CHAPTER 5
SUMMARY, CONCLUSIONS AND DISCUSSIONS
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CHAPTER 5
SUMMARY, CONCLUSIONS AND DISCUSSIONS

5.1 INTRODUCTION
In this chapter the background and need for the study, a description of the objectives and hypotheses, as well as research procedure, findings of the study, conclusions are summarized. Discussion regarding implications, limitations of the present study and recommendations for further research are also presented.

5.1.1 Background: Nurses are equipped with a professional qualification and possess skills to provide wide spectrum of nursing services. Nursing services encompass autonomous and collaborative care of individuals of all ages, families, communities, sick or well in all health care settings. Nurses provide nursing services to promote health, prevent illness, restore health and facilitate coping with disability. For providing these nursing services nurses rely on essential components such as knowledge, as well as technical, interpersonal and ethical skills. A fine blend of these components is required to perform various nursing procedures for effective and quality nursing care. Some of these important procedures are health assessment and monitoring, which includes physical examination and carrying out simple laboratory investigations; to assist sick individuals to carry out daily activities; to provide treatment for minor ailments; to provide preventive and curative services such as immunization and to carry out prescribed treatment orders such as complex processes in the ICU.

Nurses involved in providing the care are, therefore, morally and ethically bound to enhance quality. Level of care varies among Intensive Care Units (ICUs) and within ICUs. Even small adjustments can significantly improve quality of care and patient outcome. Nurses themselves need to focus on establishment and improvement as a process with a continued strategic base formulated by them, for better nursing and care outcomes. This allows the entire exercise to be accepted by the ICU healthcare team as a necessity (Davies H. et al 2007). Today we ask the question seeking answers towards achieving quality assurances, that an understanding that nursing practices are laid down protocols in the ICU and followed by all nurses at all times.
5.1.2 Need for the Study; The present nursing education system emphasises development of nursing abilities in context to knowledge, skills and attitude. A nurse has the ability to practice what she has learned. As stated by the Quality Council of India (Donabedian, 1996) she needs to apply this to the Quality concept. An ICU is the epitome of nursing care. In addition to critical care nursing protocols, if a critical care nurse emphasises Quality based protocol to ensure patient safety in her unit (Bhandarkar, et al, 2011), the quality of care improves.

The key Quality Parameters need monitoring, auditing and improving. This is a dynamic process that requires standardization, improvement and innovation – the three arms of any improvement process, may it be in industry or in service. Standardization means removing the outliers, i.e. reducing the standard deviation. Improvement denotes gradual bettering of a parameter from the previous level with a degree of irreversible consistency.

Quality of nursing care in the ICU is a complex process that can be monitored at three levels:

1. Structure: This includes architectural design, physical parameters, staffing, nurse-patient ratio, bed occupancy and all components of structure related to Quality.
2. Process refers to the current practice of care delivery, hand washing and implementation of other nursing practices and guidelines.
3. Outcome: Indicators of outcome such as nosocomial infection rates, mortality stratified to severity of illness and other outcome measures are the most valuable and readily recognized indicators of Quality.

Though this is necessary, it is not effective unless practiced and this study emphasizes the need to express this outlook. Nursing practice though significant in all the dimensions, has a multifold relevance in the ICU and hence the need to bring three important factors through this study, viz Nursing Practice, Quality and ICU under a common head through this study is experienced.

Quantification of parameters must have relevance to patients, hospital and society. Before selecting indicators it is important to understand the conceptual basis of quality in critical care nursing. Nurses themselves need to focus on establishment and improvement as a process with a continued strategic base formulated by them, for better nursing and care outcomes. This allows the entire exercise to be accepted by the
ICU healthcare team as a necessity (Davies H. et al 2007).

Quality Indicators in Critical Care is a jump towards Patient Safety. Through this study the researcher wants to find if nursing in ICUs emphasizes quantification of quality parameters, practice and outcomes. This is indeed the need of the hour today.

This study states that the strategy needs to be practiced and driven ahead by the nurses, it needs to be believed as a necessity towards patient safety. Common performance parameters are certain basic parameters selected to find out Quality Indicators in nursing. Each Indicator explains for ease of understanding and uniformity of practice what leads to an established nursing process. The approach by an ICU nursing team includes that these should be guidelines and by not a complete or closed list. Once the parameters are put in place, monitored and audited at predetermined intervals, one would surely find some improvement in the KPIs(Key Performances Indicators). By no standards should those alone be interpreted as a successful exercise. The approach should be to minimize standard deviation while improving the KPIs. It will be appreciated that the whole unit's involvement is essential to find out the bottlenecks in the process or functional areas of any parameter and take remedial action through SGAs( Small group activities) and Self-Initiated Projects(SIPs). One would see a lot of Plan-Do-Check-Act (PDCAs) on the way to evolution of a parameter (Alexander J.A. et al, 2006).

The critical care environment has undergone countless changes since its inception. Historically, nurses have experienced times during which patients were placed in critical care merely to be watched more closely. Today, patients are placed into the critical care environment because of life-threatening conditions and/or the need for complex interventions and treatments. The critical care patient from years past is now treated on general medical-surgical units, and most of today's critical care patients would not have survived in the past. The study is needed to establish to all concerned that quality is the heart of our goals and we need it for our patients and we take efforts to do that. Our current goal is to establish and maintain nursing standards in the ICU in most of the instances. However our present need to have objective goals to establish and maintain nursing standards in the ICU in most of the instances with the designated quality assurances. The study will be a fact finding exercise in this direction.
5.1.3 Problem Statement;

The researcher defined the problem and carried out investigation in search of the answer to the problem. The problem statement is: To 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.

