ABSTRACT

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Introduction

Quality is defined as doing it right when no one is looking.
Today it is the primary responsibility of any industry globally. Healthcare sector has in the past two decades taken Quality very seriously, The quality council of India (QCI) takes serious consensus of issues bench marked in this arena. Quality does not differentiate class, race or creed. Neither does it isolate rich/middle class/poor, or the arena of work as pvt/govt/trust hospital it is a conscious and voluntary effort. The study tries to evaluate quality in hospitals particularly in Intensive care unit’s (ICU) within a nursing frame work, this is in the context that the QCI predicts that Nursing is an individual forum and is established as a bench mark establishing quality forum in a hospital. Quality in healthcare can be recognised only if Nursing is considered as an Independent forum. This now is well recognised nationally and internationally. The head of’ Joint Commision International (JCI) is a NURSE (2013).

Need of the study

Nurses are equipped with professional qualifications and possess skills to provide a wide range of spectrum of nursing services. Nursing services encompasses autonomous and collaborative care of individuals in hospitals, home and community. Present Nursing education system emphasises development of nursing abilities in context of knowledge skills and attitude. The nurse has the ability to practise what
she has learned. However as stated by the Quality Council of India (Donabedian1996) she needs to apply this to the quality concept. An ICU is an epitome of nursing care and in addition to critical care nursing protocols if a critical care nurse emphasises quality based protocols to ensure patient safety in her unit (Bhandarkar et al 1991) the quality of care increases.

Major Nursing interventions are implemented successfully when the nurse is provided with adequate space to carry out her implementations effortlessly, Bhandarkar et al 2011 have found that nurses experience inability to perform medical or/and surgical procedures efficiently if the unit space is insufficient and visibility is poor. This the nurses have expressed lead to errors or failure to follow scientific principles. (Mathew Thompson 2000) These research studies pose individual questions towards multiple nursing and medical practice adequacies. Hence the researcher decided to assess the practices nurses follow towards supporting selected parameters essential in the ICU

**Statement of the Problem**

Study the selected Quality Control Nursing Parameters existing in critical care nursing units and the outcome on selected aspects of nursing care practiced leading to prevailing nursing quality assurances

**Objectives**

1. To study the selected quality control nursing parameters existing in critical care unit.
2. To study the implication of nursing quality assurances in the critical care unit in the following aspects
   a) Environment of the patient
   b) Nurse patient Ratio maintained
   c) Nursing practices performed
   d) Common errors notified
3. To study the co–relation between the selected quality control nursing parameters and the implication of nursing care outcomes in the critical care unit on them.
4) To study the relation between the selected quality control nursing parameters with selected variables such as qualification and ICU experience.

Assumptions
The study is based on the following assumptions
a) The Quality Council provides quality standards that may be used to facilitate quality assurance parameters against a benchmark.
b) The quality control parameters are measurable.
c) Nurses working in the critical care unit follow quality-based nursing practices.
d) Patients' environment and Nursing practices practiced by the nurse enhances quality of care hence the patient will benefit.
e) Nursing practices as verbally reported by the Nurses are dependable.

Delimitations
a) The study is limited to a selected number of quality parameters of quality control.
b) A few parameters depicting quality nursing assurances were selected instead of all the parameters.
c) The study was limited to the Intensive care setup only and could not be reflected towards the other nursing care clinical fields.
d) Quality assurances recommended by the Quality Council of India was considered hence the study is limited to the Indian settings only.
e) Nurses only confirmed to work in the ICU were considered and were a part of the study.
f) The quality parameters were obtained through verbal response of the nurses only.

Scope of the Study

- The scope of the study includes nursing practices under quality assurance in any adult ICU.
- The scope includes all the nurses practicing in the ICU.
- It also allows routine activities to be measured as quality parameters.
Research Methodology

Research Approach
In this study an explorative descriptive research approach was used.

Research Design
In this Study A Survey design was used

Research Variables
The Research variables in this study are classified as
1. Quality parameters
2. Nursing practices
3. Qualification of Nurses

Setting Of The Study
The setting of the study is the Intensive Care Unit of a selected hospital.

Population
Nurses who are working in the ICU

Sample
Nurses who are working in the ICU and who fulfill the inclusion criteria.

Sample Size
Sample Size; 150 Nurses who are working in the ICU of the selected hospital.

Sampling Technique
Non- probability, purposive sampling technique was used.

Criteria For Sample Selection
Inclusion Criteria ;
1. All the nurses who are working in the ICU
2. All the nurses who are confirmed and willing to participate.
Exclusion Criteria ;
1. All the nurses who are working in the ICU, and are not confirmed.

