody>
</table>
Implications

The findings emerged out of this study has got implications in the field of nursing service, nursing education, nursing administration and nursing research.

Nursing service

1. Nurse should arrange counseling sessions for both patients and their primary care givers.
2. Attempts must be made to motivate the patients as well as their Primary care givers in adhering to Post care of Myocardial infarction.
3. Increased attention must be directed to client education regarding important of Myocardial infarction and also after care of MI.
4. Nurses must educate the patients regarding the life style modification and provide psychological support for patients as well as Primary care givers.

Nursing education

1. Nurse educators can encourage the students who are posted in the CCU and wards to assess anxiety level of Myocardial infarction patients and provide the psychological support to them and their primary care givers.
2. Nursing curriculum can formulate guidelines related to control of risk factors of Myocardial infarction and that can be issued all CCU and Cardiac disease institute.
3. Nurse educators can prepare pamphlets, self-instruction module related to myocardial infarction and precaution of anxiety that can be distributed in CCU and Cardiac disease institute.

Nursing administration

1. The nurse administrator can plan and develop protocol, standing orders related to psychological aspect of care to Myocardial infarction patients and their primary caregivers.
2. The nurse administrator can disseminate the research knowledge to the nurses.
3. The nurse administrator can conduct continuing nursing education programme.

Nursing research

1. The present study can be replicated on a large population.
2. Nurses must incorporate newer methods to motivate patient with myocardial infarction towards life style modification and prevention of complication.

Limitations

1. The findings can only be generalized to the patients with myocardial infarction.
2. The study was conducted only in Trichy SRM Medical College hospital & Research institute at Irungalur, Trichy.
3. The researcher could not get adequate number of samples.

Recommendations

1. This study may be replicated on a large sample.
2. Similar studies may be conducted in other settings.
3. An experimental study to determine the effectiveness of the structured counseling sessions among patients with myocardial infarction.
4. A comparative study between male and female myocardial infarction patients can be conducted.

Conclusions

Based on the findings of the study the following conclusions were drawn i.e. 10% myocardial infarction patients had mild anxiety; 54% patients had Moderate anxiety; 36% patients had severe anxiety and 6% primary care givers had mild anxiety; 58% primary care givers had Moderate anxiety; 36% primary care givers had severe anxiety. There was a positive correlation between the patients and primary care givers anxiety level. The mean anxiety level of primary care giver is higher than patient’s anxiety level. The study results shows that Anxiety is one of the earliest and most intense
psychological responses to acute myocardial infarction (AMI) patients and their primary care givers. So, the health personnel insisted to pay more attention to the acute psychological responses that accompany acute myocardial infarction (AMI) to prevent further complications.

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Factors Influencing the Performance of Nurses Towards Health Care Provision in Public Health Facilities: Sironko District

Article by Wangoda Micheal¹, Keren Carol Drateru²
¹Principal Health Tutors’ College-Mulago
²Mbale Clinical officers School
E-mail: keren.carol@yahoo.com²

Abstract

Background: Objective of study was to assess the socio-demographic, Institutional and socio-economic factors affecting performance of Nurses at public Health facilities in Sironko District. The health facilities had 60 nurses and 52 among them were interviewed representation 90% of entire nursing population at the facilities.

Methods: A quantitative cross-sectional descriptive design was employed and data collected from a number of participants was found to be valid, tallied and analyzed using the SPSS 18 software version. Data is presented in qualitative and quantitative findings in frequencies, percentages, tables, graphs and pie charts.

Results: the study found that 37(71%) of the Nurses were enrolled who provided general Nursing duties. Majority of respondents 40(76%) spent over 8 hours working which affected their performance negatively, and 52(100%) cited patient treatment as the role they performed to their satisfaction. The study found that 32(63%) nurses earned less than 500,000/= of which 40(78%) said they were dissatisfied with and yet had no institutional accommodation.

Conclusion: socio-economic and institutional factors like poor remuneration, lack of incentives, accommodation, lack of adequate equipment and supplies, affect the performance of nurses at public health facilities in Sironko District.