5.1.4 Objectives of the Study;

The objectives of this study are:

1. To study the selected Quality Control Nursing Parameters (QCNP) existing in a critical care unit as relevant to the nursing care focus.
2. To study the implication of Nursing Quality Assurances in the critical care unit in the following aspects:
   a) Environment of the patient,
   b) Maintenance of nurse-patient ratio,
   c) Nursing practices performed,
   d) Notification of common errors.
3. To study the correlation between the selected QCNP and the implication of nursing care outcomes in the critical care unit on them.
4) The relationship between the selected QCNP with selected variables such as qualifications and ICU experience.

5.1.5 Variables

The research variables in this study are classified as

1. Quality Parameters.
2. Nursing Practices.
3. Qualification of the Nurses

5.1.6 Research Question

The Research question asked by the researcher is as follows

Do nurses practice QCNP in the ICU and does it better the Nursing care patient outcomes?
5.1.7 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 (QAPs) against a benchmark.

b) (QAPs) are measurable.

c) Nurses working in an ICU follow quality based nursing practices.

d) Patients’ environment and local nursing practices practised by the nurse enhances quality of care hence the patient will benefit.

e) Nursing practices as verbally reported by the nurses are dependable.

5.1.8 Research Methodology

Research Approach – The research approach used in this study of a exploratory, descriptive research study study allows the researcher to study the facts in numerous probable situations and various numeratives as necessary for the study.

Research Design - In this Study a survey design was used. The inputs needed from various nursing personnel was possible with a Research Design of Survey which met the researchers’ requirement of receiving all the information needed.

5.1.9 Setting Of The Study

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

5.1.10 Population

The population for this study are the Nurses who are working in the ICU.

5.1.11 Sample

The sample for the study was Nurses who are working in the ICU and who fulfill the inclusion criteria.

5.1.12 Sample Size

For this study the Sample Size was 150 Nurses who are working in the ICU of the selected hospital.
5.1.13 Sampling Technique
A Non-probability, purposive sampling technique was used, for this study.

5.1.14 Criteria For Sample Selection
For this study the Inclusion Criteria was as follows:
1. All the nurses who are working in the ICU
2. All the nurses who are confirmed
3. Nurses who were willing to participate.

Exclusion Criteria was as follows:
1. All the nurses who are working in the ICU, and are not confirmed.

5.1.15 Tool and Technique
The Tool used for data collection in this study consisted of, An Inventory check list.

The Technique used to use the Tool was, the self reporting technique.

CATEGORISATION- The tool was primarily divided in two parts namely PART I and PART II.

PART I consisted of collecting base line demographic data-
 a) Qualification of the ICU nurses.
 b) Experience in years.

PART – II-A consisted of division of various factors in the ICU specific to each bed. A patient’s unit in each ICU is primarily the bed space. Factors related to Quality are space and light in various sub characteristics like their adequacy to observe crucial factors, perform various actions, assist the primary personnel while they are being performed and presence of natural light.
This information, when processed, will be reflecting the adequacy of space and light factors for each unit in the entire ICU.

PART II B- This part of the tool involves collection of data in the category of Recommendations.
Facts.
Ability.
Practices.
Protocols.
Reports.
All the categories singly or in multiples were to collect data in various fields of Quality parameters and in the sub category of Quality Indicators.

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.

5.1.16 Pilot study
The Pilot Study was then conducted on 15 ICU nurses. The sample was selected by purposive, non-probality sampling. A written consent to participate was obtained. All the criteria of inclusion were met. Since all the nurses could not come together they participated in the study after a mutually agreed to appointment was scheduled. The nurses were briefed about the study and given enough time to self report all the questions in the tool, all the questions were answered by the nurses and none of them wanted their names to be reflected in the tool. After completion they were requested to submit the tool in a ballot box and were thanked for their time.
During this phase, the feasibility of the Inventory checklist was tested. The tool and technique were found to be feasible. No change was initiated after this and due permission to conduct the study was obtained.
5.1.17 Data Gathering Process

PERIOD- The data was collected from September 4, 2013 to January 28, 2014. The process was initiated by identifying the nurses who met the inclusion criteria. Once a nurse was identified the nurse was explained the objective of the study and due permission from the Ethics Committee and Hospital were shared with her.

CONSENT- On stating her willingness to participate, she was introduced to the written consent in English.

PROCESS- On obtaining consent a group of five nurses at a time were contacted on the basis of their availability and requested to come in a classroom. Here they were given the structured tool Part I and Part II and each aspect of the tool was explained by the researcher. No time limit was set and each nurse was allowed to take the time she needed. After completion each nurse was requested to insert the tool in the given envelope, seal it and put it in a closed drop-box. Approximately 30 – 45 minutes were necessary to complete the tool. The data collection was completed in five months as the nurses were not able to come due the heavy work schedule. This work had to also coincide with the availability of the classroom and researchers’ availability.

5.1.18 Plan For Data Analysis

ANALYSIS BY DESCRIPTIVE STATISTICS – It was planned to use this as the data could be summarised in a clear and orderly manner and summary statistics were to be used. The data had to be classified in the form of tables and graphs. Measurements such as percentages, averages and differentiation had to be employed and the links and correlations between data had to be considered.

