CHAPTER-3

RESEARCH DESIGN

STATEMENT OF PROBLEM

Quality work environment factors are critical issues when examining the work life of nurses. Some of the key issues that will be examined in this study are nursing workforce shortage, working conditions, professional issues, stressful work life, demanding patient needs, working knowledge development, team work and performance, nursing leadership and managerial issues, organisational climate and culture and gender based issues.

*Nursing shortages are not only organisational issues but also global issues.*

In India, at present about 8.6 lakh trained nursing manpower is available. About 30,000 are trained annually, and only 45 per cent are in active service at any time. As per the 10th Five Year Plan, around 7.37 lakh nurses have been registered in the various state nursing councils in the country. It is estimated that only about 40 per cent of these are in active service (Academy for Nursing Studies, 2005, Karin Newman, Uvanney Maylor and Bal Chansarkar, 2001). Of the total nurses, only about 1.5 lakh nurses are employed in the government sector. Among the 5 lakh ANMs that have been registered, only 1.5 lakh work in the government sector. The nursing manpower situation at the periphery is inadequate with large shortfalls at every level. There is a steep drop from the required to the sanctioned and from the sanctioned to those actually in position. If the number of persons who are on leave or absent from duty are added, the shortfall is even greater. There is no estimate of the drop from those in position to those actually functioning since these figures change day to day. The current percentage of shortfall ranges from 17.21 for the ANM to 44.91 for the nurse-midwife at the periphery. A majority of the hospitals which include periphery hospitals are facing moderate to heavy shortage of nursing staff. There is inappropriate use of workforce particularly using the highly competent nurses for non-clinical and administrative work. This also adds to shortage work force in terms of not using the resources for the purpose (Jean S Blankenship and Susan A Winslow, 2003). More specifically the shortage of nurses
leads to work pressure, poor concentration on work, sickness, absenteeism, work life imbalances etc. for the working nurses.

Increase in Patients’ demand calls for more responsibility, accountability and commitment from nursing.

According to the BMC Health status report 2006 “There is a demand for services offered by municipal hospitals as they are more affordable. But it is essential to increase health infrastructure and also prioritize improvement of services at the primary level”. More and more patients are approaching the municipal health services due to high health care costs which means increased work load for the nurses (Barnabas Seema, 2004). At the same time patients have learnt to ask for quality time, good communication, adequate information and better relationships from nurses. The nurses perceive hospital nursing has become more complex; there is an ever-present need to stay current with medical and technological advancements; nurses are expected to assume greater responsibilities, especially with regard to coordination of care and patient education; nurses must manage a wider range of duties, including more non-nursing functions (Joanne McCloshey and Helen K. Grace 1994). As a result the nurses’ work place commitment, job satisfaction, professional identity, performance, and team work is affected (Patricia Potter, Stuart Boxerman, Laurie Wolf and Jessica Marshall 2004).

Professional issues affect nursing practice environments

As professionals, nurses need a practice environment that acknowledges the social and health mandate of their discipline but institutional policy structures unable to recognise the importance of education and ongoing learning, emphasize team work and collegiality, and encourage creativity and innovation. It is observed that in BMC hospitals the continuous learning programme is often ignored. Also the inadequate interventions of Indian nursing councils are unable to promote the quality professional practice environments in hospitals which is one of the primary needs of the nurses.

Culture and climate are near synonyms used to describe the values, beliefs, philosophy and customs of an organisation. In many situations, the climate and
culture is not well understood by staff including the senior level staff. The staff members are unable to get along with moral and ethical practices as well the hospital rules and regulations. It has been observed that often BMC hospitals’ staff suffer due to a lack of understanding of the hospital rules, weak relationships with patients, ineffective communication with patients, and lack of accountability (Pritam Kaur, June 2007).

*Stressful work environment affect the nursing work life*

The nurses face several work related stress such as frequently reported feelings of being “used up” at the end of the day, emotionally drained from work, frustrated by work, fatigued when having to get up and go to work, and burned out (Joanne McCloshey and Helen K. Grace 1994).

