

Full Length Research Paper

Factors influencing nurses' use of risk assessment scale for preventing pressure ulcer among patients in National Orthopaedic Hospital, Enugu State, South Eastern, Nigeria

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Preventing pressure ulcer has been a nursing concern for many years. The use of risk assessment scales to predict the development of pressure ulcer before it occurs is essential. This study aimed at examining factors that influence the nurses' use of risk assessment scales for predicting pressure ulcer among patients of National Orthopaedic Hospital, Enugu State, South Eastern Nigeria. Descriptive survey design was adopted for this study, and 91 nurses working in the male and female inpatient wards of National Orthopaedic Hospital participated in the study. An overwhelming majority [80 (88%)] of the respondents attributed lack of educational training, lack of institutional policy [70 (76.9%)] and no provision of risk assessment forms [51 (56%)] as the major factors affecting nurses' use of risk assessment scale. Findings also revealed that only 34 (37.4%) of the respondents have had formal training on risk assessment scale and 51 (56%) of the respondents positively view risk assessment scale as the most appropriate tool for predicting pressure ulcer risk. However, significant relationship reveals that factors have positive impact on usage of risk assessment scale. It was recommended that in-service training or conferences should be organized for nurses working in the setting of the study on how to use risk assessment scales. Also, hospital management should provide policy on use of risk assessment scale and ensure availability of forms to carry out risk assessments to detect pressure ulcer early and improve nursing care of patients.

Key words: Pressure ulcer, risk assessment scale, nurses, Enugu State.

INTRODUCTION

Globally, maintaining skin integrity and preventing pressure ulcers (PU) have traditionally been the responsibility of nurses when caring for hospitalized

patients. Today, the proportion of emerging admission of critically ill patients continues to rise in our hospitals, where nurses work under a high care pressured

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environment, thereby exposing the vulnerable or at risk patients to tissue breakdown, creating a problem which is not just a problem for nursing but a health system problem, which undermines health system effectiveness (Ingwu, 2009).

The occurrence of pressure ulcer among patients who are vulnerable or at risk is posing a great challenge on nurses. Davies (2005) observes that PU constitutes a major health problem, which causes excessive pain and suffering in affected patient and is also associated with significant cost for society. Pressure ulcer is an important and challenging health problem facing the patient, caregiver and relatives. In addition to increasing patient's suffering and being very painful, pressure ulcers can also impede patient's return to full functioning and can add to cost and length of hospitalization (Graves and Smith, 2006).

Barrios (2005) in a study on pressure ulcer incidence among orthopaedic patients asserts that one fifth of hospitalized patients develop up to stage 3 of pressure ulcer. Pressure ulcers are an important concern to care providers as evidenced by the fact that some hospitals in Nigeria report facility acquired ulcer. Adejumo (2011) reports that 16 out of 28 patients (57%) admitted in National Orthopaedic Hospital Dala, Kano State developed pressure ulcer within two weeks of hospitalization.

Onigbinde et al. (2011) states that orthopaedic patients rate the second highest at-risk patients presenting with pressure ulcer in Nigerian hospitals. The author further attributed this high incidence to inadequate knowledge of preventive interventions among nurses. The aforementioned situation is not different at National Orthopaedic Hospital, Enugu State where Ururumba (2011) reports that one third of the patient admitted in National Orthopaedic Hospital, Enugu developed pressure ulcer before they are discharged.

Davies and Smith (2006) opine that identification of patients at risk of pressure ulcer development is perhaps the most important issue in the prevention of pressure ulcer. Research concerning the identification of patients at risk of developing pressure ulcer has been in progress since the early 1960s when the Norton Scale was developed in 1979, the Braden Scale developed in 1987 and the Waterlow scale developed in 1985 while the assessment Scales frequently used in clinical practice and researchers are the Norton scale (Edwards, 1994).