**Tool**
The Tool consisted of
An Inventory check list

**Technique**
A self reporting technique was used.

**Validity of the Tool**
The validity of the Inventory check list was established using content validity by experts and necessary changes were made.

**Reliability of the Tool**
The reliability of the Inventory Check list for the selected parameters was established using the Inter Rater method.

**Pilot Study**
A pilot study was conducted on 15 ICU nurses. During this phase, feasibility of Inventory check list was tested. The Tool and Technique was found to be feasible. This was done with the permission of the hospital ethics committee and no change was initiated after this and due permission to conduct the study was obtained.

**Data Gathering Process**
The data was collected from March 4 to July 28, 2013- after permission was obtained from the Ethics Committee.
To initiate it all the ICU nurses who met the selection criteria were oriented to the concept in batches of 3 – 4 each. Here the study details were shared and the particulars needed in the questionnaire were discussed. Anonymity to all was assured by letting them know that the forms does not need them to write their names. Those willing to participate in the study were requested to fill in a written consent. After which they were requested to fill the Inventory check list in a supervised classroom.
The nurses needed 30 – 45 minutes to complete each form.
The completed form was collected in a drop box.

Analysis and Interpretation Of Data

FINDINGS OF THE STUDY
The data was analysed and interpreted as per the objectives stated in this study.

Major Findings Of The Study

Demographic data
Educational qualification; A total of 150 nurses participated in this study of which 78% were qualified with a University degree, namely B.Sc. Nursing. 4% of the nurses had undergone an educational program to obtain a Post Basic B.Sc. degree and 18% were qualified with a diploma in Nursing and midwifery program. The findings reveal that maximum number of nurses who participated in the study were University graduates.

Duration of ICU Experience; Of all the 150 nurses 43% had Intensive care unit experience of less than one year, while 20% had ICU experience between one to two years, where as 37% had ICU experience above two years. This showed that the nurses had varied experience and maximum nurses accounted for experience below one year.

Quality Parameter of Environmental factors;

The quality factor of the environment was assessed for a number of 45 ICU beds. The Interpretation of this is as follows;

1. Work Space; 62% of the ICU beds were found to have adequate work space by 82% of the nurses and 33% of the beds were found to be adequate for regular activities and one procedure but difficult to perform two or more procedures at times and 4% of the beds were found to have highly inadequate space. This depicts that 95% of the beds in the ICU’s had adequate work space for routine/ single procedure activity.
2. Light; a) To observe critical nursing observations;
It is considered that nurses need to have highly adequate light to perform specific
nursing observations readily in the unit, Light may be natural or artificially created. It
was found that 87% of the beds had excellent light readily available and for the rest
of the 13% beds the nurse had to use additional light source when necessary. Hence
86% of the beds were considered to have light adequacies.

   b) Adequacy of light to perform nursing procedures and to assist for medical
   procedures is found in all the 45 beds, hence cent percent of the unit beds met this
   critera.

   c) Availability of natural light, it was found that 36% beds offered direct natural
   light and all the other 64% beds had indirect natural light exposure. Hence the
   benefit of natural light was available to all cent percent beds.

   Hence with reference to the criteria of work space and light adequacies it was
   found that the 45 beds in the ICU met the requirement.

3. Quality sound; When this parameter was analysed it was found that 94% nurses
related that the unit does not reflect loud noise which may affect conscious patients
and cent percent of them reflected that loud sounds may disturb a patient if he was
in a state of being unconscious.

Quality; Nurse patient ratio –
It was found that the unit had a reporting policy of nurse patient ratio individually
& cumulatively as well.
When the Nurse patient ratio was studied in various contexts; the results were
found in reference -When the nurses nursed a patient who had undergone a major
surgery they practiced a Nurse patient ratio of 1:1/1:2. 97% of the nurses stated
that they maintained a ratio of 1:1 and 2% stated that a ratio of 1:2 However no
one committed that they had to maintain a ratio of 1:3 at any times.
Similiarly it was found that
74% nurses when nursing a complex patient with multi organ failure said it was
1:2 and 1:1 in 98% when nursing a patient with a ventilator
This was applicable for morning, evening and night shifts in cent percent cases.
This depicts that an apt nurse patient ratio was maintained keeping the condition of the patient as the focus.

