

**EFFECTIVENESS OF CLINICAL PATHWAY FOR PATIENTS UNDERGOING  
HYSTERECTOMY UPON THE KNOWLEDGE AND PRACTICE  
OF NURSES AND PATIENT'S OUTCOME**

**BY**

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**A DISSERTATION SUBMITTED TO THE TAMILNADU DR.M.G.R.MEDICAL  
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**EFFECTIVENESS OF CLINICAL PATHWAY FOR PATIENTS UNDERGOING  
HYSTERECTOMY**

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**DECLARATION**

I hereby declare that the present dissertation entitled “**Effectiveness of clinical pathway for patients undergoing hysterectomy**” is the outcome of the original research work undertaken and carried out by me under the guidance of **Dr. Latha Venkatesan**, MSc (N)., M.Phil., Ph.D., Principal, Apollo College of Nursing, **Ms. Jaslina Gnanarani, J.** M.Sc (N)., Reader, Apollo College of Nursing, Chennai. I also declare that material of this has not found in any way, the basis for the award of any degree or diploma in this university or any other universities.

M.Sc (N), II Year

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## **SYNOPSIS**

A Quasi Experimental Study to Assess the Effectiveness of Clinical Pathway for Patients undergoing hysterectomy upon the knowledge and Practice of Nurses and Patient Outcomes at Apollo hospitals, Chennai.

### **The Objectives of the Study**

1. To assess the pre and post test level of knowledge and practice of nurses regarding clinical pathway for patients undergoing hysterectomy.
2. To evaluate the effectiveness of clinical pathway for patients undergoing hysterectomy upon the knowledge and practice of nurses.
3. To assess and compare the patients outcome in control and experimental group of patients undergoing hysterectomy.
4. To assess and compare the level of satisfaction upon nursing care for hysterectomy in the control and experimental group of hysterectomy patients.
5. To determine the association between the selected demographic variables of nurses with their pre and post test level of knowledge regarding clinical pathway for patients undergoing hysterectomy.
6. To determine the association between the selected demographic variables with patients outcome and level of satisfaction in control and experimental group of patients undergoing hysterectomy.
7. To determine the association between the selected clinical variables with patients outcome and level of satisfaction in control and experimental groups of patients undergoing hysterectomy.

The conceptual framework of the study was developed on the basis of Roy's adaptation model. The study variables were the knowledge and practice. Null hypotheses were formulated. The level of significance selected was  $P < 0.001$ . An extensive review was made based on the opinions of the experts. A Quasi experimental study of one group pre-test and post-test design for nurses, control and experimental group of hysterectomy patients were used. The study included 30 nurses and 70 hysterectomy patients with purposive sampling technique. The study was conducted at Apollo main Hospitals, Chennai.

The researcher used demographic variable proforma for nurses and patients, clinical variable proforma for patients undergoing hysterectomy, structured knowledge questionnaire for nurses regarding clinical pathway for patients undergoing hysterectomy, practice check list for patients undergoing hysterectomy, clinical pathway for patients undergoing hysterectomy, rating scale for patients satisfaction and outcome check list for patients undergoing hysterectomy for data collection.

Structured knowledge questionnaire and practice checklist was used for the nurses. The rating scale on level of satisfaction and the patient's outcome checklist were used for the hysterectomy patients. Pre test knowledge questionnaire regarding clinical pathway for patients undergoing hysterectomy was administered to the nurses and observed with the existing nursing practice. Patient's outcome and their level of satisfaction were checked out with existing nursing practice through rating scale. Then the clinical pathway was taught to the nurses and implemented after which the post test questionnaire was administered to the same nurses. The practice of nurses and patients

outcome was assessed and patient's satisfaction regarding clinical pathway was obtained. The data were analyzed by descriptive and inferential statistics.