Acumulative frequency and a cumulative percentage will also be calculated to study the impact of the quality parameter.

ANALYSIS BY INFERENTIAL STATISTICS- This is needed as it comprises methods through which the information obtained from research can be generalised and applied to a larger group.

ANALYSIS BY BIVARIATE TECHNIQUES STATISTICS- This has to be used to describe the relation between the two variables.
CORELATION BY FRIEDMAN’S- This study would be analysed for correlation using the Friedman’s test. It is used to test for differences between groups when the dependent variable being measured is ordinal.

FRIEDMAN’S COMPUTED KENDALL- Computing Kendall’s W statistic will be used to correlate the quality parameters with the selected variables.

5.2 Major Findings of the Study
5.2.1 Analysis of demographic characteristics of the study samples.

Qualification of nurses
Demography in relation to the nursing education of the nurses is studied and analysed by using frequency and percentages. A total of 150 nurses who were working in the ICU participated in this study.

In this table it can be seen that of all the nurses, (117) 78% were qualified with a University degree, namely B.Sc. Nursing. This is considered as a very strong syllabus with respect to configuration of subjects. Maximum nurses in this group were graduates, thus allowing for a base that is theoretically and conceptually considered as very strong.

Similarly (6) 4% of the nurses had undergone an educational program to obtain a Post Basic B.Sc. degree(PBBSC). These nurses have undergone a foundation program primarily of a diploma in General Nursing and Midwifery(GNM) program. The program is governed by a non University base and majorly a skill base program. The program when upgraded by undertaking a bridge university program of PBBSC allows the nurse to equate herself with a nurse who has taken a basic BSc Nursing program. 4% of these nurses may be combined with 78% of the graduates to strengthen the core of university graduated nurses to 82%.

(27) 18% were qualified with a Diploma in General Nursing and Midwifery program. One of the oldest programs it was considered to be the base of Nursing Programs in the nursing History of India.

The findings thus reveal that maximum number of nurses who participated in the study were University graduates.

To understand the implications better the educational nursing qualifications were converted to a cumulative percentage.
The cumulative percentage implicates the significance which is reflected between the 78% to towards 100% shows a major impact on the significance of the nurses education here portrayed through the education the nurse has undertaken for nursing. This statistical significance may be further verified using correlation process to study its impact on the QCNP. Though statistically and theoretically nursing education is relatively important its inputs on quality measures remain to be analysed using a methodology that may be used in a series to show relation on various practice modalities. This supports the principle of looking at a conversion of a theoretical ability to a practice module. This is relevantly and sufficiently important on the basis of a foundation that takes a decision on the impact of practice related implications. Quality itself has multiple influences and here the analyses impact portrays that it is impacted by the nursing educational base be it BSc, PBBSC or GNM. Hence strengthening this base would directly impact the outcome expected.

**Nursing experience of nurses in the ICU**

This section continues to deal with the analysis of the demographic data of the study samples. The nursing experience of nurses in the ICU are grouped and analysed.

In this data it is significant to note that years of experience of the nurses in the ICU is varied and the researcher has taken up a broad classification of 0 to 2 years in the ICU. While analysing the duration of ICU Experience the nurses have had, it was found that of all the 150 nurses (65) 43%, had Intensive care unit experience of less than one year, this showed that maximally the nurses who were junior most in the ICU dominated the nursing group. This data being quantitative does not reflect the ability, skill and knowledge of the nursing personnel. This itself allows us to think of analysing this data to correlate with the QCNP and conclude the analysis.

(30) 20% of the nurses had ICU experience between one to two years, which demonstrates that the central core of nurses who have a base line experience of 1 year and more form the minimum group of nurses.

where as (55) 37% had ICU experience above two years. An 2 years and above experience is very favourable quantitatively, it however has to be correlated with ability and tested further for inputs on QCNP.

This showed that the nurses had varied experience and maximum nurses accounted for experience below one year.
The cumulative frequency and cumulative percentage was studied in the sample of nurses to understand its impact on the experience of the nurses in the ICU.

Since the advantage of cumulative percentage over cumulative frequency as a measure of frequency distribution is that it provides an easier way to compare different sets of data. It is significant to know if the years of experience divided in the three categories of, 0 -1 year, 1 – 2 years and 2 years and above play a role in the significance . This may be relevant to wards action recommendations for ICU nurses.

A cumulative percentage of 100 is seen at the cumulative frequency of 150 for nurses who have experience of 2 years and more. This signifies a positive impact calculatively in this group of nurses, counting next is 63.3% at the cumulative frequency of 95 for nurses with an experience of 1 - 2 years and lastly a 43.3% for a cumulative frequency of 65 for nurses having experience below 1 year. This signifies a direct impact of experience in ICU nurses stating the a higher experience has a better impact.

SECTION II PART I

5.2.2 Analysis of quality assurance adequacies in patient unit environment of the ICU

Quality Parameter of Environmental factors; Space, light

The quality factor of the environment was assessed for a number of 45 ICU beds amongst 150 nurses.

WORK SPACE; 62% (27) of the ICU beds were found to have adequate work space, though ideally all the ICU beds need to be perceived as an environmental structure with adequate work space by all the nurses, here it was stated only by 82% (36) of the nurses.

In addition 33% (14) 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% (1) 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.