*Working conditions affect the nursing job satisfaction, work life and perception regarding won performance*

Job satisfaction is a major concern for the nursing staff. According to a study, the main factors causing job dissatisfaction are inadequate remuneration and poor working conditions, including deficiencies in the working environment such as lack of equipment. When organizations fail to provide workers with essential equipment, workers may not be able to accomplish their jobs for reasons beyond their control. Job satisfaction has been strongly and positively related to the empowerment of hospital nurses (Maureen F Best, & Norma E. Thurston, June 2004). Another study points out several workload issues, including higher patient acuity and changed skill mix that precipitated concerns about job satisfaction after the change (Maureen F Best, & Norma E. Thurston, June 2004). In a study of nurses’ job satisfaction among public and private hospitals in Mumbai (Nasreen Rustumfram, 1999) the nurses are dissatisfied due to a poor remuneration system, conflict with class IV workers and demanding patient relatives (Rustomfram, N. 1999). Another study reports that job satisfaction of 126 staff nurses in different hospitals in Jammu and Kashmir State only 8 per cent were highly satisfied with their work, material rewards and competent supervision (Muneera Bshier, Sept 2005).
Lack of team work and collaborative among nurses lead to weak performance

In a hostile or rigidly hierarchical environment, nurses may be intimidated to question written or verbal orders that have errors or are mis-communicated (Institute of Medicine 2000). We see that the position of nurses lower in relation to that of doctors and technicians in the team. This affects their performance. According to some of the nursing teachers and nursing superintendents in Mumbai, the nurses working in BMC Hospitals do not point out flaws in even patient related issues because of low self-esteem.

Deficiency in work process increases the work errors

It is known that nurses are stressed and over loaded with duties. It is observed that nurses at present are carrying out tasks based on traditional practices and there has been no effort to redesign or improve the work methods (Caroline E sims, 2003). Current nursing work involves excessive clerical work which consumes a majority of the working hours of the nursing staff and a source of dissatisfaction. As a result, the nurses are unhappy and frustrated.

Gender based discrimination affect the entire nursing profession

In healthcare organisation gender-based discrimination continues in many countries and cultures, with nursing being undervalued or downgraded as “women’s work” (Sujana Chakravarty, 2002).

To conclude, the nurses work in social human caring contexts. Often the nurses are called upon to show patience, alertness, conscious efforts, emotional stability and to take decisions under taxing conditions. However, due to lack of autonomy and decision making the nurses are unable to cope with the job requirements. While the nurses are expected to follow the doctors’ order there are situations which demand that they take decisions. They are prevented from doing so due to lack confidence, fear of criticism from superiors and inability to answer questions from higher authorities. In fact, nurses’ cognitive and emotional factors influence their work performance. As a result the nurses show work dissatisfaction. Ultimately, this reflects on patients who may receive inadequate care. Thus, the quality of health care is affected by interactions among these variables discussed, and therefore it is
necessary to begin to explore the connections between quality work environment and performance of nursing staff in public sector hospitals.

RESEARCH QUESTIONS

1. How can we best understand the relationship between the nursing staff on an individual and group basis, their job and the work environment within the hospital?

2. What is the linkage between the professional work environment (otherwise referred to as QWE) and the outcome QWL (job satisfaction, job stress, Absenteeism, Interpersonal communication, work life balance, organisational culture and performance) of the nursing staff?

3. How do effective communication and cordial relationships in work teams affect or enhance the outcomes for patients, nurses, and hospital?

4. How does the lower professional status of the nursing staff affect their work life outcomes (job satisfaction, work stress, work life balance)?

OBJECTIVES OF THE STUDY

Primary objective
To contribute to the understanding of the work environment of nursing staff and their quality of work life.

Specific objectives

1. To find out the job characteristics of nurses in Public Sector hospitals

2. To find out the significant work environment of public sector hospitals which impact nursing tasks

3. To study the effect of the job characteristics and the work environment upon the quality of work life of nursing staff in public sector hospitals.

4. To explore the potential improvement in work environment of nurses in public sector hospitals that would lead to improvement in the quality of work life of the nursing staff.
SCOPE OF THE STUDY
The proposed research study primarily focuses on the quality work environment factors affecting the nursing staff quality of work life. There are two types of work environment variables that affect the quality of work life of nursing staff. They are the internal and external environments. This research study focuses only on the internal work environment variables because internal environment largely affect the nursing work life directly. The external environment variables are indirectly connected to nurses’ work life and may be important, however, it may not be possible to include it in the study as it features a wide range of variables and its inclusion will affect the depth and quality of the study. The study follows the conceptual frame work which is designed for it specifically. The study would be conducted in Municipal Corporation of Greater Mumbai (MCGM) Peripheral Hospitals. The study mainly concentrates on the social sciences aspects of nursing profession. It does not cover the clinical aspects of the profession. Quality work environments would allow the organisation to attract as well retains a healthy, committed work force in hospitals. Further emphasising strength of such environment factors focused upon as an enhanced nursing staff would lead to a healthy working life.