### **Major findings of the study**

- Majority of the nurses were unmarried (90%), between the age group of 22 to 26 years (80%), had 0 to 2 years of experience (86.67%), and had no previous information about clinical pathway (86.67%). Most of them were in the educational status of B.Sc (N) (66.67) and belong to the Christianity (50%).
- Most of the patients in the control group and experimental group were in the age group of 41 to 50 years (50%, 57.50%) respectively and majority of patients had undergone normal vaginal delivery (80%, 70%) with co morbid illness (80%, 60%).
- Majority of the patients in the control and experimental group had BMI between 19 to 24.9 (93.33%, 95%) and regular pattern of menstrual flow (83.33%, 70%). Most of them had the history of fibroid uterus (66.7%, 60%), and the presence of co-morbidity (60%, 60%) respectively.
- Most of the nurses in pre-test had inadequate knowledge (50%) whereas majority of the nurses had adequate knowledge (93.33%) after the post-test.
- Most of the nurses practice in control group in the pre op day, day 2 and day 3 was partially compliant (60%, 70% and 66.67%) and compliant at day 0 and day 1 (96.67%, 73.33%) whereas the practice of all the nurses in experimental group was compliant on all days (100%).
- All of them had positive outcome (100%, 100%) and were highly satisfied with nursing care (56.67%, 100%) in control and experimental group respectively.

- Mean and standard deviation of level of knowledge of nurses were low in the pre-test (M=15.30, SD=3.46) in comparison to the post-test (M=26.87, SD=1.52). The difference was statistically proved at 99.9% level of confidence and it shows that effectiveness of clinical pathway upon the nurses. Hence the null hypothesis  $H_{01}$  was rejected.
- Mean and standard deviation of Knowledge on clinical pathway was low in pre test in all aspects of care and high in the post test. This shows that the knowledge of the nurses improved after implementation of clinical pathway that is Clinical pathway (M=0.32, SD=0.80; M=1.25, SD=1.2), Pre op and post op care (M=0.46, SD=0.90; M=1.66, SD=2.32), oxygen administration (M=0.4, SD=0.97; M=1.08, SD=1.70), Nutrition (M=0.60, SD=0.920; M=1.8, SD=2.35), position and exercise (M=0.60, SD=0.82; M=1.55, SD=1.80), wound care (M=0.72, SD= 1; M=1.46, SD=1.72) and patient education (M=0.7, SD=0.87; M=1.43, SD=1.61) respectively. The difference was statistically proved at 99.9% level of confidence and it was attributed to the effectiveness of clinical pathway upon the nurses in various aspects of care.
- Mean and standard deviation of practice scores of nurses were high in after the clinical pathway administration (M=322.02, SD=5.63) in comparison to the before clinical pathway administration (M=260.56, SD=2.8). The difference was statistically proved at 99.9% level of confidence and it shows the effectiveness of clinical pathway upon the nurses on patients undergoing hysterectomy. Hence the null hypothesis  $H_{01}$  was rejected.
- Mean and standard deviation of practice of nurses in control group were less compared to the experimental group of patients undergoing hysterectomy. This shows the practice of the nurses in pre op in control and experimental group

(M=121.6, SD=5.34; M=154, SD=1.1), day 0 (M=118.3, SD=2.1; M=134.3, SD=1.36), day 1 (M=83.2, SD=2.3; M=98.6, SD=1.28), day 2 (M=67.2, SD=7.18; M=86.5, SD=1.54), day 3 (M=123.2, SD=6.27; M=155.2, SD=1.4) respectively. The difference was statistically proved at 99% level of confidence and it was concluded that the practice of nurses in clinical pathway for patients undergoing hysterectomy was effective in experimental group.

- The mean and standard deviation of outcome of hysterectomy patients in the control group (M=2.97, SD=3.61) were greater when compared to the experimental group (M=0.52, SD= 1.32). This indicates the experimental group of patients did not developed complications. The difference was statistically proved at 99.9% level of confidence and it shows that effectiveness of clinical pathway upon the patients outcome of the hysterectomy patients. Hence the null hypothesis  $H_{02}$  was rejected.
- The mean and standard deviation of satisfaction in the control group (M=121.93, SD= 9.52) were less when compared to the experimental group of patients undergoing hysterectomy (M=147.2, SD=9.62), which indicates that the experimental group of patients are highly satisfied. The level of confidence was 99.9% and it shows that effectiveness of clinical pathway upon the patients satisfaction. Hence the null hypothesis  $H_{02}$  was rejected.
- Mean and standard deviation of satisfaction (M=17.33, SD=3.22), (M= 17.06, SD=2.81), (M=14.7, SD=2.57), (M=14.35, SD=2.52) in control group of patients components was less compared to the experimental group (M=19.62, SD=0.74), (M=19.52, SD=1.012), (M=18.25, SD=1.48) (M=18.05, SD=1.66) of patients undergoing hysterectomy. This shows that significant difference was found in spiritual needs, communication, family involvement, education, discharge plan. The

difference was statistically proved at 99.9% level of confidence and can be attributed to the effectiveness of clinical pathway upon patient's satisfaction of the hysterectomy.