As depicted by the cumulative percentage this has a high impact and may be resolved easily. Space has a relevant effect on the activities done not only by nurses but doctors, technicians and others too. Since these are patient care activities, space adequacy plays a
significantly important role and can easily be resolved with a like minded quality attitude.

LIGHT; 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% (39) of the beds had excellent light readily available and for the rest of the 13% (16) beds the nurse had to use additional light source when necessary. Hence 87% of the beds were considered to have ready light adequacies.

b) Adequacy of light to perform nursing procedures and to assist for medical procedures is found in 87%(39) beds.

c) Availability of natural light, it was found that 36% (16) beds offered direct natural light and all the other 64% (29) beds had indirect natural light exposure.

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 to varied extent.

All 100% (150) nurses also agreed that they recommend that ICU patients should be exposed to natural light.

When the cumulative percentage was calculated it showed a significant impact on this observation, thus resolving 64% of the issue by creating a natural light exposure to all will resolve 100% of the problem led by inadequacy of natural light.

5.2.3 ANALYSIS OF THE PATIENT CARE OUTCOMES AFFECTING QUALITY

Impact of patient care outcomes on Quality Parameter of Environmental factors;
62% (27) of the patient units were identified as units which possessed adequacy of work space, however only 22% (33) of the nurses connected this with better patient outcomes.

Many nurses stated that it was their moral duty to ensure that the patient receives optimum nursing care by all means and hindrance like poor working space having a negative effect on care outcomes indicates poor ability on the nursing capability of the nurse.

Similarly 4% (1) of the beds having highly inadequate space was perceived as that which affects patient care outcomes by 27% (41) of nurses while 73% (109) stated that this does not affect nursing patient care outcomes.
Categorically adequacy of light to observation of critical nursing factors, adequacy of light to perform nursing procedures and adequacy of light to assist for medical procedures which were optimum in 87% (39) patient units were perceived by 8% (12), 7% (11) and 13% (19) respectively as a factor that impacts nursing patient care outcomes. Thus 92% (138), 93% (139) and 87% (129) of the nurses opined that adequacy/inadequacy of this quality parameter should not affect nursing patient care outcomes.

However 100% (150) nurses recommended natural day or night time light for their patients as it will better their health.

SECTION II  PART B -
5.2.4 ANALYSIS OF THE QUALITY CONTROL NURSING PARAMETER ADEQUACIES

ENVIRONMENT OF THE ICU – Sound, Atmospheric cleanliness - process and outcomes

Quality Sound

When this parameter was analysed it was found that 94% (141) nurses related that the unit does not reflect loud noise which may affect conscious patients and 71% (106) concluded that conscious patients in presence of loud noises may get affected thus leading to poor patient care outcomes. Cent percent (150) of them reflected that loud sounds may disturb a patient if he was in a state of being unconscious, this as per 52% (78) affected patient care outcomes. However 48% (72) felt that since the patient is unconscious, he does not get affected by loud noises.

Quality - Atmospheric cleanliness.

Nurses need to take additional efforts to maintain atmospheric cleanliness. These efforts need to be taken as an additional task to regular responsibilities. When nurses were questioned on this 87% (131) agreed that they take diligent actions to maintain atmospheric cleanliness 10% (15) stated that they are not able to take these efforts, some have stated that they do want to take actions but do not receive assistance from support staff, while 3% (45) stated that they were not very sure that they take these efforts.
5.2.5- ANALYSIS OF THE QUALITY CONTROL NURSING PARAMETER ADEQUACIES - NURSE PATIENT RATIO - process and outcomes

Quality; Nurse patient ratio –

It was found that the unit had a reporting policy of nurse patient ratio individually & cumulatively as well. However when nurses had to note if the nurse: patient ratio is reported 97% (146), stated that it is reported and 3% (4) stated they did not know if they report the ratio.

The ratio report is carried out once a shift by the senior nurse on duty and thus some nurses who are not involved categorically may respond saying that they are not aware as they are not involved.

86% (129) connected this act to better nursing care outcomes. Some common remarks were on the days N/P ratio was appropriate errors were absent.

Another remark stated that N/P ratio reports were helpful to regulate leave and ensure the best ratio for the benefit of the patient

When the Nurse patient ratio was studied in various contexts; the results were found varied. 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. 1% (2), of the nurses did say that this ratio is on an average not maintained. No further inputs were shared by them in the remarks column. However 96% (144) of the nurses remarked that this N/P ratio betters nursing care patient outcomes. 4% (6) stated that maintaining this ratio does not better the patient care outcomes, One nurse remarked that at times you need more assistance from nurses as suddenly due to some reason multiple tasks have to be attended and additional nurses help. This is inferred as more than 1 nurse/patient or a need base N/P ratio may be opted for

Similarly it was found that

74% (111) nurses when nursing a complex patient with multi organ failure said the ratio was 1:2. While 26% (39), stated that it was not 1:2 but 1:1, this allows us to state that the ratio here was 1:1 or 1:2. However on no occasions was it reported to be 1:3. ICU nursing is based on the N:P ratio and 96% (144), of the nurses agreed that this ratio is able to better nursing patient care outcomes. 4% (6) opined that this N/P ratio does not have any direct relation with the patient care outcomes. A remark stated states that the
patient care outcomes may be maintained well if the nurse has the ability to manage more patients.