OPERATIONAL DEFINITIONS
The following terms and variables are used in the study and have been operationalised as give below

**Staff Nurse**
For the purpose of study a staff nurse is a female person with

i) Minimum professional education of three years duration leading to qualification of General Nursing and Mid-Wifery (GNM) and four and half years course –Degree in Nursing (B.Sc.).

ii) Is registered with the Maharashtra Nursing Council

iii) Is employed on a permanent basis in the hospital of the study or similar hospitals under municipal corporation with at least three years of experience
iv) Is serving as a staff nurse engaged in clinical duties in the hospital’s wards/units

Auxiliary nurse mid-wives, nursing teachers, and community health workers are excluded from the study.

**Public Hospitals**

Public hospital means a hospital run by the public health department of the Municipal Corporation of the city. It comes into being through a fiat of the local Government and forms a part of the overall curative and preventive health services run by the department for the city. The head of the organisation is a medical doctor who rises to the position from the ranks according to seniority may be transferred to any other hospital run by Municipal Corporation within the city. This head of the organisation is accountable to the head of the public health department and ultimately to one of the Deputy Commissioners in charge of the subject of health among several others. The hospital is funded through public funds.

**Middle Sized Public Hospital**

Middle sized public hospital means a hospital with a bed size of approximately 200-400 beds run by the public health department of the Municipal Corporation of the city. It comes into being through a fiat of the local Government and forms a part of the overall curative and preventive health services run by the department for the city. The head of the organisation is a medical doctor who rises to the position from the ranks according to seniority. S/he may be transferred to any other hospital run by Municipal Corporation within the city. This head of the organisation is accountable to the head of the public health department and ultimately to one of the Deputy Commissioners in charge of the subject of health among several others. The hospital is funded through public a fund that is local taxes raised from the citizens of the city.

**Job Characteristics**

The job characteristics basically indicate how well a job is designed to carry out tasks without having hurdles and bring effectiveness from the particular job holder
to achieve such tasks with satisfaction. The job characteristics built into the job are: job requirement of different skills and abilities (skill variety), provide enough understanding about where the job begins and end (Task identity), by achieving such task nurses feel proud and the same shall useful to hospital (Task Significance), the staff will have the freedom and control over on schedule, plan their work (Autonomy) and the objective information about progress and performance from the job, or supervisors or MIS (Feedback) provided to the nurse (job holder). The nursing staff’s past training from nursing college, syllabus etc., formal communication through appointment letter, and hospital manual and current practices in wards provide enough experiences for the staff to visualize and understand the job characteristics in their own job.

**Work Environment**

The work environment refers to the nursing staff’s surrounding in and around the work that would facilitate and enhance their skills and abilities to achieve the tasks in the hospital. The environment which affects the nursing job in the hospital are *Physical Environment* (Hospital Bed Size; Work Load; Technology/Equipment; Availability of Material Supply; Nurse Patient Ratio; Shift Timings; Working Hours), *Social Environment* (Interpersonal Relations; Multiple Teams; Management Style; Status at Work; Autonomy; Decision Making; Culture and Climate, and *Administrative Environment*: Organisational Structure; Organisational Goals; Policies for Nurses (Promotion, Leave, Transfer); and the Performance Evaluation system.

**Quality Work Environment (QWE)**

A quality work environment supports nurses to function at the highest scope of clinical practice, to work effectively in an interdisciplinary team of caregivers such as doctors, technicians and housekeeping staff, and to mobilize resources quickly. The quality work environments have a comprehensive set of characteristics such as work time utilisation, absenteeism, level of autonomy and decision making, professional development opportunities, scope of the nursing leadership role, span of control of nurse manager, team relationships (communication and coordination), organisational climate, workload and productivity that permit “nurses to practice to
their full potential”. QWE should enhance both nursing work life and nursing quality of care. Here, by quality we mean that each factor in the work environment has the dimensions of efficiency and effectiveness.