Recommendation: For the performance to improve employment package of the nurses including salary, a protective policy framework be revised; including provision of official accommodation, adequate equipment and supplies.

Keywords: Influencing Factors, Performance, Nurses, Care provision and Public Health facilities.

Background to the study

Nurses worldwide are among the frontline service providers contributing great percentage of the Health workforce (WHO, 2012). However, the Nursing work force shortages compounded by prevailing global economic and funding constraints pose serious challenges to nursing workforce and to service delivery globally (WHA, 2011).

In Armenia (Europe) where they have a steady and controlled population growth, prioritization of financing health programs by government, as well as good and functional health policies, their nurses enjoy the privileges of being nurses, making their health care system one of the best in the world (UNICEF, 2012).

In a survey carried out by the demographic Health Survey un Gujarat(DHS,2011) India where the population explosion overwhelms the public health human resource, causing a serious disparity of under staffing at public health facilities as an outcome, yet they remain subjected to low payment, the morale of health workers particularly nurses, is said to have declined significantly compromising the quality of nursing there.

Poor pay for heavy work load seriously caused a decline of morale among nurses in Ghana and Cote D’voure, hence compromising their out-put according to a study conducted by (AMREF, 2013). The study additionally sighted negative cultural practices where most families contented that men had to decide the direction of women including female nurses and the gender subjection of women to house hold duties, maternity and other gender-based effects, significantly compromised the performance of female nurses. Inadequate manpower, equipment and medical supplies due to limited
resources at health facilities yet there were many clients to attend to, did not only leave nurses stressed due to over working but also predisposed them to occupational health hazards due to inadequate Personal Protection Equipment (PPE) supplies (AMREF, 2013).

A study carried out in 2010 by Wanjiru in Nanyuki provisional Hospital a setting similar to the proposed study are found that majority of clients at the facility were negative about health care given by health workers of the nursing cadre. They said most nurses were rude, while others cared less for patients (Wanjiru, 2010).

In Uganda according to the Ministry of Health (2013), despite improving the welfare of nurses who work in public Health facilities by providing lunch and hard to reach allowances, accommodation and general increment in the nurse’s basic salary pay, many of them still cannot cope considering their big extended families. Nurses continue to be rude and abusive to the patients to the extent that they ask patients why they come late to the health facility.

**Problem statement**

In Uganda, Sironko district inclusive, patients express their dissatisfaction with services offered by Nurses citing late arrival and early departure from duty, rudeness and the negligent way of behavior towards them. Patients are not given complete course of drugs or not actually given at all on the pretext that they are out of stock and they do not follow standard operational precautions. And this happens to be the trend in majority of the health facilities in the district. This may not be nurse’s problem but the institution’s and this happens to be the trend in most public health facilities in the district.

No study has been carried out in Sironko district to establish the social demographic and economic factors that influence the performance of nurses towards health care service delivery in the public health facilities.

**Purposes of the study/ general objective**

The purpose of the proposed study was to identify the factors influencing performance of nurses towards health care provision in public health facilities in Sironko District

**Specific objectives**

The objectives of this study were
1. To find-out the socio-demographic factors that influence the performance of nurses towards health care delivery among Sironko district public Health Centres.
2. To identify the Institutional factors that influence the performance of nurses towards health care delivery among Sironko district public health Centers.
3. To determine the socio-economic factors that influence the performance of nurses towards health care delivery in Sironko district public health centers.

**Research questions**

This study sought to answer the following questions.
1. What socio-demographic factors influence the performance of Nurses towards health care delivery among Sironko district public Health centers?
2. What Institutional influences the performance of Nurses towards health care delivery at public Health Centers at public Health Centers in Sironko District?
3. What socio-economic factors may influence the performance of nurses towards health care delivery among Sironko district public Health Centers?

**Significance of the study**

The study was to help revive the performance of nurses to a good functional state and to a great extent guarantee their effectiveness.