A ratio of 1:1 was expressed by 98%(147) nurses when nursing a patient with a ventilator, 2%(3) stated that this ratio was not maintained. No nurse commented at on any occasion 1:3 N/P was initiated. A remark stated that the nurse would find it impossible to nurse a patient on a ventilator if a 1:1 N/P was not maintained.

99% (148) of the nurses stated that this reflected on better nursing care patient outcomes, while 1%(2) nurses disagreed with this

This was applicable for morning, evening and night shifts in cent percent cases.

5.2.6- ANALYSIS OF THE QUALITY CONTROL NURSING PARAMETER ADEQUACIES - PREVENTION OF BEDSORES – Process and Outcomes

Quality; Protocol related to Bedsore prevention/practices –

A protocol to assess the patients tendency to develop bedsore through a predesigned scale is used for all the patients, this was agreed by cent percent nurses.

A remark on this stated it is time consuming to assess this for all the patients and another one stated it takes up nursing time to evaluate this.

A few remarked that it gave them inputs which were beneficiary and one nurse stated that she would never have predicted the development without the scale.

93% (139) stated that this led to better nursing care patient care outcomes. 7%(11) stated that this was not essential to better outcomes. One remark stated that good nursing care does not need assessment scales.

To prevent development of pressure sores in those patients who on the assessment scale show a tendency to develop a bedsore various preventive strategies may be used, of which 91%(137), agreed to use of a specific grade mattress substitute. This catered to a physiological surface which prevented the bedsore to be developed. 7%(13) stated that they do not use this. One remarked that it cannot be used when the patient is unstable as it needs major patient movement to exchange the mattresses.

94%(141) remarked that this strategy betters patient care outcomes and in this case many remarked that the bedsore did not develop. Where as 6%(9), stated that this did not help and one stated that a first degree sore did develop.

Change of positions was complied by 81%(122), and 19%(28) said that they do not do it. Many remarked that when the patient is unstable change of position is not
recommended, one said a bed with automatic lateral movement is much better. One remark stated that regular change of positions were not possible due to time constraints and a busy schedule.

92%(138) opined that they found that frequent change of positions bettered patient care outcomes and the patient did not develop bedsores. Whereas 8%(12) stated they did not find that this strategy bettered patient care outcomes.

When questioned if they use a chemical barrier on the patients skin to prevent developing bedsores 92%(138), stated that they used it. Some remarked that the cream is better than the spray, while one remark stated that only the waterproof cream helps and two remarks stated that the patch is better as it is valid for 72 hours and does not need any intervention until then, thus is time saving. 8%(12) however stated that they do not use it. One remark stated that it is expensive and not economically viable.

86%(129), stated that it effectively betters nursing care patient outcomes and 14%(21) stated that it does not have any effect on patient outcomes, in this case prevention of bedsores. One remark stated that ICU nursing needs to focus on critical issues hence prevention of bedsores couldn’t be its priority.

Of measures taken to better circulation of patients to prevent bedsores, 88%(132) stated that they practice this modality as a preventive measure. Whereas 12%(18) stated that they do not follow this protocol. One remark stated that this measure needs a minimum of 30 minutes of nurse’s time and hence she cannot practice this. One remarked it needs the patient to be in a prone position and this is in major of the patients is not feasible, hence she does not practice it.

95%(143), stated that this is effective and results in better nursing care patient outcomes, in this case to prevent bedsores. One remarked that this betters patient outcomes as in the mechanical ICU atmosphere this modality allows the nurse to spend quality time with the patient, which she can also use for vital observation and another remark stated that this strategy uses touch which is stimulating to the senses of the patient and betters the patients well being.

5%(7), stated that this does not better patient care outcomes. One remarked that this is a old strategy and the nurses need to focus on using the newer modalities. One also suggested that if a mechanical device was available, she would have used it as it would be less time consuming.
When reporting of bedsore was questioned in eventuality that a bedsore does develop in a patient who is in the ICU, 97%(146), remarked that they report occurrence of bedsoles. A few remarks noted were as follows
- After the diligent precautions taken a report many a times positively also reflects absence of bedsore developed in the ICU, which is an immense encouragement to the nurses.
- It gives an opportunity to evaluate strategies retrospectively
- This has happened when positioning was not possible, hence position change was practiced maximum when not contraindicated and bedsoles prevented.
- It is a moral responsibility to report an incident, hence it is done.
3%(4) remarked that they do not report bedsore occurrence in a report. One remarked it is time consuming, another remark stated that this is not a critical issue.
99% (149) stated that reporting leads to better nursing care patient outcomes. A few remarks were noted as follows
It evaluates the occurrence and corrective measures are suggested to prevent re-occurrence
Nurses tend to be more diligent in the practices as reports are generated
Outcome measures are well monitored.
Prevention of bedsoles is a basic nursing modality and the nurse needs to ensure practices and reports of these fundamental and effective modes.
0.7%(1) remarked that this does not better outcomes and she has noted two occurrences when in spite of taking all the precautions bedsoles developed in these patients.
5.2.7- ANALYSIS OF THE QUALITY CONTROL NURSING PARAMETER ADEQUACIES – PREOPERATIVE CHECKS– Process and Outcomes

Quality related to – preoperative checks

A preoperative check list lists all the tasks a nurse needs to complete before posting a patient for surgery. She uses the check list to double confirm that all the tasks are performed. The list consists of common preparation which is mandatory for all the surgeries. When questioned 99% (149), of the nurses stated that they use the preoperative checklist and 0.7% (1) stated that the check list is not used.