**Quality of work life**

The quality of nursing work life means “the nursing staff work in satisfying work place where they have safety from work related injuries, protection from abuse, adequate support from other healthcare providers and security, clean environment such as adequate physical surroundings and improving the balance of work and home life”. The quality of work life of the nursing staff depends on their age, experiences, team functioning, organisational climate and culture, work load and productivity, level of autonomy and decision making, professional development opportunities, scope for nursing leadership role and absenteeism. The issues that affect the quality of work life of nurses are work load, hours of work, scheduling, salaries and benefits, scope for practice, respect for superiors and colleagues, nursing shortage, support for continuous learning, abuse, and nursing staff personal health. Here, the quality of work life refers to quality of nursing work life.

**Nursing Tasks**

In general, the nursing staff maintain accurate and detailed reports of records of every patients in their work day-to-day. They systematically monitor the symptoms and changes in patients' conditions. They record patients' medical information and vital signs at the regular intervals or as and when it is required. They modify patient treatment plans as indicated by patients' responses and conditions. They shall consult and coordinate with health care team members to assess, plan, implement and evaluate patient care plans. The nursing staff order, interpret, and evaluate diagnostic tests to identify and assess patient's condition. They monitor all aspects of patient care, including diet and physical activity. The nursing staff shall direct and supervise less skilled nursing or health care personnel or supervise a particular unit. They prepare patients for, and assist with, examinations and treatments. The nursing staff observe and visit the patients to ensure proper nursing care. The nursing staff shall provide safe care, procedures, comfort and enriching experiences for the patients during their stay at the hospital.
Nursing quality of care

Quality of nursing care means the quality or accuracy care during the process or care delivery and end results of nursing work. The quality of care is confirmed by medical errors, length of stay of patients, patient falls, infections and the extent to which the needs of patient are taken care of.

RESEARCH METHODOLOGY

The research study was conducted in Municipal Corporation of Greater Mumbai (MCGM) peripheral hospitals. The study is explanatory. Both qualitative and quantitative parameters were utilized.

The quantitative parameter was used to understand the relationship between work environment and nursing work life. The quantitative approach was used to establish the facts which affect the nursing work process, and work life balancing issues. The nursing staff constitutes the majority of the task force in hospitals. Further the nursing staff are posted across the hospital and cover all the departments. Majority of the nurses are rotated in different wards from time to time. Keeping this in view, it was decided to interview as many of the staff as possible so that the required data were collected by appropriate representation. This was achieved by quantitative approach. The data generated through quantitative methods allowed predicting the study outcomes appropriately.

The qualitative or case study approach was not fulfilling the study objectives. However, the support of qualitative dimensions was useful in collecting the information from key informants and nursing staff. The qualitative approach was used in the form of open ended questions to understand the reasons behind the responses. The data were obtained from primary and secondary sources to achieve the objectives of the study.
Unit of Analysis
The primary unit of analysis was nursing which include staff nurses and sisters in-charge from five medium sized peripheral Hospitals of MCGM who have completed three years or more by January 1, 2008.

Variables in the study
This study attempts to examine the effects of demographic, physical, psychological and job characteristics attributes on the quality of work life of the nursing staff. The demographic variables are age, experience, education, marital status, number of children and dependents. The physical, psychological factors and job characteristics also forms of independent variables. The physical facilities like material availability, other working conditions, and the psychological aspects like collaborative and respectful relationship, professional development, decision making opportunities, etc. are key independent variables. Apart from this, job characteristics like duty system, scheduling, learning opportunities, autonomy, feedback, etc. form important dependent variables for the study. The dependent variable are work life balance, nursing satisfaction, absenteeism, Work Stress, Nursing performance, Interpersonal communication, Organisational culture and climate and Self perception. For the purpose of understanding the effect of work environment factors on nursing staff work life a new variable is computed based on the quality of work life indicators that is called “quality of work life (QWL)”\textsuperscript{2}. It is the final important variable which provides the details for explaining the effect of independent variables on the quality of work life indicators. Keeping this as the key variable an structured interview schedule was designed and a pilot test in two hospitals was conducted to identify the practical difficulties and the scope for improving the instruments. After conducting the pilot test appropriate changes were made.