**Quality: Protocol related to Bedsore prevention/practices** –
A protocol to assess bedsore in patients with tendency to develop is used, through a pre-designed scale by cent percent nurses. Compliance to use of Pressure relieving support surface mattress was agreed by 91% personnel and non compliance in 7% cases was noted on occasions of the patient being severely unstable. Change of positions was complied by 81%, Use of any barrier cream from the ones available by 92% & 88% take measures to better circulation, cent percent report on occurrence of the bedsore. Major compliances was seen in following Bed sore prevention protocols.

**Quality: Central line drug administration practices** –
Central line drug administration practices were studied through knowing the compliance of checking the written order for drug; name, dose, route. This was found compliant at a frequency of 96% and non compliant at 4%. Following the verbal order policy was found compliant at 78% and non compliant at 22%.

**Quality: Ambulation & fall practices** –
Ambulation of stable patient once in a shift from bed to a reclining chair was compliant in 83% of the nurses and non compliance in 17% where as reporting fall was seen in 96% nurses and non compliance was seen in 4% of the nurses.

**Quality: Medication error practices** –
Compliance to reporting an medication error of wrong drug administration was 93% and non compliance was 7% and that to wrong dose administration was 93% and that to a administration through a wrong route was 88%.

The selected quality control nursing parameters and the implication of nursing care outcome in the critical care unit;

With reference to the adequacy of space 82% of the nurses stated that 62% of the ICU beds with adequate space allowed them to achieve better nursing outcomes.
All the cent percent nurses stated that availability of direct/indirect natural light and adequate space had a positive impact on patient care.

All the cent percent nurses stated that absence of loud and disturbing noise had better nursing care outcomes for the patient.

In case of the nurse/patient ratio, 97% of the nurses while nursing a patient who has undergone a major surgery stated that the nursing outcomes were good if the nurse patient ratio was 1:1 whereas 98% of the nurses stated that 1:1 nurse patient ratio also gives good nursing outcomes when nursing a patient on a ventilator. This was also true if it was maintained for all the three shifts. 74% of the nurses stated that while nursing a complex patient with multi organ failure a nurse patient ratio of 1:2 also gave good nursing care outcomes. In a patient who has the tendency to develop bedsores all cent percent nurses stated that using an appropriate bedsore prevention mattress, changing the patients position frequently, use of barrier spray or patch, and measures to increase circulation bettered nursing care outcomes.

All the nurses stated that following principles of administration of drug through central line results in better nursing care outcomes. However 83% of the nurses stated that ambulation of patient from bed to chair bettered nursing care outcomes and 91% of the nurses felt reporting falls has bettered nursing care outcomes.

All the cent percent nurses stated that reporting all types of medication errors allowed for better nursing care patient outcomes.

Principles of following quality nursing care parameters have reflected in bettering nursing care outcomes in all the parameters.

**Corelation – Amongst Nurse patient ratio parameters**

The Friedman test, which evaluated differences in medians among the twelve quality assurance parameters for nurse patient ratio in critical care units is significant \( x^2 (12,N=150) = 820, p<0.0001 \). Kendall’s W is .46, indicating fairly strong differences among the twelve parameters. Hence one cannot conclude that all twelve quality assurance parameters for Nurse patient ratio in critical care unit are concordant with one another. Only that at least one parameter is concordant with one or some of the others.

**Co-relation – Amongst Quality assurance parameters for nursing practices;**
The Friedman test, which evaluated differences in medians among the Twenty three quality assurance parameters for nursing Practices in the critical care unit is significant $X^2(22, \text{N}=150) = 1330, p <.0001$. Kendall’s W is .40, indicating fairly strong differences among the Twenty three parameters. Hence it may be concluded that all the twenty three quality assurance parameters for Nursing Parameters for nursing practice in the critical care unit are not concordant with each other. Only that at least one parameter is concordant with one or some of the others.

**Co-relation – Amongst Quality assurance parameters for environment**;

The Friedman test, which evaluated differences in medians among the five environmental factors in Critical care unit, is significant $X^2(2,N=30)=357, p<.001$. Kendall’s W is .06, indicating differences among the five factors. One cannot conclude that all five environmental factors in the critical care unit are concordant with one another. Only that at least one parameter is concordant with one or some of the others.

**Corelation – selected Parameters with qualification & experience**;

The relation between selected quality control nursing parameters with certain selected variables such as qualifications and nursing expereince in Critical care units was further analysed using the Friedman’s Test.