Nurses remarked that the checklist is helpful and many said they are dependent on the check list as it gives them a secondary check.

One nurse remarks that since the list is also counter checked in the OR, any point missed by the ICU nurse is picked before the patient undergoes surgery.

However when asked if it betters patient care only 74% (111) stated that it does while 26% (39) said it does not better outcomes. Many nurses said since this is a preventive strategy and not curative, it is not focused on outcomes as the end result cannot be seen or measured. Where as of the nurses who answered affirmatively, one of them said that the check list allows the nurse to systematically ensure compliance due to which the patient does not suffer from any untoward counter effect, hence the outcome is definitely better. One of the remarks from the nurse who does not follow the checklist was that it can be dangerous if followed mechanically. While another nurse stated that if one depended on the checklist, other out of the list tasks may not be attended and hence individualised parameters may be recommended.

A protocol to report inability to follow the list was followed diligently by 81% (122) and not followed by 19% (28).

Similarly 81% (121) stated that the protocol to report directly betters nursing care patient outcomes through prevention. And 19% (28) said it does not have any effect on the outcomes
5.2.8- ANALYSIS OF THE QUALITY CONTROL NURSING PARAMETER ADEQUACIES CENTRAL LINE PRACTICES– Process and Outcomes

Quality; Central line drug administration practices –

Central line drug administration practices were studied through practices of written/verbal order being followed. The compliance was found to be 78%(117) and 22% (33) stated that they were not following this practice.

75%(112) agreed that following the policy does better Patient care outcomes, many remarked that it applies more so for the verbal policy since wrong communication may lead to errors and harm the patient. 25%(38) did not agree that this policy can better patient care

Since the practices are extensive when they were asked if the practices and drug knowledge is available online 89%(134) agreed that the inputs were available online. Whereas 16%(11) stated that it was not available online.

However all 100%(150) felt that having this inputs online bettered the patient care outcomes

A few remarks stated that
- The know how was extensive and it was impossible to practice the essentials without ready references available.
- Ready information makes practice the rightway practical.
- The search in the online reference makes it more easier

93%(139) agreed that this betters patient care outcomes and 25%(38), stated that this does not have any impact on the patient care outcomes

The compliance of checking the written order for drug; name, dose, route, was found compliant at a frequency of 96%(144) and non compliant at 4%(6). Many remark it is extremely important to do so, some stated that this should be mandatory and a done record needs to be created.

This was reflected when questioned about this affecting nursing care outcomes was asked it was found that it was cent percent 100%(150). A remark said if it was not done it could lead to grave medication error and through the central line the effect can be disastrous.

Central line drugs need multiple formulas to be followed and ready dilution charts are helpful. When asked if the nurses have Dilution charts in the unit and if they follow the
charts, 88%(132) stated yes they do that. Many nurses stated that ICU practices demand multiple drugs to be tailored to the patient this depends on the patients condition, age, sex, actual or predicted weight and the inter reaction of this drug with other drugs. This leads to tailoring individual dose for the patient which again may differ from time to time. Hence a reference chart readily available is a big advantage.

One nurse remarked that this decreases medication errors.

12%(18) said that they do not use ready charts. One remarked that she prefers to calculate herself.

96%(144) stated that this betters the patient outcome. One remarked that attempting to calculate when you are busy can lead to errors and hence a ready chart is practically safe.

4%(6) said it does not have any effect on the outcomes.

Practices

When asked if central line position is checked and documented as per the written protocol 93%(140) said they check and document it as per the protocol. One nurse remarked it assists to legally mark the nurse safe and it makes her feel protected as she has documented that it is checked. One nurse remarked that since documentation is a policy, she is compelled to do it as it is morally right to do so.

7%(10) said they are not able to do that. One said she checks but at times does not document. One nurse stated that the utilisation of the central line is enormous in the ICU that is she has to check she will never do her tasks timely, which will affect the patient more.

94%(141), agreed that this betters patient care, some stated that this is a safety precautions and a must if you are concerned about the patient. Many stated that this is a part of critical care practice habit. One said this makes a life and death difference hence it has a direct relation with the nursing care patient outcome.

6%(9) said that this does not have any impact on the patient care. One remarked it is a mandatory nursing care measure.

When the other practices were analysed it was found that

Drug administration with all the stated precautions being followed was agreed by 87%(130) and not followed by 13%(20). One nurse stated that the impact of not following drug administration precautions for central line drugs was gross and hence it has more significance than the other routes. Of the 13%(20) nurses who do not follow
the precautions, one remarked that the precautions are extensive and impossible to follow.

Where as 96%(145) agreed that following this protocol leads to better patient care outcomes and a few stated that since the precautions are available online they do not take additional search efforts and can be followed with a quick reference. Another nurse stated that in general most of the drugs used are repeated for all the patients and once you pick up the knowhow they are easy to follow.

4%(5) said it does not have an impact on the patient care.

For following the central line flushing protocol, it was found that 94%(141) followed the protocol as stated in the policy manual. Many stated that this was a safe practice as it did not have any side effects but benefitted the patient as it ensured patency of the line.

6%(9) did not follow the protocol. And one nurse stated that it may lead to fluid overload in certain patients and hence cannot be mandatory for all.

88%(132) stated that this directly impacts patient care outcomes, one nurse stated that it is a safe practice as it prevents life threatening complications. Another stated randomly performing this out of policy may lead to issues as dependency on each other to do that and conclusively no one doing it. This can be unsafe for the patient.