The research study helped to inform Sironko District Local Government about performance problems and develop strategies to minimize them.
The research was also meant to inform the policy makers to find ways to curb the present undesirable situation and to understand pertinent motivational issues in regards to performance by nurses. The research study purpose is to be used for the award of bachelor’s degree to the researcher.

Justification of the study

Despite Uganda Government efforts with the support of development partners to provide quality health services for all, HIV/AIDS new infection rates continue to rise; child mortality and morbidity remains a threat; poor maternal health prevails; and on a large scale infections as a result of easily preventable diseases continue to rise as well, and these at evidently seen at all health facilities within the Country. This scenario raises questions about the factors that influence the attitudes of health workers especially nurses who constitute two thirds of the entire technical man power force worldwide (WHO,2008).

Findings from this study will identify core causes of the poor performance of the Nurses in the course of health care delivery as well as recommendations to address these causes.

Literature review

In this literature review of relevant articles, journals, books, research reports and other information sources will be conducted with the aim of establishing and identifying available evidence on factors affecting the performance of nurses. Information sought is presented in relation to study objectives which include; socio demographic, institutional and economic factors affecting the performance of nurses.

Socio-demographic factors affecting the performance of nurses

Nurses

According to Helen et al, (2011), young female nurses were more responsive to their patients as compared to their older counterparts; this was probably because they were eager to acquire experience. Another study by Kamatesi in Western Uganda concurred with Helen, the study found older women overwhelmed with family problems and obligations, and this included both married women and single mothers (Kamatesi, 2011).

Gender issues

Worldwide different cultures influence the performance of health workers including nurses according to Speziale and Jacobson 2011). The study established that globally the nursing profession had been perceived as a feminine profession, yet females were considered the inferior sex by many of these cultures in the study setting in India, Sub-Saharan Africa and Latin America. As a result, most of these nurses find their way abroad for better social security.

Similarly, studies carried out by Baumann et al (2008), on how culture affects the performance of nurses in England, Germany and Saudi Arabia; it was established that some cultural practices marginalized women therefore many immigrant female nurses were going from Saudi Arabia to Britain not because of social economic gains but mostly because of preference for the English culture which respects gender equality. The study cited nurses who migrate as those coming from wealthy families in Saudi Arabia to work in United Kingdom and the United States; however the study also cited that most Germany nurses were quite contented with their culture as well as their economic status so they so they preferred to work at home like, while in Saudi Arabia like many other Arab countries, despite coming from oil rich families, nurses were migrating to the USA and UK due to preference of living in western cultural life style.

Religion

According to Kagwa et al (2010), nurses with a background of commitment to religion were found to be morally upright and were more likely to handle their patients well.
Traditional rituals/negative cultural practice

The UNESCO (2009) report indicated that most nursing migrants do not only seek better pay but shy away from the prevailing negative cultural practices in their countries in preference for western cultural life styles. Similar cases were cited in Sub-Saharan Africa where female genital mutilation and gender-based violence were cited as diversionary factors in the performance of nurses in their local environment.

A related study by AMREF (2012), revealed that negative cultural practices were most families contended that men had to decide the direction of women including female nurses and the gender subjection of women to house hold duties, maternity and other gender-based effects significantly compromised the performance of female nurses.

Family obligations

A study carried out by OXFAM (2009) Bududa District found that obligations to the nuclear family especially among female nurses were highly demanding; local traditional like attending burials, marital introduction and wedding ceremonies, circumcision, enthroning heirs and other cultural rituals tended to interfere with the duties of nurses, they occur quite often and by various close relatives. Attending such functions was a must or else you are regarded a family out cast. The study also found that many nurses had big extended families were nephew’s nieces whose parents had died as result of HIV/AIDS.

However, in Uganda according to the MOH (2008), policies to address cultural practices that negatively influence the performance of health workers including nurses are in place, citing the Public Health Act (PHA). Ministry of Gender and the Domestic Relations Bill.