Preventing pressure ulcers has been a nursing concern for many years. This is because nurses have a responsibility to monitor patient's skin in order to plan, implement and evaluate interventions that maintain skin integrity (Borges, 2008). In fact, Florence Nightingale in 1859 wrote, "If he has a bedsore, It's generally not the fault of the disease, but of the nursing", hence nurses play a major role in preventing pressure ulcer (Ayello, 2007).

Despite the benefits of optimal intervention strategy,

the most serious obstacle preventing nurses from reaching their goal of preventing pressure ulcer is their poor knowledge of predicting the development of pressure ulcer before it occurs, using any of the risk assessment scales (Graves and Smith, 2006). In agreement with the aforementioned assertion, Lyder (2008) observes that nurses have a good knowledge of intervention strategies in treating pressure ulcer but lack solely in preventive strategies. The importance of pressure ulcer prevention was emphasized when the Royal College of Nurses introduced an evidence-linked National Guideline to be used throughout health care settings in the United Kingdom. The guideline which was subsequently inherited by the NHS National Institute of Clinical Excellence (NICE) contains a section on the main aspects of pressure ulcer prevention among which include the use of risk assessment scales (National Institute of Clinical Excellence, 2010)

Risk assessment scales are scales used to predict the development of pressure ulcer before it occurs. Identifying individuals at risk for pressure ulcer development and initiating preventive measures is an important means of reducing pressure ulcer prevalence and incidence. Nurses' knowledge and use of these risk assessment scales will aid in the prevention of pressure ulcer occurrence and help reduce the cost and stay of patients admitted in the hospital (Melter, 2011). Several pressure ulcer risk assessment tools are available to help practitioners identify individuals who might develop a pressure ulcer. These include the Norton scale, the Gosnell scale, the Braden scale, the Knoll scale and the Waterlow scale. The Norton and Waterlow scales are from Europe and the Gosnell, Braden and Knoll scale were created in the United States (Balzer et al., 2007). Three risk assessment scales – The Norton, the Braden and the Waterlow scales are mentioned in the Agency for Health Care Policy and Research (AHCPR) guideline as being appropriate clinical tools for determining pressure ulcer risk because of the amount of clinical research supporting their reliability and validity (Ayello, 2007). Most health care institutions that use pressure ulcer risk assessment tools use either the Braden scale, Norton scale or Waterlow scales, with the Braden scale being the most widely used in the United States.

The AHCPR clinical practice guideline on pressure ulcer prevention in 2004 recommends that initial pressure ulcer risk assessment should be done on admission and that reassessments should be done at periodic intervals. A reassessment interval essentially needs to be based on the activity of the individual for whom the pressure ulcer risk is being assessed.

Many clinicians believe than informal pressure risk assessment is sufficient and that a formal risk assessment (risk assessment scales) is not necessary. On the contrary, an informal risk assessment cannot take the place of a formal risk assessment such as one conducted using Braden scale. Research has shown that

in the absence of formal risk assessment, clinicians tend to intervene consistently only at the highest levels of risk. For example, in studies, turning - considered an important part of pressure ulcer prevention was prescribed for fewer than 50% patients at mild or moderate risk for developing pressure ulcers. There was only mild achievement in preventing pressure ulcer whereas, in studies where formal risk assessment was introduced and levels of risk were linked to preventive intervention, the incidence of pressure ulcers dropped by 60%. Severity of pressure ulcers and cost of care were decreased as well (Davies, 2005). Thus one can benefit from use of risk assessment scale because their use raises the profile of pressure ulcer risk among the multidisciplinary team and prompts actions to prevent their development. Also when used appropriately and accurately, reliable and valid tools can provide a useful guide to determining an individual's risk of pressure ulcer development and they are a useful educational tool to highlight the risks associated with pressure ulcers to staff, caregiver and patients (Davies, 2005).

This study aimed at examining factors that influence the nurses' use of risk assessment scales for predicting pressure ulcer among patients of National Orthopaedic Hospital, Enugu State, South Eastern Nigeria.