12%(18) said it does not affect the outcomes. One stated that evaluation of patients regularly would be more beneficial.

When questioned if the nurses followed the Non Touch technique while handling the central line 93%(139) stated that they do that. Many stated that this decreases Blood Stream Infections(BSI), one stated that though one is knowledgeable of needing to do that, it takes additional efforts to particularly follow the practices.

7%(11) said they were not able to do that, one stated that it is difficult to follow this in an emergency.

95%(142) said this betters the patient care outcomes and one of them stated that it prevents BSI, and 5%(8) stated that this does not have an impact on the outcomes, one nurse stated that the patient outcomes are related to the primary condition, which the nurse needs to emphasise.
5.2.9- ANALYSIS OF THE QUALITY CONTROL NURSING PARAMETER ADEQUACIES –

Patient ambulation practices– Process and Outcomes

Interpreted as an essential ICU practice, nurses do not interpret it as a life saving practice. 83% (125) nurses, stated that they follow Bed to chair ambulation every shift as a practice in all the patients where this is indicated. Some remarks to this practice were-
- Ambulation is a essential change of position
- Ambulation leads to an upright position which is better for circulation
- This brings in a sense of well being to the patient
- This increases patient’s confidence
- This is essential even if the patient is unconscious

However 17% (25) of the nurses stated that they do not follow this practice. One stated it needs more than one person and enormous efforts.

All 100% (150), agreed it helps better patient care outcomes. When questioned if this ambulation is manually performed 97% (145) stated yes and 3% (5) said No.

While 96% (145) said that this betters patients health and 4% (5) said that this is not effective for patients. One nurse said it is risky to perform this manually.

When asked that if necessary do the nurses use a mechanical hoist, 94% (141) said they do and 6% (9) said that they do not. One nurse said she does not have the confidence to use the machine.

97% (146) stated that this practice betters the patients nursing care outcomes. One nurse said it is excellent for the blood circulation to all the parts of our body.

3% (4) said it does not have any impact on the patients care outcomes.
5.2.10- ANALYSIS OF THE QUALITY CONTROL NURSING PARAMETER ADEQUACIES –
Quality; Fall practices – Process and Outcomes
In general many nurses remarked that Falls in the ICU are noted to the minimal as primarily the patient movement is null. But when questioned about reporting falls if they occur on a predesigned format 96%(144), said yes and 4%(6) said no they did not. However all the 100%(150) agreed that this reporting does better patient care outcomes. 91% (136) stated that they followed fall prevention protocols and 6%(14) said they did not. 86%(129) stated that they found that this practice betters care outcomes as it prevents falls and 14%(21) said that find no impact on the care outcomes due to this practices.

5.2.11- ANALYSIS OF THE QUALITY CONTROL NURSING PARAMETER ADEQUACIES –
Quality; Medication and other errors - Process and Outcomes
Reporting is a significant and important aspect of error documentation, 91%(137) of the nurses stated that they report on a predesigned format if they administer a drug – and it’s a wrong drug /through a wrong route/wrong dose/wrong time/wrong method. While 9%(13) say they do not agree 95%(142) stated that they believed that this is a good practice and it betters the patients care outcomes, while 5%(8) did not agree with this.

Whereas 97%(145) stated that they report on a predesigned form if a wrong patient is send to the Operation Room and 3%(5), said that they do not. 96%(144) stated that this betters nursing care patient outcomes and 4%(6) said it does not have a impact. 93%(139) nurses said they report on a predesigned format if a wrong patients blood is send to the laboratory and 7%(11) said they do not do that. However 92% (138) state that they agree that this practice betters the patient care outcomes and 8%(12) said that they do not.
THE RESEARCH QUESTION asked by the researcher saying
Do nurses practice QCNP in the ICU and does it better the Nursing care patient outcomes?
Is answered here as the analysis shows that nurses practice QCNP in the ICU and they have agreed that this betters nursing care patient outcomes.

SECTION II  PART C-
Data analysis of the selected variables, nursing qualifications, ICU experience and selected QCNP amongst each other via correlation

5.2.12 CORRELATION – AMONGST QUALITY ASSURANCE PARAMETERS FOR ENVIRONMENT;

Five environmental parameters were selected to study the correlation amongst them. The dependency on each other to exhibit adequacy singularly or in relation to the other was to be studied.

The parameters were-
A- Workspace adequacy
B- LIGHT – NEEDED TO
   a- Observe
   b- Perform Procedures.
   c- Assist - Procedures.
   d- Cubicle -natural light?

INFERENCe- The Friedman test, which evaluated differences in medians among the five environmental factors in Critical care unit, is significant $X^2 (2,N)= 357, p<.001$. 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.
Thus it may be inferred the relevance of each factor as an individual component and not in concordance with the other. This signifies that each parameter needs to be attended to as an individual and not grouped with any other. Adequacy of Light is
sub divided into four different components, however in spite of having Light as a common factor they do not correlate with each other and one has to meet the adequacy of each as a single parameter.

5.2.13 - CORRELATION – AMONGST QUALITY ASSURANCE PARAMETERS FOR NURSING PRACTICES;

Twenty three quality assurance parameters for nursing Practices in the critical care unit were evaluated for their relation amongst each other. The venture was to know dependency or a relative significance connecting them.