Understaffing and inadequate supplies

A survey carried out in Gujarat, India where the population explosion overwhelmed the public health human resource particularly nurses, caused a serious disparity in the health worker to patient ratio at 1:800,000, which was the major reason for understaffing at public health facilities as an outcome. In 2010 there was a very low nurse to patient ratio of 1:11,000 in Uganda (UBOS, 2012) Statistical Abstract p. 29.

Despite the increased demand due to the increased number of clients and highly infectious diseases like HIV/AIDS and Hepatitis-B inadequate medical supplies like Personal Protection Equipment (PPE) left nurses at high risk of occupational health hazards and safety (DHS, 2010).

Low pay and poor motivation

Similarly, a study carried out among 103 nurses in Kenya to determine the factors affecting performance of nurses in the public health sector, results revealed that low salaries, poor communication channels and use of poor technologies led to provision of low-quality health care services (Wanjau, Wangari, Ayodo, 2012).

The situation in Uganda in not different; a study conducted by Kiapi, (2010) stated that nurses in Uganda were facing a big challenge of accommodation. In many districts, health workers like midwives and nurses have to find accommodation for their families or themselves when posted. Others have failed to show up for emergencies due to lack of transport and long distances between their homes and the health centre. A case in point was when 40 health workers including midwives and nurses in Masaka District were sleeping in health centre wards because of lack of accommodation. This greatly compromised their performance and the outcome of patient care.

Leadership and management

Effective management was mentioned as an important enabler of quality from the perspective of providers, managers, policy-makers and payers. “Everything in the hospital is affected by the management (Mabonga, 2010).

Poor leadership and management led the Medical Officer In-charge Budadiri Health Centre, Sironko District to brand all his subordinate’s thieves before inciting the community to attack them
and a lot of property belonging to the staff and the hospital were destroyed. Consequently, this has demoralized all the staff who have all laid down their tools and demanded for transfer.

Infrastructure and human resource development

In fact, a World Bank (2009), report indicate that there was close co-relation between investing in public infrastructure and human resource development in achieving the MDGs/SDGs. The report further indicated that service delivery, continued training and research and addressing the existing gaps in staff welfare were key priority areas of investment, sighting training of community health nurses among other health workers, but however these were still a long way to be achieved in East Asia. Latin America and Sub-Saharan Africa while in Armenia where they have a steady and controlled population and economic growth, as well as good and functional public health policies, their nurses enjoy privileges of being nursed, making the health care system there one of the best in the world (UNICEF, 2008).

Governance and policy

A study carried out by IOM (2010), revealed that there was increased immigration of nurses from impoverished countries of the Caribbean, Sub-Saharan Africa, Asia and Latin America seeking better paying jobs in Europe and USA. Similarly, a per presented by Liese, Blachest, Dussault, (2009) at Washington DC, indicated that the Human Resource Crisis in Health Services in Sub-Saharan African in mostly caused by poor governance, graft, armed conflict and subsequent poor economic performance. Furthermore, the report mentioned brain drain in the nursing sector citing tha nurses leave their jobs for better pay abroad.

This is in contrast with a study conducted by Bucha and Sochaski (2009), which revealed that brain drain from Philippines to Hong Kong is as a result of frequent armed conflict not only causing poor economic performance but insecurity as well, nurses there flee from their country to find peace in neighbouring countries. A related study by Kober and Van Damme (2010) in Swaziland revealed that nurses do not only abandon their career to South Africa for better pay, but also because of gender based violence and marginalization subjected to women in the country who include female nurses was the other reason why the migrate to seek social security.

National economics

The study conducted by Helen et al., (2011), revealed that nurses in Malaysia received much less pay as compared to other cadres of health workers moreover they do donkey work, yet they are subjected to harassment by their superiors, they said this greatly demoralized them and sometimes forced them to abscond from official duty in order to find additional income.