- There is no association between the age, educational qualification, marital status and years of experience, religion, previous information in the level of knowledge for the nurses in the pre & post-test. It has proven that there no is association between the selected demographic variables and level of knowledge. Hence the null hypothesis  $H_{o3}$  was retained with regard to age, educational qualification, marital status and years of experience, religion, previous information.
- There was association between demographic variables and level of satisfaction in the control group of patients undergoing hysterectomy. Hence the null hypotheses  $H_{o4}$  was rejected with regard to education and occupation.
- There was no association between demographic variable and outcome of patients undergoing hysterectomy in control group and experimental group. No statistics could be applied to find the association between demographic variables and the patient outcome. Hence the null hypothesis  $H_{o4}$  was retained.
- There was significant association between clinical variables and level of satisfaction of patients in control group. Hence the null hypothesis  $H_{o4}$  was rejected with regard to the co morbidity.
- There was no association between clinical variable and outcome of patients undergoing hysterectomy in control group and experimental group. No statistics could be applied to find the association between clinical variables and the patient outcome. Hence the null hypothesis  $H_{o5}$  was retained.

The above findings reveal that clinical pathway for patients undergoing hysterectomy Improves the knowledge and practice of nurses and patients satisfaction and outcome. Which showed that the clinical pathway provided by the researcher was effective.

### **Recommendations**

- A similar study can be conducted in different settings.
- A comparative study between two clinical settings can also be conducted
- The same study can be conducted with larger number of samples of hysterectomy patients.
- A similar study can be conducted by using prospective study and retrospective study design.
- A comparative study can be conducted for different clinical pathway to evaluate the best practices.
- A study can be conducted among nursing personnel for each of their nursing activities.
- A study can be conducted for other clinical conditions.

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## CHAPTER I

### INTRODUCTION

#### Background of the Study

*I am strong beyond better*

*I am powerful beyond measure*

**-Abby Ruby.**

Women in the present day society – wives, mothers and working women- are ready to accept an inferior position in the family, society and polity. A long period of innovation in science and technology has passed but still the gynaecological health problems of a woman, which is significant for her family members, remains a major concern for us. Most of the healthcare services are designated for women as they get deprived of the healthy environment probably due to low income, office-work and of-course family responsibilities.

Treatment of gynaecological condition depends on the location, severity of symptoms, a woman's age and her childbearing plans. There are many treatment options available for gynaecological conditions such as GNRH analogues, surgeries, heat and laser treatment, uterine artery embolisation, hysterectomy, non-hormonal and hormonal drugs, intra-uterine system, endometrial ablation, ring pessary, reconstructive surgery and vaginal repair.

Hysterectomy is one of the most common surgical procedure, and also it is the second most frequently performed major surgical procedure in the field of gynaecology. Perciva willoby reported that the first successful vaginal hysterectomy was performed in

1670. Abdominal hysterectomy first time performed in the year 1883 and it was performed by clack. The vaginal hysterectomy and abdominal hysterectomy techniques were progressively refined over the remainder of the nineteenth century, and by the early twentieth century had become established as 'classic' techniques.

Worldwide 2008-2009, almost 47,000 women had a hysterectomy. After adjusting for the aging of the population, the national hysterectomy rate in 2008-2009 was 338 per 100,000 populations, down from 484 per 100,000 in 1997. In Chennai the increasing number of young women undergoing surgeries to remove uterus and ovaries. In 2009 audit by an insurance company showed that more than 500 women under the age group of 25-35, at least 100 of them in the 25-30 age group had undergone hysterectomies.

Standards are professionally developed expressions of the range of acceptable variations from a norm or criterion. All standards of practice provide a guide to the knowledge, skills; judgment & attitudes that are needed to practice safely. They reflect a desired and achievable level of performance against which actual performance can be compared. Their main purpose is to promote, guide and direct professional nursing practice.

Nursing care of hysterectomy is directed primarily towards the prevention of urinary retention, intestinal obstruction, thrombosis. Advantages of utilising the nursing process are ensuring that the care, that patients receive is planned, ensuring it meets their individual and specific needs, ensuring the continuity of care amongst professionals as they would all follow a specific plan and providing a clearer idea about

the effectiveness of the interventions by a review of whether the outcomes of care have been achieved (WHO, 1999). To develop the process, nurses may need more time and skills so, in few situation nurses will not follow this.