Universe/Population of the Study
The universe for the study was all permanently employed nursing staff except Auxiliary Nursing Midwife with more than three years of experience in Sixteen Peripheral hospitals of Municipal Corporation of Greater Mumbai (MCGM). All these hospitals have spread over all over Mumbai and suburban areas.
Sample: Selection of Hospitals

The Sixteen Peripheral hospitals of Municipal Corporation of Greater Mumbai (MCGM) have been grouped into three groups based on the bed capacity (large - 400 and above, medium - 200-400 and small -less than 200). The details are attached in appendix - 3. According to these criteria there are three large size hospitals, five medium size hospitals and eight small size hospitals. It was proposed to take the five medium sized hospitals for the study thereby holding the hospital size as a variable steady. This was to enable the researcher to analyse the data of five hospitals without any intervening variables. All studies of organisation have shown that size of the organisation was a major factor which influences other variables.

In these selected five medium sized hospitals the nursing staff who have completed three years of experience were interviewed. In other words, from the total nurses of each hospital, the nurses who had less than three years of experience were excluded from the study. The criteria of three years of experience was very important because the quality of data depends upon the nursing staff’s understanding about the hospital and their exposure to the work environment in the same or similar hospitals. Secondly, any individual who joins an organisation would require a minimum of two to three years to understand the people, processes, technology and the complex structure of the hospital. Finally, it is expected that in three years’ time the nurses could get working experience in a variety of services, departments, with various categories of people as group and teams and would be able comment on their experiences adequately and confidently. The selected hospitals for the study are as given below:
Sample Size and Sampling Procedures

There were 421 nursing staff working in five medium size hospitals which include staff nurse and sister incharges. It was decided to interview the population that falls within the inclusion criteria (all nursing staff above three years of experience in the same hospitals or similar BMC peripheral hospitals). The sample drawn was a complete enumeration of the population. Finally, it was possible to interview 317 nursing staff which includes staff nurse and sister incharges it works out to 74.5 per cent of the population. However, it was found that some of the nursing staff could not be included or were unable to participate in the study. The sample size and other details are presented in the table given below.

**The sample Size and other details**

<table>
<thead>
<tr>
<th>Hospital Name</th>
<th>Date</th>
<th>Duration of data collection</th>
<th>Present Staff Positions</th>
<th>No. of staff interviewed</th>
<th>Not interviewed*</th>
</tr>
</thead>
<tbody>
<tr>
<td>K B Bhaba Hospital Kurla</td>
<td>06/03/08 to 29/03/08</td>
<td>23 days</td>
<td>82</td>
<td>57</td>
<td>25</td>
</tr>
<tr>
<td>Bhagawathi Hospital, Borivili</td>
<td>31/03/08 to 26/04/08</td>
<td>27 days</td>
<td>141</td>
<td>109</td>
<td>32</td>
</tr>
<tr>
<td>M T Agarwal Hospital, Mulund</td>
<td>27/04/08 to 05/05/08</td>
<td>8 days</td>
<td>55</td>
<td>43</td>
<td>12</td>
</tr>
<tr>
<td>Shatabdi Hospital, Govandi</td>
<td>06/05/08 to 10/05/08</td>
<td>12 days</td>
<td>63</td>
<td>52</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>07/06/08 to 15/07/08</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V N Desai Hospital Santacruz</td>
<td>11/05/08 to 13/05/08</td>
<td>10 days</td>
<td>84</td>
<td>56</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>01/06/08 to 06/06/08</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80 days</strong></td>
<td><strong>425</strong></td>
<td><strong>317</strong></td>
<td><strong>108</strong></td>
<td></td>
</tr>
</tbody>
</table>

* **Not interviewed** includes the staff had less than years of experience as per the criteria. Some of the staff were on long leave at any given time., the staff were doing night duty who were not available for interview and very few unable to give interview even though they were present in the hospital due to unwillingness and their own personal reasons.
As per the exclusion criteria, and other reasons as indicated in the below table it was not possible to interview 108 nursing staff.

<table>
<thead>
<tr>
<th>Reasons for unable to interview</th>
<th>Remarks</th>
<th>Number of staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. As per exclusion criteria</td>
<td>This is applicable only to staff nurses</td>
<td>43</td>
</tr>
<tr>
<td>2. Long leave &amp; night duty</td>
<td>This include staff nurses and sister incharges</td>
<td>60</td>
</tr>
<tr>
<td>3. Unwillingness to participate</td>
<td>Staff nurses only</td>
<td>05</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>108</td>
</tr>
</tbody>
</table>

Other Sources of data
Matrons, Assistant Matrons, Hospital Medical Superintendent were the key informants, who had shared their views on the current working pattern, challenges, work schedule, break, professional developments and other important aspects of nursing work environment and quality of nursing work life issues.