MATERIALS AND METHODS

Research design

This study utilized a non-experimental cross sectional descriptive study design to examine factors influencing the use of risk assessment scales for predicting pressure ulcer among nurses

Study setting

The research was carried out in National Orthopaedic Hospital, Enugu State, South Eastern Nigeria, a third tier health care facility. It serves as a referral centre for states in the south east, south-south and north central geopolitical zones in Nigeria. The hospital was established in 1970 and is one of the three National Orthopaedic Hospitals in Nigeria that specializes in treating deformities, injuries and diseases of the bones and plastic surgery. It has 222 beds spread over eight wards.

Sample and sampling

All the 91 nurses working in the four male inpatients wards and two female inpatients wards of the hospital who met the inclusion criteria constitute the study participants. The inclusion criteria include being available at the time of administering the questionnaire, willingness

to participate and consented to the study verbally and nurses who have worked in the selected six inpatients wards for at least three months. This is because they are in position to use risk assessment scales for predicting PU for patients who are vulnerable to tissue breakdown of the skin. The exclusion criteria include nurses who were off duty/on annual leave and those who were not willing to participate in the study and have not worked up to three months in the selected inpatients wards.

Instrumentation

The instrument used for data collection was self developed questionnaire. The questionnaire was validated by two experts in pressure ulcer management. Ten copies of the instrument was pre-tested among nurses working in Orthopaedic ward of University of Nigeria Teaching Hospital, Enugu and Cronbach reliability test was 0.79, showing that the questionnaire was reliable. The 19 item questionnaire consists of three sections: socio-demographic characteristics, use of risk assessment scale and factors that influence the use of risk assessment scale.

Method of data collection

The researcher trained two research assistants on the purpose of the study and on how to distribute the questionnaires. The researcher and the research assistants divided themselves each to distribute the questionnaires to nurses on morning, afternoon and night shifts for a period of one week in order to make sure that all the respondents were reached. One day in the week was used for the distribution of the questionnaire in each ward to avoid pre information among the participants. After four hours of distribution, the instrument was retrieved. A total of 105 questionnaires were administered with 97 retrieved and only 91 questionnaires were properly filled and met the inclusion criteria for data analysis.

Ethical consideration

Permission to conduct the study was obtained from Health Review Ethical Committee of the hospital. A certification letter of approval with reference number IRB/IIEC-S/313/806 was given to the researcher. The researcher applied the principles of confidentiality, anonymity and voluntary participation during the study.

Data analysis

Data collected was analyzed and interpreted with statistical package for social sciences (SPSS) version 20. Descriptive statistics of frequency, percentage, mean and

standard deviation were used to answer questions relating to socio economic characteristics, use, and factors that influence the use of risk assessment scales among the nurses in National Orthopaedic, while inferential statistics of regression analysis was used to test the impact of factors on usage of risk assessment scale at 5% level of significance.

RESULTS

As reflected in Table 1, 20 (22%) of the respondents aged between 20 to 29, 43 (47.3%) respondents within 30 to 39, 22 (24.2%) fall under 40 to 49 while 6(6.6%) are ages 50 and above. Among the respondents, 25 (27.5%) were male while 66 (72.5%) female. In terms of nursing educational qualification, 17(18.7%) were registered nurses, 64 (70.3%) were registered nurse/midwives (RN/M) and holders of any other diploma in nursing, while 10(11%) have attained their Bachelor Nursing Sciences. With regards to nursing cadre, 22 (24.2%) of the respondents are Nursing Officers 11, 53 (58.2%) are Nursing Officers 1, 8 (8.8%) are Senior Nursing Officers, 4 (4.4%) are Principal Nursing Officers and 4 (4.4%) are Assistant Chief Nursing Officers. Majority of the nurses 41 (45.1%) have professional experience of 10 to 15 years in clinical practice followed by 25 (27.5%) between 15 to 25 years experience and 2.2% with 25 years and above.