A study carried out by AMREF (2012), in Ghana and Cote D’voure revealed that low developing economics; poor governance; non-prioritization of investment in health and poor social service infrastructure development as major causes that undermine quality of health care on the continent. The study further pointed out that poor pay for heavy work load seriously caused a decline of morale among nurses, hence compromising the quality of their health care services out-put, while inadequate manpower, equipment and medical supplies due to limited resources at health facilities yet there are many clients to attend to, do not only leave nurses over stretched, and stressed, but also compelled them to making accidental mistakes on patients as well as predisposing them to occupational health hazards.

The situation in Uganda is not different, a study conducted by MOH (2010), revealed that despite improving the welfare of nurses who work in public facilities, many of them still cannot cope considering their big extended families. Housing for residential accommodation is provided to only a few people while the rest have to commute long distances spending a lot of time and money in transit. However, despite government strategy to improve on health service delivery consistent with the Uganda National Minimum Health Care Package (UNMHCP), there is still a big gap in regard to addressing the requirements of nurses in order to enhance better performance.
Methodology

Study design

This was a descriptive cross-sectional study, and employed both quantitative and qualitative methods of data collection. The researcher chose to use this design because cross-sectional studies are snap-shot, that is, they take the shortest time. They involve data collection only once in the study time, and the time they take is comparable with the sort time designated for researcher by the college curriculum.

Study setting

The study took place at Sironko District Health Centres, in Eastern Uganda which included 12 health centres 3s, 9 health centres 2s and 2 health centres 4s in the sub counties of Buwalasi, Buteza, Buwasa, Sironko Town Council, Busulani, Bunamifwa, Butandiga and Budadiri. Each health centre 4, served as an average of 100 – 200 out-patients, on daily basis with an admission capacity of 30 patients each, although in most cases they admitted between 30 to 40 with many sleeping on the floor. There are 60 nurses who work in the different health facilities majority enrolled nurses, registered officers. The Health Centre IIIIs served about 60 to 90 patients on daily basis including some Health Centre IIs.

Sironko District is 180 kilometers from Kampala the capital city of Uganda. The main economic activity is predominantly agriculture and local language spoken is Lumasaba. It is bordered in the North by Bulambuli, Bukedea in the West, Mbale District in the South and Bududa District and Mt. Elgon in the Eastern Uganda. The services provided included: majority OPD where patients examined and treated, laboratory units which conducted laboratory tests. The health facilities also provided MCH, Family Planning (FP), HIV/SIDS/EMTCT services, among others. The study setting was chosen because the health centres put together had a big number of nurses which availed the researcher with a big sample size to select from.

Study population

The study was carried out among general and registered nurses (male and female), working in Sironko District Health Centres during the study period because nurses worldwide are among the frontline service providers contributing a greater percentage of the health workforce.

Sample size determination

The sample size was determined from a study population of 60 nurses (got from district HMIS focal person), using Krejci and Morgan Table 1970, attached in the appendices that gave a sample size of 52 nurses.

Sampling procedure

The researcher used a simple convenient method to choose the respondents since each health facility had between one to five nurses. Only respondents who were present and willing to participate were included in the study on day of data collection and the process was done for 10 consecutive days in which 5 respondents were interviewed on each day. This was because the researcher had to wait for the respondents to first finish or reduce on the work, they were doing in order to be interviewed as they were at most health facilities.

Inclusion and exclusion criteria

The study included registered and enrolled nurses working in Sironko public health facilities and only those who consented to be interviewed and were available during the days the researcher collected data.

Those who were unwilling, not available due to annual leave, maternity leave, off duty, sick leave is excluded from the study.
Definition of variables

Variables can be defined as characteristics of interest that a researcher would like to handle, observe or manipulate in the research.

The independent variables

An independent variable is one that can be manipulated to determine the value of a dependent variable. And this study included social demographic and economic factors such as salary payment, and institutional factors, like provision of equipment and medical supplies, manpower.

Dependent variables

These included performance of nurses at Sironko District Health Centres by use of a standard questionnaire.