Research Tools and Data collection Method
Structure of the Interview schedule
It was decided to use a structured interview schedule (enclosed in Appendix I) because the information that needed to be obtained from nursing staff belong to five different hospitals. Also the structured interview schedule ensures uniformity and accuracy while administering the Interview schedule. The Interview schedule has three parts. The first part covers demographic profile and job characteristics: age, experience, marital status, income, family members, and travel relates issues, current designation, job orientation, shift system, duty schedule, double duty, time spent on work related activities, meaningfulness of job and work related problems. The second part covers physical facilities provided, hospital rules with regard to leave, transfer and promotional aspects, working relationship with superiors, colleagues and juniors, patients, scope for personal growth, autonomy, decision making, work team, professional development and nursing service quality and patient safety. The third part covers quality of work life variables like work life balance, absenteeism, work stress, interpersonal communication, job satisfaction, organisational climate and culture and self performance. The Interview schedule includes mostly closed ended items followed by a few open ended items.
Development of the Interview schedule

The research tool was developed after completion of the research proposal presentation. Before finalizing the research tool, it under went different process. At the initial stage the researcher had identified a number of key variables of Interview schedule keeping, the key research objectives in mind. A tentative draft of Interview schedule was prepared. The draft was presented to the guide, after receiving the guide’s remarks it was further strengthened and submitted to doctoral advisory committee members for their comments. The committee members suggested some changes in the draft questionnaire. The researcher took appropriate steps to include the comments of doctoral advisory committee members, and it was finalised and submitted for the guide’s approval. After obtaining approval from the guide, it was administered in the hospital as part of the pilot test.

Pilot Test

The pilot test was conducted in two hospitals and five nursing staff from each hospital participated. Apart from this a medical superintendent and a matron also have shared their views on the Interview schedule. During the pilot test, it was found some changes needed to be made like re-sequencing questions, addition and deletion of questions, simplifying some questions, reducing the length of the schedule. All these changes were incorporated in the Interview schedule and again it was presented to the guide for approval.

Method of data collection

The instrument was administered by personal interview with the staff nurses and sister incharges. Each interview was done personally by the researcher in the wards. At the beginning of the interview the researcher had explained the purpose of the research, the type of the questions that would be asked and the use of respondents’ responses to the interviewees. Further, the researcher communicated to the respondents that the participation on this study is voluntary and they have to right to answer partly or fully or even withdraw from the study. Each interview took 30-40 minutes. At the time of interview, the nursing staff answered the questions enthusiastically and honestly. It was seen that most of the respondents were very
keen in participating in the study, however, a few staff members exhibited a lack of interest due to a lack of time. The total number of staff who participated in the study was 317 which include staff nurses and sister incharges.

**Tools and techniques use for data collection from key informants**

The key informants were medical superintendent or chief medical officer, matron and assistant matrons. In each hospital there is a medical superintendent or a chief medical officer, a matron and a assistant matron, hence it was expected that three persons would be interviewed from each hospital and 15 persons from all five hospitals, however, due to vacant positions only nine persons were interviewed (details are provided in chapter-6)

The key informants (head of hospitals and nursing departments) were interviewed in depth by guided interview schedule (guided interview schedule) enclosed in Appendix-II by the researcher. The guided interview schedule had the following information: organisational goals, nursing staff’s role in achieving the organisational goals, nursing staff challenges, organisational expectation from the nursing staff, relationships between organisation, nurses and patients, nursing performance, and other work environment and organisational factors of the hospital.

**Data Analysis**

The data analysis has been carried out by using computer programmes. The structured questionnaire was analysed with regard to relevant variables. Most of questions (three parts of questionnaire) were pre-coded and some of the questions were post coded in addition to that, there was requirement of post coding of some of the data. After the confirmation of appropriate coding of data were entered in to the statistical package (SPSS).

Frequency distributions and percentages have been used to describe the various demographic, socio economic characteristics, job characteristics, physical and psychological variables, quality of work life indicator variables along with some of the secondary data like work load statistics, the job positions such as the number sanctioned posts, filled posts, and or vacant posts, etc. Additionally, mean, standard
deviations have been used to describe the same variables. Also, two way and three way tables have been used to describe the above variables.