The Quality assurance parameters were

Nurse a patient in the Right environment
Nurse patient Ratio after a Major surgery
Nurse patient Ratio in a patient with Multi Organ Failure
Measures to prevent bedsores
Give Drug through a central line
Nurse patient ratio in a haemodynamically stable patient
Use of a Pre-designed format to nurse a pre operative patient
Use of a Pre-designed format to counter check before sending patient to OT

**Co-relation quality parameters to qualification**;

All the above were analyzed for Mean and SD, where in Nurses with B.Sc. degree for environmental factors had a Standard deviation of 2.94 and a mean rank of 3.81
where as maintaining a Nurse patient ratio in a patient with multi organ failure was 5.23 and a mean rank of 5.53. When the same was analyzed for nurses with a P.B.Sc a SD was found to be 3.78 with a mean rank of 3.67 and 4.26 with a mean rank of 3.67and 4.26 with a mean rank of 5.67 respectively. The same for GNM was seen as SD = 3.20 & a mean rank of 3.96 & SD = 7.31 and mean rank of 5.28 respectively. Thus the Friedman test which evaluated differences in medians among the quality assurance parameters for nurses with B.Sc shows df = 7, chi square = 747 in N = 117 and with P. B. Sc., N = 6, chi square = 40.37 and df = 7, whereas in GNM, with N = 27, chi square = 170.9, df = 7.

Hence it can be concluded that there is no difference among the group and thus qualification does not have any significant relationship in following quality assurance parameters in the critical care unit.

**Co- relation quality parameters to Experience;**

The quality assurance parameters were analyzed with the nursing experience, possessed by the nurses, where by the experience was categorized as below one year, between one to two years and above two years. For all the nurses with experience below one year environmental factor showed a SD of 3.42 and a mean rank of 3.70 was seen. Whereas maintaining a Nurse patient ratio in a patient with multi-organ failure showed a SD of 6.16 and a mean rank of 5.64 was seen. The same for nurses with one to two years of experience depicted a SD of 1.83 and a mean rank of 4.10 and a SD of 4.91 and a mean rank of 5.38 respectively. It was also seen that nurses with experience of two years and above showed a SD of 2.94 and a mean rank of 3.84 for environmental factors and that for a Nurse patient ratio in a patient with multiorgan failure showed a SD of 2.94 and a mean rank of 5.37. Thus the Friedman test which evaluated differences in medians among the quality assurances parameters for nurses with less than one year ICU experience showed a df = 7, chi square = 409.3 in N=65 and with experience midst one to two years showed a df of 7, chi square = 191.5 with a N = 30, where as for nurses with experience of two years and more showed a df of 7, chi square = 358.97 in N = 55.
Hence it may be concluded that there is no difference among the group and thus experience did not show any significant relationship in following the quality assurance parameter in the Intensive care unit.

Summary, Conclusion and Recommendations

Summary and Conclusion

The study was done to enable to analyse various nursing quality parameters being practiced in the Intensive care unit. The Objectives defined for this study were achieved.

A high level of compliance in ensuring quality through a selected quality parameters being practiced leading to excellence in nursing practice outcomes, which is not related to the number of years in experience or nursing qualification. However, it was justifiably seen that physical structure contribution towards the quality protocol is lower than that of the nursing actions towards nursing care implementations. An analysis of environmental factor implication on patient care showed non-consistency, whereas the multifactoral data consideration for various patients showed a high rate of compliance. The study also showed that nursing care outcomes on practicing quality nursing parameters were good.

Implications to Nursing

Implication to nursing may be further categorised as nursing services, administration, education and research.

Implication to Nursing Services; Nurses play an important role in the delivery of health services in the Intensive care unit. Strengthening quality of nursing care will benefit implementation of nursing standards.

Implications to Nursing Administration; Implementation of Quality protocols is an administrative decision which if taken impacts nursing care of patients positively.
Implications to Nursing Education;  Nursing education prepares the nurses through basic nursing course for effective delivery of nursing services to the patient in the Intensive care unit. Hence education plays an important role in imparting knowledge and providing learning experiences, placement in the clinical area to develop skill and attitude among the nursing students to work as professional nurses in this field.

Implications to Nursing Research;  The tools and techniques and the findings of the study has added to the body of nursing knowledge.

Recommendations
• Quality in nursing care is a moral responsibility and may be measured in other parameters
• Co-relation of Quality in nursing may be studied with speciality qualifications
• The study may be repeated in public hospitals and in other hospitals who may not have a quality orientation.
• The findings may be used to make mandatory recommendations to initiate quality protocols
• Nursing inputs during ICU planning and effect of quality of physical structure may be co-related.
• Bench marks for each parameter may be further studied and specified for maintaining a standard for various clinical units.