Research instruments

The researcher employed in this study a structured self-administered questionnaire in English language designed for collecting and recording data. The design of the questionnaire was guided by the objectives of the study and the literature review; which included open-ended and closed-ended questions. The questionnaire was used because it was the simplest and least expensive method of obtaining information from large numbers of subjects. It permitted anonymity and resulted in more honest responses. The instrument also enabled the researcher to capture all categories of respondents regardless of their educational background, religious and financial status.

Data collection procedure

Upon receiving an approval letter from Health Tutors’ College Mulago, researcher got approval from the Chief Administrative Officer Sironko District. Permission was granted by the various health facility in-charges. The researcher trained 3 research assistants who helped him in data collection and analysis. Then the data was collected on daily basis from the respondents who passed the inclusion criteria.

Validity and reliability

To ensure validity and reliability of the tool, the researcher undertook certain measures. For the purposes of quality control, the researcher pre-tested the questionnaires at Komamboga Health Centre III which had a setting similar to health facilities in Sironko District before actual data collection. Data was analyzed and then adjustments be made accordingly. A questionnaire was checked for data accuracy, consistency, quality and completeness and to correct any mistakes.

Data management

Data editing

After every interview, the questionnaire and data were thoroughly checked for completeness.

Data storage

Data was kept under lock and key. The keys were always kept by the researcher. The researcher pass-worded his computer. All these were done to prevent anyone from altering the data before and after analysis respectively.

Data cleaning

The data was kept in a wide envelop to keep it from dirt as it awaited analysis.

Data processing and analysis

Data checking was done immediately. Then data coding and entry followed. Data processing was done by the researcher using computer software SPSS version and Excel. Thereafter data was analyzed by use of descriptive statistics. Analyzed data was presented in form of tables, bar graphs, line charts and pie charts. Qualitatively the findings were critically analyzed and narrated.
**Ethical considerations**

The proposal was presented to Health Tutors’ College Mulago Research Committee for approval. The researcher carried an introductory letter from the Director, Health Tutors’ College Mulago to seek permission from Sironko Chief Administrative Officer. Informed consent was obtained from all the study respondents. Confidentiality of information was ensured throughout as respondents were not required to write their names on the questionnaires were securely and safely kept by the researcher. Also, a covering letter was attached on the research tool. It gave proper explanation to the respondents about the purpose of the study. Participation was by request and voluntary hence respondents made informed decision prior to consent. Each respondent/participant was free any time to withdraw his/her participation from the study. Informed and written consent was obtained from the respondents before participation. Privacy and confidentiality were respected and no names of respondents were recorded.

**Study limitations**

Scarcity of funds was a key constraint. This was addresses through seeking for financial support from my spouse and friends which enabled the researcher to complete the study within the limited time.

Uncooperativeness of respondents was overcome by categorically explain the purpose of the study and giving assurance of high level of confidentiality.

**Dissemination of results**

After data analysis, all the results obtained upon approval by the Supervisor, five bound copies were made and submitted to the following: Makerere University, Health Tutors’ College Mulago, Sironko District Administrative Officer and a one copy was retained by the researcher.

**Presentation, interpretation and analysis of findings**

**Section A. Demographic data**

A total sample size of 52 nurses was interviewed and information from all the questionnaires was found to be valid.

Majority of the respondents 28 (54%) were Gishu; followed by 12(23%) Itesotis and more than a half 35(67%) were married. Greatest proportion of respondents 47(90%) were Christians. Predominantly 39(75%) respondents provided general nursing care and a significant number 37(71%) were Enrolled Nurses, while Minority 1 (2%) were Senior Nursing Officers.

Majority of respondents 24(47%) said they had to travel long distances to meet their families.

**Section B. Institutional factors**

Distribution of respondents according to hours spent at Health facility.

n=52
Majority of respondents 30 (58%) said they spend over 8 hours at the health facility.