The dependent variables like work life balance, work stress, absenteeism, job satisfaction, interpersonal communication, organisational climate and culture and self perception on won performance have been added and formed as a new variable was called Quality of work life. Further the details have been explained in chapter - 5, page number 186.

To understand the relationship between the independent variables like age, experience, economic status, number of dependents, job characteristics, physical facilities, decision making opportunities, respectful relationship and dependent variables like work life balance, work stress, absenteeism, job satisfaction, interpersonal communication, organisational climate and culture and self performance is tested by using the chi square values separately for subgroups like staff nurses, sister incharges, the latter being the control variable.

In this study to test the strength of association between independent and dependent variables the following have been used extensively. They are chi-square test and binary logistic regression.

Furthermore, to meet the objectives of to study the effect of work environment variables on and to study the effect of the job characteristics and the work environment upon the quality of work life of nursing staff in public sector hospitals and to explore the potential improvements in work environment of nurses in public sector hospitals that would be likely improve the nursing quality of work life as also their preparation to deliver quality of patient care a multivariate analysis tool of binary logistic regression was used.

**Logistic Regression**

“Logistic regression is an appropriate multivariate method when the response variable is binary” (Retherford and Roy, 2004). Hence, when the dependent variable is dichotomous i.e., the quality of work indicator variables such as work
life balance, interpersonal communication, absenteeism, work stress, job satisfaction, organisational culture, self perception on performance and quality of work life, the logistic regression is preferred over the simple regression, partly because it is easy to interpret results and partly because it leads to a logit model that drives the relative likelihood of occurrence of the event of interest. An important theoretical distinction is that the logistic regression procedure produces all predictions, residuals, influence statistics, and goodness-of-fit tests using data at the individual case level, regardless of how the data are entered and whether or not the number of covariate patterns is smaller than the total number of cases.

Since the probability of an event must lie between 0 and 1, it is impractical to model probabilities with linear because the linear regression model allows the dependent variable to take values greater than 1 or less the regression model is a type of generalized linear model that extends the linear regression model by linking the numbers to the 0-1 range. The dependent variables score is further equally divided and provided with values low and high. The values to each independent variable is work life balance (low = 0, high =1); interpersonal communication (ineffective =0, effective =1); absenteeism (low = 1, high =0); work stress (low = 1, high 0); job satisfaction (low = 0, high =1); organisational culture (negative = 0 positive = 1); self perception on performance (low = 0, high =1); and quality of work life (low = 0, high =1).

Start by considering the existence of an unobserved continues variable, Z, which can be thought of as the event of interest. In the logistic regression model, the relationship between Z and the probability of the event of interest is described function

\[ \pi_i = \frac{e^{z_i}}{1 + e^{z_i}} = \frac{1}{1 + e^{-z_i}} \]

or

\[ z_i = \log\left( \frac{\pi_i}{1 - \pi_i} \right) \]

Where

\( \pi_i \) is the probability the \( i^{th} \) case experiences the event of interest
$z_i$ is the value of the unobserved continuous variable for the $i^{th}$ case.

The model also assumes that $Z$ is linearly related to the predictors.

$$z_i = b_0 + b_1 x_{i1} + b_2 x_{i2} + ... + b_p x_{ip}$$

Where

$x_{ij}$ is the $j^{th}$ predictor for the $i^{th}$ case

$b_j$ is the $j^{th}$ coefficient

$p$ is the number of predictors

If the $Z$ were observable, we would simply fit a linear regression to $Z$ and be done. However, since $Z$ is unobserved the predictors to the probability of interest by substituting for $Z$

$$\pi_i = \frac{1}{1+e^{-(b_0+b_1 x_{i1}+...+x_{ip})}}$$

The regression coefficients are estimated through an iterative maximum likelihood method. The logistic regression equation estimates the effect on one unit change in the independent/predictor variable on the logarithm of odds (log odds) that the dependent variable takes when controlled for the effects of other independent variables. The parameters in the logic models were estimated using the maximum likelihood method. Further, the problems of multi-collinearly associated with independent variables were taken into consideration before introducing them into the regression equation.