Clinical Pathways including: Integrated Care Pathways, Multidisciplinary pathways of care, Pathways of Care, Care Maps, and Collaborative Care Pathways. Clinical Pathways were introduced in the early 1990s in the UK and the USA, and are being increasingly used throughout the developed world. Clinical pathways have four main components (Hill, 1994, 1998): timeline of the categories of care activities and their intervention, intermediate and long term outcome criteria, and the variance record

Clinical pathway Support the introduction of evidence-based medicine and use of clinical guidelines, support clinical effectiveness, risk management and clinical audit and improve multidisciplinary communication, teamwork and care planning. It has some issues that are, it may appear to discourage personalised care, risk increasing litigation, does not respond well to unexpected changes in a patient's condition, and require commitment from staff and establishment of an adequate organisational structure and problems of introduction of new technology.

Menstrual disorders were the top reason for hysterectomies in rural areas, versus uterine fibroids (benign tumours) in urban areas; the differences may be due to access to health care. Some of the reasons for which a hysterectomy is done are fibroids, abnormal or heavy bleeding, pelvic pain, endometriosis, pelvic support problems or cancer. Most of these conditions also have alternate non-surgical methods of treatment. In some situations surgery may be the only option. Treatment required will depend on

factors such as severity of disease, intention to have children, ability to take medications, response to medications and cost of therapy.

Chang et al. (2002) conducted a retrospective study to evaluate the impact on costs and quality of care based on clinical pathway for laparoscopy-assisted vaginal hysterectomy. This retrospective study involved a sample of 124 patients who underwent LAVH in a medical centre in central Taiwan. The preclinical pathway group was comprised of 40 patients who underwent LAVH before clinical pathway implementation (May-December 2001). The clinical pathway group included 84 patients who underwent LAVH after implementation of the clinical pathway (January 2002-March 2003). The results showed a significant reduction in cost, average length of hospital stay, and average duration of surgery and anaesthesia ( $p < 0.01$ ).

Clinical pathway formulated based on the needs of the patients. So it is very essential to provide care for the patients undergoing hysterectomy and also it develop the nurses more skilful practitioners. Complications for hysterectomy is increased and incidence rate is also high. Hence the investigator felt that it is essential to assess the outcome of hysterectomy patient and knowledge and practice of nurses. Based on this clinical pathway was developed to improve the patient outcome.

### **Need for the Study**

The role of women in society has been greatly overseen in the last few decades but now are coming to a more perspective to people. In the early days women were seen as wives who were intended to cook, clean, and take care of the kids. Most of the women's are at risk of getting gynaecological problems. Women are generally at risk of

getting diseases such as heart attacks and osteoporosis after menopause. Removing their uteruses and ovaries at an early age lead to abrupt menopause, earlier than usual. This also makes them unable to give birth.

There are many possible approaches to such gynaecologic problems as abnormal uterine bleeding, fibroid tumours, endometriosis, ovarian cysts, abnormal pap smears and other gynaecologic problems. It is important for women to understand all of the options that are available to them for diagnosis and treatment like hormonal therapy, thermal balloon ablation, microwave endometrial ablation, new laser-based treatments, myolysis and IUD.

A hysterectomy is the surgical removal of the uterus, and is one of the most common operations performed on women. One or both ovaries and fallopian tubes may also be removed at the same time. The rate of hysterectomy varies from country to country and from province to province. Every year, about 60 thousand hysterectomies are performed in Canada. 37 percent of women in the USA will have a hysterectomy by the age of 60 years. Compared to a higher frequency of hysterectomy (HT; 10-20%) in other countries, a lower rate (4-6%) has been reported from India.

Standards are benchmark of achievement which is based on a desired level of excellence. Standards are important to outlines what the profession expects of its members, promotes guides and directs professional nursing practice important for self-assessment and evaluation of practice by employers-clients and other stakeholders, provides nurses with a framework for developing competencies and aids in developing a better understanding & respect for the various & complimentary roles that nurses have.