Table 2 shows that majority of the respondents 33 (36.3%) recognized Braden scale as a risk assessment scale and 18 (19.8%) mentioned Norton scale. Also the few respondents 20 (22%) who have used risk assessment scale reasoned that it reduces the incidence of pressure ulcer, 17 (18.7%) are of the opinion that it is used because the doctor ordered it, 16 (17.6) said that it is used because the hospital made it mandatory (policy) while 13 (14.3%) agreed that risk assessment scale improves patient's care. In terms of the clinical conditions that patients are assessed with risk assessment scales, 59 (64.8%) reasoned that risk assessments were done under the condition that the patients were immobile, Chair bound 11 (12.1%), critically ill 22 (24.2%) and those that underwent surgery 16 (17.6%).

Of the factors presented in Table 3, majority of respondents 70 (76.9%) identified lack of institutional policy with the mean of 2.84 as one of the factors that contribute to non use of risk assessment scale and 80 (88%) are on the affirmative that lack of education or training in use of risk assessment scale for pressure ulcer is the main factor with the mean of 3.23. 66 (72.5%) of the respondents felt that the no provision of risk assessment forms is a hindrance to their practice of pressure ulcer risk assessment with a mean score of 3.22. Minority of the respondents 39 (42.9%) were of the opinion that shortage of staff as well as time factor 35 (38.5%) are other factors that affect use of risk assessment scales. However, 17 (18.7%) of respondents

does not believe that use of risk assessment scale contribute to pressure ulcer prevention and 29 (31.9%) respondents are of the view that clinical judgment is better than use of pressure ulcer risk assessment scale.

The result of the regression analysis summarized in Table 4 with the regression coefficient (r) of 0.877 shows that there is a strong relationship between factors and usage of risk assessment scale. The p -values < 0.05 , reveals that factors have positive impact on usage of risk assessment scale with the regression model $Uras = 0.950 + 0.685F$. Also, the coefficient of determination (r^2) of 0.770 reveals that 77% of the variation observed in the dependent variable is caused by the independent variable. Having a regression sum of square of 91.812 $>$ the residual sum of squares of 27.485, this variation is not due to chance.

DISCUSSION

Findings from the study shows that majority 91(93.4%) of the nurses were within the age 20 to 49 years while minority 6 (6.6%) were 50 years and above. This shows that majority were at the middle age of their working career. Among the respondents, 25 (27.5%) were male while 66 (72.5%) female. In terms of nursing educational qualification, 17 (18.7%) were Registered Nurses, 64 (70.3%) were RN/M and holders of any other diploma in nursing while 10 (11%) have attained their Bachelor Nursing Sciences. This result shows lack of appropriate education base for the nurse as majority of them are trained at diploma level. According to Stanton (2001) in order for the nurse to be effective, they must have a broad and sound knowledge base so that they can make an informed decision. He further stated that many studies looking primarily at clinical decision have found that nurses use intuition and experience. The nurse needs knowledge and skills relating to the cognitive process of problem solving in order to successfully prevent the occurrence of pressure ulcer (Ingwu, 2009). With regard to nursing cadre, 22 (24.2%) of the respondents are Nursing Officers 11, 53 (58.2%) are Nursing Officers 1, 8 (8.8%) are Senior Nursing Officers, 4 (4.4%) are Principal Nursing Officers and 4 (4.4%) are Assistant Chief Nursing Officers. Majority of the nurses 41(45.1%) have professional experience of 10-15 years in clinical practice followed by 25 (27.5%) between 15-25 years experience and 2.2% with 25 years and above. The above results show that the respondents were not novices in the nursing profession.