**Ethical Dilemmas and Ethical Consideration**

One of the primary objectives of healthcare organisations and the providers is to continue to maintain good image among the users. They take all the efforts to sense, serve, and satisfy the patients. Since the study was conducted in public sector hospitals and the respondents were healthcare providers, particularly, the nursing staff, it is the ethical obligation of the researcher to safeguard organisational requirements. The following terms were strictly followed while conducting and presenting the research outcome:
• An informed consent was taken from nursing staff and key informants
• The respondents were given complete opportunity to participate in the study
• The respondents were able to withdraw from the study at any time without incurring a penalty
• The individual information shared by the respondents was kept confidential and the respondents were assured of anonymity.
• No information was discussed or disclosed to others under any circumstances.

Field observations
The hospital authorities have extended appropriate support in terms of allowing the nursing staff to share their views and answering the questionnaire during their duty time. But some of the respondents preferred to give their interview off-duty. In the initial stage of data collection, some of the nursing staff participated while on duty which took slightly more time because in between they attended to the patient and would then resume the interview. Most wards were coping with the maximum number of patients in all the hospitals and due to this work load some of the nurses had to limit their discussion even though they had much to share even beyond the researcher requirement with the researcher. The nursing staff had heavy work load in some wards like pediatrics, premature ward, neonatal care unit, medical intensive ward, labour wards etc… In such a work situation the staff had difficulty in allotting time for the interview. At the same time the researcher could not afford to miss any opportunity of interviewing the staff because meeting the nursing staff in second time would be an impossible task. So the researcher had to wait a long time to meet some of the respondents.

Sometimes while conducting an interview in the ward more than one nursing staff would join due to curiosity and the researcher had to request the others staff to be cooperative by keeping themselves away. There are three interviews that took more than two hours each because the respondents shared a lot of information while also dealing with a considerable work load. Overall, each questionnaire took an average
of 40 minutes and in a day an average of 4 interviews was accomplished. The total time spent on conducting the interviews was 80 working days that spread over three months. Each day it was a different experience for the researcher, one day he could interview up to six or seven staff and on another day hardly one or two. The whole process depended on staff availability in the hospital and their convenience for granting the interview.

During the days of visit to the hospital the researcher has observed the way in which the staff functions; the nursing staff as soon as visit the hospital they prepare themselves and visits the matron office and sign the register. Majority of the staff come to the hospital well in advance to the hospital shift timings, irrespective of the distance traveled and the duration of travel. It was seen that most of the staff were dynamic while carrying out their functions; even critical cases were handled as systematically as possible without any delay, however, some amount stress was found among the staff. It is observed that the nursing staff, especially the senior staff, enjoyed their lunch a little longer. It was a memorable experience for the researcher to observe one or two incidents in hospital. A few staff were attending a child in the pediatric ward who showed such high spirits the likes of which the researcher has never seen in his 15 years of hospital experience and some of staff exhibited a high level of dedication in attending patients in premature, NICU, MICU, etc.

On the other hand, some of senior nursing staff were anguished by the current patients’ and visitors’ behaviour attitude towards the nursing staff. They were also very concerned about young nurses’ dedication to the profession. These kind of feelings probably exist in other profession like medical, teaching, etc. too.

On the whole, it was an enriching experience, because the researcher could interview 317 nursing staff which include staff nurses and sister in-charges, however, a few nursing staff did indicate a lack of interest for giving interviews because they felt by sharing their information, they would not gain personally. Such staff were excluded from the study because the participation in this study is purely voluntary.
Limitations of the Study

The study has focused on the quality work environment and quality of work life of nursing staff in public sector hospitals. Basically the environmental factors play dynamic role in the organisational settings which affect the quality of work life of nursing staff. The strength of work environment factors brings quality of life for the nursing staff. Based on the literature review it was found that there were number of variables associated with this topic. To bring the best outcome for the study this study has focussed upon a number of dependent variables as a result there is need for organising essential components for the purpose of making effective presentation of a report. As a result some of the findings could not be presented because the report is likely to be too exhaustive. Secondly, the study focused only on the variables which are connected with work environment and quality of work life aspects, in other words, the study has not concentrated on the nursing clinical requirement. Finally, the study was restricted to those nurses who were in service and did not include the nurses who had left the hospital due to issues about work environment.

In light of objectives of this study, the issues raised above were beyond the preview of the present effort. However, in view of improving the work environment and the quality of work life, these limitations may be considered for future research.