Distribution of respondents by their socio-demographic characteristics

Table 1

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency (N=52)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>39</td>
<td>75</td>
</tr>
<tr>
<td>Male</td>
<td>13</td>
<td>25</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-30 years</td>
<td>20</td>
<td>39</td>
</tr>
<tr>
<td>31-43 years</td>
<td>19</td>
<td>37</td>
</tr>
<tr>
<td>44 and Above</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>15</td>
<td>29</td>
</tr>
<tr>
<td>Married</td>
<td>35</td>
<td>67</td>
</tr>
<tr>
<td>Widowed</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Divorced</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Cadre</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior Nursing Officer</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Nursing Officer</td>
<td>14</td>
<td>27</td>
</tr>
<tr>
<td>Enrolled Nurse</td>
<td>37</td>
<td>71</td>
</tr>
<tr>
<td><strong>Family Obligations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time with the Family</td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td>Providing basic needs</td>
<td>18</td>
<td>35</td>
</tr>
<tr>
<td>Travelling to meet the Family</td>
<td>24</td>
<td>46</td>
</tr>
</tbody>
</table>

Majority of respondents 39 (75%) were female and most of respondents 20 (39%) were aged 18-30, followed by 19 (37%) aged 31-43. A significant number of respondents 28 (54%) were
Table 2 n=52

<table>
<thead>
<tr>
<th>Effects</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positively</td>
<td>10</td>
<td>20%</td>
</tr>
<tr>
<td>Negatively</td>
<td>26</td>
<td>50%</td>
</tr>
<tr>
<td>Not affected</td>
<td>16</td>
<td>30%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>52</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Half of respondents 26(50%) said performance was negatively affected by the long working time.

**Distribution of respondents according to number of clients they attend to**

N=52

![Figure 2](image-url)

All respondents 52(100%) said they attended to over 30 clients daily.

**Distribution of respondents according to working relationships.**

N=52

![Figure 3](image-url)

Majority of respondents 35 % (70%) said the work method they use is through combined efforts.

**Distribution of respondents according to the incentives they receive.**

n=52
Figure 4

Distribution of respondents according to common occupational health hazards that affect the performance of nurses.

n-52

Figure 5

Majority of respondents 24(47%) said they last had refresher training 12 months ago.

Section C. Socio-economic factors

Respondents according to how much they earn.

n=52
Majority of Respondents 32(63%) were earning less than 500,000=

4.2.1 Respondents according to residential status, distance from home to workplace, and how transport affect the performance of Nurses.

Table 3

<table>
<thead>
<tr>
<th>Category of residence</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenant</td>
<td>38</td>
<td>75%</td>
</tr>
<tr>
<td>Institutional House</td>
<td>7</td>
<td>13%</td>
</tr>
<tr>
<td>Family House</td>
<td>4</td>
<td>7%</td>
</tr>
<tr>
<td>Personal House</td>
<td>3</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distance to work</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>500-1000 Metres</td>
<td>26</td>
<td>51%</td>
</tr>
<tr>
<td>2-5 KM</td>
<td>4</td>
<td>7%</td>
</tr>
<tr>
<td>6-10KM</td>
<td>9</td>
<td>17%</td>
</tr>
<tr>
<td>Above 15KM</td>
<td>13</td>
<td>25%</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cost of transport per day</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>4</td>
<td>7%</td>
</tr>
<tr>
<td>Less than 5000=</td>
<td>11</td>
<td>21%</td>
</tr>
<tr>
<td>5000-10,000=</td>
<td>23</td>
<td>45%</td>
</tr>
<tr>
<td>Above 10,000=</td>
<td>14</td>
<td>27%</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100%</td>
</tr>
</tbody>
</table>

Majority of respondents 38(75%) were tenants, yet 7(13%) were living in Institutional houses. More than half respondents 26(51%) lived in a range of 500-1000 meters, and a significant proportion of respondents 23 (45%) were spending 5000-10,000= on transport

Discussion, conclusions and recommendations

Socio-demographic characteristics of the respondents

Majority of respondents (75%) were female while minority (25%) was male. This is in agreement with studies carried out by Speziale and Jacobson (2011) which established that worldwide the profession of nursing is still widely perceived as a feminine profession, yet may women in the same parameter were subjected to domestic violence according to results from this study was ruled out as one of the significant factors that affect the performance of nurses at public health facilities in Sironko District.
Marriage in Uganda despite its other hidden problems is regarded a special status in social cultural life, women aged 25 years and above are very likely to be married and those who are living a single mother are likely to be widows or divorcees. This study therefore discovered that 67% of the nurses aged 25 and above were married which rule out marital status being factor affecting health service delivery.