The result of the findings to identify the type of risk assessment scale used among nurses reveals that the respondents with knowledge of risk assessment scale for predicting pressure ulcer were able to identify Braden scale 33 (36.3%), Waterlow Scale 22 (24.2%) and Norton scale 18 (19.8) while 11 (12.1%) and 2 (2.2%) identified knoll and gosnell scales, respectively. The respondents were able to identify these scales according to their level

Table 1. Socio demographic data of respondents (n=91).

| Options | Frequency | Percentage |
|---|-----------|------------|
| Age | | |
| 20-29 | 20 | 22.0 |
| 30-39 | 43 | 47.3 |
| 40-49 | 22 | 24.2 |
| 50 and above | 6 | 6.6 |
| Sex | | |
| Male | 25 | 27.5 |
| Female | 66 | 72.5 |
| Nurses educational qualification | | |
| Registered nurse | 17 | 18.7 |
| RN/M any diploma in nursing | 64 | 70.3 |
| Bachelor in nursing science | 10 | 11.0 |
| Cadre of respondents | | |
| Nursing officer 11 | 22 | 24.2 |
| Nursing officer 1 | 53 | 58.2 |
| Senior nursing officer | 8 | 8.8 |
| Principal nursing officer | 4 | 4.4 |
| Assistant chief nursing officer | 4 | 4.4 |
| Year of clinical experience | | |
| Less than 5 years. | 16 | 11.0 |
| 5-10 years | 13 | 14.3 |
| 10-15 years | 41 | 45.1 |
| 15-25 years | 25 | 27.5 |
| 25 years and above | 2 | 2.2 |

of knowledge and awareness. Findings also indicates some of them have come across at least one risk assessment scale while majority were unable to identify it, only few actually had the opportunity to use them 14 (15.4%) admitted to using braden scale, 14 (15.4%) Norton scale and 13 (14.3%) waterlow scale with majority 47 (51.6%) admitted to have never used any of them at all.

In several studies, most nurses stated that they are aware of pressure ulcer prevention; risk factors like immobility, lack of sensation, friction and shear cause pressure ulcer. Some reported having heard about risk assessment scales like Braden scale, but they have never really been provided with the forms or aware that factors like nutrition and incontinence can be risk factors, thus affecting the knowledge and use of risk assessment scales (Smith, 2006). Therefore, the finding of this study also agrees with Vanderwee et al. (2007) which revealed that 18 out of 78 nurses had no official training on pressure ulcer prevention and that 43 of the nurses admitted to not knowing how to use risk assessment

scales. Further results indicates that the respondents who have used risk assessment scale had a good reason for using it, with 20 (22%) saying that they use it because it reduces the incidence of pressure ulcer, 13 (14.3%) also said it improves patients care while 16 (17.6%) said it is because the hospital they worked in made it mandatory and 17 (18.7%) said it is because the doctor ordered for it. The nurses need to know that it is the sole duty of a nurse to prevent pressure ulcer and not because the doctor ordered it or the hospital made it mandatory, which relates to what Florence Nightingale in 1859 wrote, "if he has a bedsore, it's generally not the fault of the disease but of the nursing".

From the findings, to determine the factors that affect the use of risk assessment scale, majority of respondents identified lack of education/training as a factor, with a mean of 3.23. It was noted by Adejumo (2011) that most organizations/hospitals do not recognize seminars and symposiums which are related to pressure ulcer prevention or use of risk assessment scales; hence this affects the knowledge level of nurses on pressure ulcer

Table 2. Types of risk assessment scales used in predicting pressure ulcer (n=91).