The quality assurance parameters for nursing practices analysed for correlation were-

a) Assess development bedsores.
b) Use of prevention mattress.
c) Change of position
d) Use barriers
e) Measures to better circulation
f) Report bedsores
g) Use checklist - pre-operative
h) Reporting pre-operative checklist
i) Central line – drug check
j) Central line - check written order
k) Central line - verbal order policy
l) Check drug details
m) Knowledgeable - drug check
n) Precautions of dilution check
o) Central line – position check
p) Administer drug with precautions
q) Central line is flushed.
r) CI Follow - non-touch technique.
s) Regular ambulation
t) Ambulate the patient - manual
u) Ambulate the patient mechanical
v) Report drug error
w) Report patient falls

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
X²(22, 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.

Thus it may be inferred the relevance of each factor as an individual component and not in concordance with the other.

The individuality of each factor is important and the nurse here has to practice them keeping this in mind. This analysis allows the nurse an opportunity to set practice goals and clearly measure them against the achievement standards. This also informs us that quality cannot be aimed at by seclusion and needs to be all inclusive, the effect of this that, failure to achieve any one of them can lead to a deficiency.

### 5.2.14 –CORRELATION – AMONGST NURSE PATIENT RATIO PARAMETERS ;

The NP ratio was evaluated for adequacy on the following paradigms was analysed –

- a) NP is reported
- b) Major surgery NP-1:1
- c) Major surgery NP-1:2
- d) Major surgery NP-1:3
- e) Complex patient NP-1:1
- f) Complex patient NP-1:2
- g) Complex patient NP-1:3
- h) Patient - ventilator NP-1:1
- i) Patient - ventilator NP-1:2
- j) Patient - ventilator NP-1:3
- k) NP same - M shift.
- l) NP same - M & E shift.
- m) NP same - M,E & N shift.
All of the above may occur singularly or in multiples, Reporting the NP Ratio and equallity in all the shifts may be a common factor but the data obtained was correlated on an actual base.

The Friedman test, which evaluated differences in medians among the quality assurance parameters for nurse patient ratio in critical care units is significant \( \chi^2 (13,N=150) = 820, p<0.0001 \). Kendall’s W is .46, indicating fairly strong differences among the thirteen parameters.

Hence one cannot conclude that all thirteen 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.

Thus it may be inferred the relevance of each factor as an individual component and not in concordance with the other.

5.2.15- CORRELATION – SELECTED PARAMETERS WITH QUALIFICATION & EXPERIENCE;

The relation between selected quality control nursing parameters with certain selected variables such as qualifications and nursing experience in ICU 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
- Nurse patient ratio on a patient -on a ventilator
- Nursing Measures to prevent bedsores
- Administer Drug through a central line
- Use of a Pre-designed format to nurse a pre operative patient
- Use of a Pre-designed format report-wrong drug

NURSING QUALIFICATION

The Friedman test, which evaluated differences in medians among the eight quality assurance parameters for Nursing in ICU, is significant \( \chi^2 (7, N = 150) = 180.757, p < .0001 \). Kendall’s W is .17, indicating differences among the eight parameters.
one cannot conclude that all eight quality assurance parameters for Nursing errors in CCU are concordant with one another, as shown in Table only that at least one variable is concordant with one or some of the others. Thus it may be inferred the relevance of each factor as an individual component and not in concordance with the other.

On this note as they functioned within their own independence, they were correlated with the nurses qualification to analysis the impact of Nursing qualification on Quality.

The sample consisted of nurses with GNM, Post Basis B Sc and B Sc Nursing qualification.

All the nurses were analyzed for Mean and SD, for Nurses with B.Sc. degree, GNM and Post Basic B Sc Nursing qualification.

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.

ICU NURSING 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.

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.

This factor was analyzed to focus on the common belief that ability develops with experience. Though experience is a good teacher and it is instrumental in allowing an individual to assess self for the confidence that comes with it, these results are very important as they are able to complement an individuals ability to self alone and not years of experience that go with it.

The significance of quality in ICU nursing and nursing qualification/ICU nursing experience being unrelated allows for a very important decision one can make whilst manpower planning.

5.3 Limitation and the Scope Of the Study

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 set up only and could not be reflected towards the other nursing care clinical fields.
d) Quality assurances recomended 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 parametres were obtained through verbal respone 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.

5.4 Implications of The study Implications to Nursing
Implication to nursing may be further categorised as nursing services, administration, education and research.

5.4.1 - Implications to Nursing Administration; Implementation of Quality protocols is an administrative decision which if taken impacts nursing care of patients positively.
The study also implies that Nursing administrators need to develop quality protocols through independent study, current advances and guidelines established by regulatory bodies.
It also has direct implications to all the other departments which have not been included in this study but have a direct relevance.

5.4.2- Implications towards Nursing Research
Implications to Nursing Research; The tools and techniques and the findings of the study is added to the body of nursing knowledge as a category explored and subsequent findings which may be implemented towards a quality initiative.
This also opens further avenues to more research on this sensitive subject.

5.4.3 Implications of The study for Nursing Practice
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.
Since the study also emphasises individuality and non dependence towards Nursing Qualification and ICU Nursing experience it paves new pathways to establish policies independently.
5.4.4 Implications of The study for Nursing education

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.

5.5 Suggestions and recommendations for further Study

Quality in nursing care is a moral responsibility and may be measured in other parameters

• Co realation 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
5.6 Conclusion- 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.