Nursing measures can insure the patient comfort, sleep, psychological wellbeing, and prevention of complications. The nursing process is purposeful and goal-directed to provide quality, individualized, client-centered care. The nursing process is dynamic to meet the ever changing needs of the client and interactive because it involves reciprocal interpersonal relationships between the nurse and the client, family, significant others, and other health team members. It is theoretically based as it is grounded in knowledge of the sciences and the humanities. But if the nurses are not skilled in formulation of the diagnosis and identification of the client problem and needs it is not effective.

Clinical pathways are structured, multidisciplinary plans of care designed to support the implementation of clinical guidelines and protocols. They are designed to support clinical management, clinical and non-clinical resource management, clinical audit and also financial management. They provide detailed guidance for each stage in the management of a patient (treatments, interventions etc.,) with a specific condition over a given time period, and include progress and outcomes details. Clinical pathway helps to reduce the risk, reduce the costs by shortening hospital stays, improve the patient outcome and helps to identify the clinical variation but it may need to ensure variance and outcomes are properly recorded, audited and acted upon.

Sangs et al. (2008-2009) conducted an experimental study to explore the value of clinical pathway in patients who underwent hysterectomy. 64 cases of patients with uterine fibroids were randomly divided into experiment and control group. Clinical pathway is applied to the nurses of the experimental group while conventional nursing was applied to the control group. Hospitalization, time, cost of the treatment group was significant lower than that of the control group  $p < 0.05$ . Patient satisfaction and acquired

knowledge during hospital stay were significant more than that control group ( $p < 0.05$ ). Application of clinical pathway in the perioperative nurse of hysterectomy can shorten the hospitalization time lower the cost, raise patient satisfaction and help them acquired health knowledge.

Clinical pathway can help to ensure quality of care and provide a means of continuous quality improvement, Support the implementation of continuous clinical audit in clinical practice, support the use of guidelines in clinical practice, help empower patients and manage clinical risk. The investigator has observed that the clinical pathway on hysterectomy for nursing care is not established in the hospitals .Thus the investigator was motivated to prepare a clinical pathway on hysterectomy to improve the quality of care and improve the patient outcome.

### **Statement of the Problem**

A quasi experimental study to assess the effectiveness of clinical pathway for patients undergoing hysterectomy upon the knowledge and practice of nurses and patient outcomes at Apollo Hospitals, Chennai.

### **Objectives of the Study**

1. To assess the pre and post test level of knowledge and practice of nurses regarding clinical pathway for patients undergoing hysterectomy.
2. To evaluate the effectiveness of clinical pathway for patients undergoing hysterectomy upon the knowledge and practice of nurses.
3. To assess and compare the patients outcome in control and experimental group

of patients undergoing hysterectomy.

4. To assess and compare the level of satisfaction upon nursing care for hysterectomy in the control and experimental group of hysterectomy patients.
5. To determine the association between the selected demographic variables of nurses with their pre and post test level of knowledge regarding clinical pathway for patients undergoing hysterectomy.
6. To determine the association between the selected demographic variables with patients outcome and level of satisfaction in control and experimental group of patients undergoing hysterectomy.
7. To determine the association between the selected clinical variables with patients outcome and level of satisfaction in control and experimental groups of patients undergoing hysterectomy.

### **Operational Definitions**

#### **Effectiveness**

In this study, effectiveness refers to the difference between the pre-test and post-test knowledge and practice scores of nurses on clinical pathway for patients undergoing hysterectomy.

The effectiveness is also measured by comparing the control and experimental group of patient's outcome and satisfaction in terms of their length of stay, prevention of complication and satisfaction.

#### **Clinical pathway**

In this study, it is a structured plan of care designed to support the implementation of nursing care guidelines and protocols. They provide detailed

guidance for each stage in the management patient (from admission to discharge) with specific disease conditions over a given time period and include the patient's progress and outcome details.

### **Hysterectomy**

Hysterectomy refers to surgical removal of uterus through abdominal, vaginal, laparoscopic route.

### **Clinical pathway for hysterectomy**

In this study it refers to the guidelines for nursing care of patients undergoing hysterectomy from admission to discharge including preoperative and postoperative care that is formulated by the researcher based on the fourteen basic needs of Henderson for five days. The aspects included are assessment, nutrition, elimination, position, comfort, activity, sleep, hygiene, safety, psychosocial aspects, spiritual needs and patient education.