| Questions | Frequency | Percentage |
|---|-----------|------------|
| Which of the following are risk assessments scales? (Tick as many as applicable) | | |
| Braden scale | 33 | 36.3 |
| Norton scale | 18 | 19.8 |
| Knoll scale | 11 | 12.1 |
| Gosnell scale | 2 | 2.2 |
| Waterlow scale | 22 | 24.2 |
| No idea | 5 | 5.5 |
| Which of the following risk assessment scale have you come in contact with? (Tick as many as applicable) | | |
| Braden scale | 25 | 27.5 |
| Norton scale | 18 | 19.8 |
| Waterlow scale | 19 | 20.9 |
| None | 29 | 31.9 |
| Which of the following risk assessment scale have you used in assessing a patient vulnerable to develop PU? (Tick as many as applicable) | | |
| Braden scale | 14 | 15.4 |
| Norton scale | 14 | 15.4 |
| Waterlow scale | 13 | 14.3 |
| None | 50 | 54.9 |
| What are your reasons for using any of these risk assessment scale? | | |
| It is hospital policy | 16 | 17.6 |
| It reduces the incidence of pressure ulcer | 20 | 22 |
| The doctor ordered it | 17 | 18.7 |
| Improve patient's care | 13 | 14.3 |
| Others | 25 | 27.4 |
| Under what condition do you assess patients with any of these risk assessment scale? (Tick as many as applicable) | | |
| Immobility | 59 | 54.6 |
| Chair bound | 11 | 10.2 |
| Critically ill | 22 | 20.4 |
| Unconscious patient | 16 | 14.8 |

prevention and use of risk assessment scales. This is also in line with the result of the findings to evaluate the knowledge level of nurses on risk assessment scales, whereby few of the respondents that knew about risk assessment scale got the information from textbooks and internet thus the reason for the poor level of knowledge and use of risk assessment scale (Smith, 2006).

The result of this study agrees with Tweed (2008) which shows that the level of knowledge to prevent and manage pressure ulcer are improved with an educational program like seminars and workshop on use of risk assessment scales. Also, majority of the respondents with a mean of 2.84 identified lack of institutional policy and no provision of risk assessment scale form, with a

mean of 3.22, as leading factors that hinder their use of risk assessment scale. This affects the use of risk assessment scales because if the hospital does not have laid down rules on the use of risk assessment scales and enforcement of individualized assessment, nurses will not be obliged to make use of these measures.

Ingwu (2009) recommends that for pressure ulcer incidence to reduce among vulnerable patients in the hospital, the nursing service department should formulate rules and regulations in the use of risk assessment scales and it should be inculcated in the hospital policy and the risk assessment forms should be kept in all the nurses' stations and violation fine should be included in it. The result of this finding can be related to the fact that

Table 3. Factors that affect use of risk assessment scale.

| Variable | Strongly agree | | Agree | | Disagree | | Strongly disagree | | Total | | Scores of risk assessment scale Mean±SD | P-value |
|---|----------------|------|-----------|------|-----------|------|-------------------|------|-----------|-----|--|---------|
| | Frequency | % | Frequency | % | Frequency | % | Frequency | % | Frequency | % | | |
| Lack of institutional policy | 14 | 15.4 | 56 | 61.5 | 13 | 14.3 | 8 | 8.8 | 91 | 100 | 2.84±0.79 | 0.000 |
| Lack of education or training | 37 | 40.7 | 43 | 47.3 | 6 | 6.6 | 5 | 5.5 | 91 | 100 | 3.23±0.80 | 0.00 |
| No provision of risk assessment scale forms | 51 | 56.0 | 15 | 16.5 | 19 | 20.9 | 6 | 6.6 | 91 | 100 | 3.22±0.99 | 0.000 |
| Shortage of staff | 18 | 19.8 | 21 | 23.1 | 46 | 50.5 | 6 | 6.6 | 91 | 100 | 2.56±0.88 | 0.000 |
| Time consuming | 14 | 15.4 | 21 | 23.1 | 46 | 50.5 | 10 | 11 | 91 | 100 | 2.43±0.88 | 0.000 |
| Does not believe that risk assessment scale contribute to pressure ulcer prevention | 9 | 9.9 | 8 | 8.8 | 44 | 48.4 | 30 | 33 | 91 | 100 | 1.96±0.91 | 0.000 |
| Clinical Judgment is better than risk assessment scale | 19 | 20.9 | 10 | 11 | 53 | 58.2 | 9 | 9.9 | 91 | 100 | 2.43±0.93 | 0.000 |
| The doctor did not order for it | 8 | 8.8 | 7 | 7.7 | 41 | 45.1 | 35 | 38.5 | 91 | 100 | 1.87±0.90 | 0.000 |

Mean > 2 = Positive. Mean < 2 = Negative.