This study found out that low pay among the younger nurses either forced them to go to the private sector or leave the country for better pay. Bucha and Solashaski (2009) in their study say that the major cause of brain drain among nurses from Philippines to Hongkong is for better pay. This agrees with the findings in this study.

This study found that low pay demoralized most nurses especially in circumstances where they are subjected to handling many patients/clients and working for long hours. WHO (2009) Report, Geneva cited that poor motivation of nurses seriously caused low working morale among them, subsequently compromising their performance and generally the quality of health service delivery. This was most in Eastern Asia, Latin America and Sub-Saharan Africa.

Institutional factors that affected the performance of nurses

The study found that working over 8 hours was too long. Consequently, the study also established that the nurses attended to a big number of clients. In these circumstances the study revealed that working for long hours stressed many nurses and they were bound to make accidents that could affect them or their clients. A study by AMREF (2012) agreed with this position.

The study found that the number of patients seen overwhelmed them and compromised the quality of their performance especially those who are towards the end of the queues, 74% were attending to over 30 clients DHS (2010) Survey in Guard, India which agrees with this finding revealed that population explosion at under staffed health facilities overwhelms health workers and compromises quality of health care provided to patients. This study found that equipment utilized by health workers at the study setting was inadequate; on the contrary 71% said they had adequate supply of drugs. Additionally, there were no incentives to motivate them, not even first aid kits or compensation policy in place to cater for them in case of injury on duty, and these factors affected their role as nurses.

This study found that welfare of Junior Nurses as compared to other health workers at the study setting was not addressed and this destroyed the spirit of team work, apart from lack of incentives the study found that other job-related challenges were not addressed. Additionally, the study found that the superiors of nurses were rude to them and these factors affected their role as nurses. Personnel related problems, bad working condition and some poor policy affect health service delivery.

The study found that only Unit In-Charges/Matrons and some few Senior Nursing Officers were entitled to incentives, depending on their roles. This was likely to cause a grievance among the rest of the nurses. As cited by Sigh et al (2012), performance of nurses in Pakistan improved when government increased the living wage, provided accommodation, lunch and overtime allowances. This makes poor pay a factor that can affect the performance of nurses.

Socio-economic factors that affected the performance of nurses

This study revealed that even if pay increase and incentives were to be provided the Ugandan culture of living with large extended families would not allow a significant change in regard to improving the quality of life. This therefore means the performance of the nurse remains affected in the socio-economic context MOH, (2010). However, on the contrary a study conducted by Helen et al (2011) cited that despite being the least paid in Malaysia, nurses remained committed to their work. This suggested that they were either patriotic, got their priorities right, or had positive cultural values that provided an enabling environment for survival despite their little pay.

Conclusions

Long working hours, under staffing and inadequate equipment and supplies significantly affected the performance of nurses. Inadequate PPE exposed nurses to occupation health hazards. While lack of refresher training, poor communication as well as poor motivation by supervisors affected the
performance of nurse’s low pay lack of institutional housing and high transport costs caused job dissatisfaction.

**Recommendations**

The government should improve the working terms and conditions of nurses by providing housing, reducing working hours and increased pay, to invest more in employing more nurses and buying adequate equipment and supplies including PPE. The Ministry of Health should program to make regular refresher courses for nurses of the lower cadre in order to improve their skills as well as management training for supervisors focused on motivating their subordinates.

**Area for further research**

A study about the factors that affect the performance of nurses, a case study among nursing supervisors and A study about the causes of health service dissatisfaction among clients at public health facilities are recommended.

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