### **Knowledge**

In this study it refers to the level of understanding and awareness of nurses regarding clinical pathway for patients undergoing hysterectomy and is measured by structured questionnaire as developed by the researcher.

### **Practice**

In this study it refers to nursing care provided by the nurses for hysterectomy patients and is measured in terms of compliance (practice checklist) with clinical pathway.

**Nurse**

A registered nursing professional, with the qualification of General Nursing and Midwifery or Bachelor of Science in Nursing working in A, B and general wards provides care for patients undergoing hysterectomy.

**Patients**

In this study it refers to female who undergoing the hysterectomy.

**Outcome**

In this study it refers to length of stay in the hospital, prevention of complications and the satisfaction of patients regarding nursing care as measured in terms of outcome checklist

**Assumptions**

The study assumes that

- Health care managed by a multi disciplinary approach and needed improving health of the women.
- Systematic managed care will reduce the hospital stay and improve hysterectomy treatment outcome.
- Proper clinical pathway is a basis for developing and holistic comprehensive care plan for the patient.
- Clinical pathway has implications for nurse patient relationship and a key role of nurse among health care personnel to implement the clinical pathway.
- Nurse's knowledge about clinical pathway is limited.

- The implementation of clinical pathway has a positive effect upon the patient satisfaction.
- Clinical pathway improves the level of knowledge and practice of nurses on care of patients undergoing hysterectomy.

### **Null Hypotheses**

- Ho<sub>1</sub>** There will be no significant difference between pre and post test level of knowledge and practice of nurses regarding clinical pathway for patients undergoing hysterectomy.
- Ho<sub>2</sub>** There will be no significant difference in the patient's outcome and level of satisfaction between the control and experimental group of patients undergoing hysterectomy.
- Ho<sub>3</sub>** There will be no significant association between selected demographic variables with their pre and post test level of knowledge among nurses regarding clinical pathway for patients undergoing hysterectomy.
- Ho<sub>4</sub>** There will be no significant association between selected demographic variables with patient's outcome and the level of satisfaction in control and experimental group of patients undergoing hysterectomy.
- Ho<sub>5</sub>** There will be no significant association between selected clinical variables with patient's outcome and the level of satisfaction in control and experimental group of patients undergoing hysterectomy.

### **Delimitations**

The study was limited to the nurses who were

- Working at Apollo main hospitals, Chennai.
- Willing to participate in the study.
- The study was limited to the patients who were
- Having hysterectomy.
- Willing to participate.
- Able to understand and speak Tamil and English.

### **Conceptual Framework**

Conceptual Framework is an interrelated concepts or abstractions assembled together in rational scheme by virtue of their relevance to a common theme (Polit, 2010). Conceptual framework is a process of ideas, which are formed and utilized for the development of a research design. It helps the researcher to know what data needs to be collected and gives directions to the entire research process.

The conceptual framework for the present study is based on Roy's adaptation model views the person as an adaptive system in constant interaction with an internal and external environment .The adaptive level is made by the pooled effect of three of stimuli. This framework was chosen as it illustrate the stimuli that influence the hysterectomy patients and the effect of clinical pathway on patient satisfaction and outcome.

### **Focal stimuli**

It is the most immediately challenging the person's adaptation .In his study focal symptoms was a symptoms stimuli.

### **Contextual stimuli**

The contextual stimuli are all other stimuli existing in a situation that strengthen the effect of the focal stimulus. In this study it refers to fears and concerns regarding alteration in psychological, sexual and dimensions of health.

### **Residual stimuli**

Residual stimuli are any other phenomena arising from a person's internal or external environment that may affect the focal stimulus but whose effects are unclear .The residual stimuli attitude, belief, past experiences and social cultural system.

### **Control process**

Regulator is subsystem coping mechanism which responds automatically through neuro chemical and endocrine function. A cognator is the system coping mechanism which responds, through complex process of perception and information processing learning, judgement, emotion. In this present study administration of clinical pathway and monitoring actions of nurses, act as a cognator for the nurses knowledge practice.

### **Effectors**

Effectors adaptive modes are the ways of coping that manifest through the regulator or cognator activities that is physiological, self concept, role functions, and

interdependence. In the present study the effectors of the hysterectomy women were manifest as severe bleeding, irregular menstruation, activity intolerance, fatigue, constipation, frequency of micturation.

### **The physiological adaptive mode**

Refers to the way person responds as a physical being to stimuli from environment. The hysterectomy woman has the physiological adaptation as frequency of micturation.