62.6% of the respondents have no training on use of risk assessment scale and 51.6% have never used any risk assessment scale showing that they are not knowledgeable enough on the types of risk assessment scale and how to use them in order to achieve optimal patient care.

The respondents with a mean of 2.56 and 2.43 identified shortage of staff and lack of time as another factor that affect their use of risk assessment scale, respectively. This can influence the use of risk assessment scale because patient – nurse ratio is like 10:1 in most healthcare settings; while stress on the part of the nurse can pose a negative miscalculation of patients at risk (Ayello, 2007). The researchers on visit to the hospital had most of the respondents complained of the workload due to their small number of staff coupled with the time given to perform their duties, thus producing a negative attitude towards the idea of using risk assessment scales. The assertion also was the reason why few of the respondents with a mean of 1.96 and 2.43 said that they do not believe that risk assessment scales contribute to pressure ulcer prevention and that clinical judgment is better than risk assessment scales, respectively.

Implications for nursing

Since only few of the nurses have had a formal training on use of pressure ulcer risk assessment scale and majority have not used any of the risk assessment scales, it therefore implies that nurses have a low knowledge level on pressure ulcer preventive strategies, therefore this has implication for the nurses and also the leaders who need to improve knowledge level by organizing educational training on use of risk assessment scale. Also, since majority of the respondents are unaware that assessing patients using risk assessment scales is the most appropriate method of preventing pressure ulcer risk, it shows that nurses are ignorant on how and when to use risk assessment scales. This has implication for nursing on the level of care that would be given to the patients. Thus there is need for in-service training and refresher courses about use of pressure ulcer risk assessment scale to update their knowledge and which can be translated into practice. The finding also indicates that lack of institutional training and unavailability of the assessment forms hindered their use of the risk assessment scale. This has implication for the

health administration and policy makers in the health care institution. They should provide the means to ensure availability of these forms, and hospital policy/guidance is needed for compulsory use of PU risk assessment forms.

RECOMMENDATIONS

The following recommendations are put forward to improve nurses' use of risk assessment scales regarding the prevention of pressure ulcers among hospitalized patients.

1. Workshop/seminar about pressure ulcer risk assessment scales should be organized to add to continued nurses/doctors' education, respectively. This will update their knowledge and assist in early detection and prevention of patients vulnerable to developing pressure ulcer.
2. Risk assessment scales should be inculcated into educational curriculum of training schools to teach nursing students on how to use them.
3. A training programme on pressure ulcer risk assessment scales should be organized for nurse educators, preceptors and clinicians in order to

Table 4. Summarised regression results for impact of q factors and usage.

| Variable | Coefficient | t-value | p-value |
|-------------|-------------|---------|---------|
| Constant | 0.950 | 6.936 | 0.000 |
| Factors (F) | 0.685 | 17.242 | 0.000 |

$r = 0.877$; $r^2 = 0.770$; RegSS = 91.812; ResSS = 27.485; F-value = 297.299; sig. = 0.00. The results indicate that factors positively and significantly influences the usage of risk assessment scale.

improve their knowledge.

4. Hospitals should make mandatory policy to do pressure ulcer risk assessment on all patients vulnerable to developing pressure ulcer and should make risk assessment forms available for use in the wards.

5. Similar studies should be carried out in other hospitals after nurses' participation on seminar/conference to determine their use of risk assessment scales in the prevention of pressure ulcer.

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Conflict of interests

The authors have not declared any conflict of interests.

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