### **Self concept adaptive Mode**

Body image changes, interruption of self consistency, self ideal moral, ethical and spiritual problem are the self c concept adaptive mechanism of hysterectomy patients.

### **Interdependent adaptive Mode**

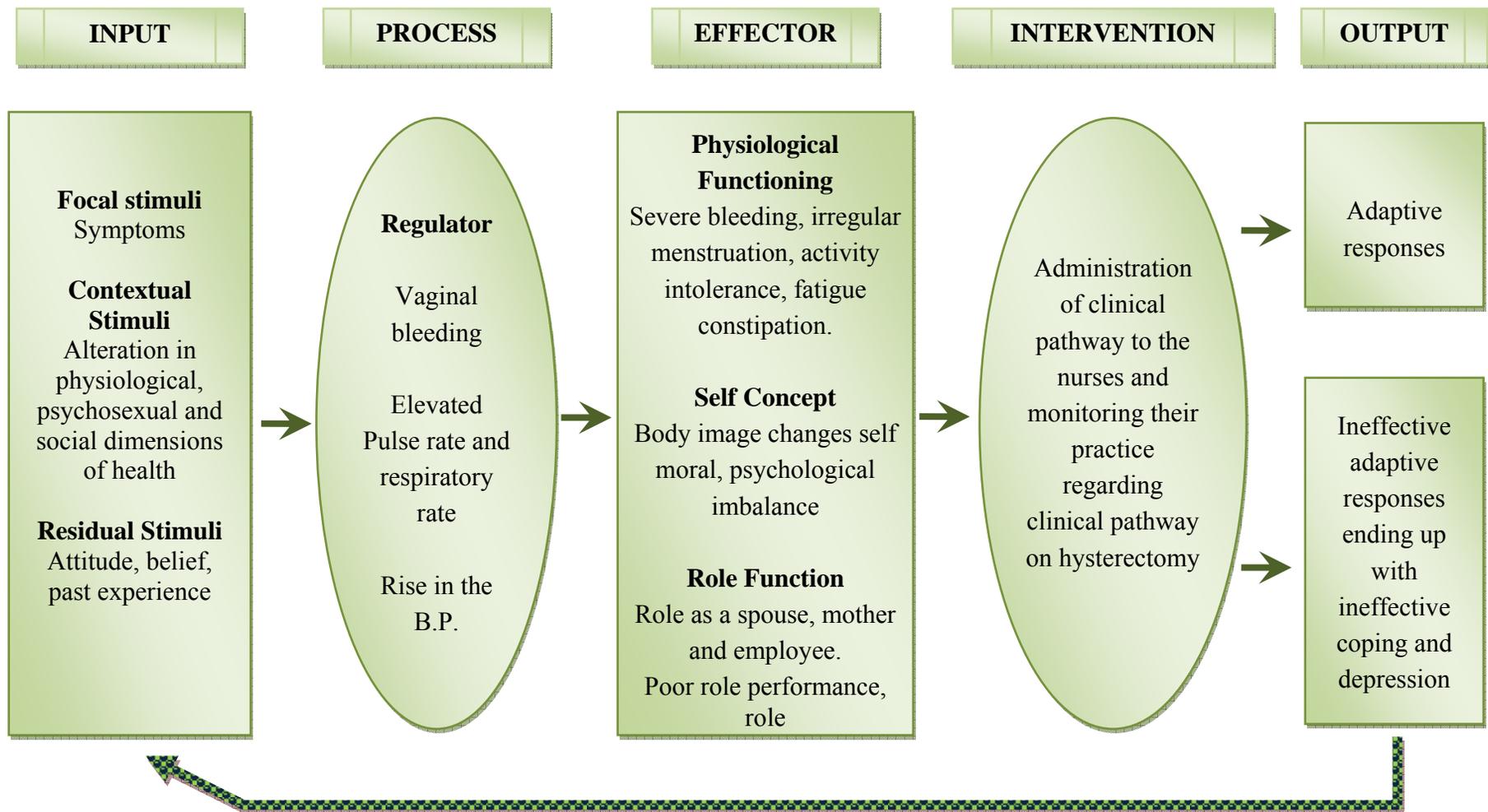
The interdependent adaptive mode refers to coping mechanism arising from close relationship that results in the giving and receiving of love respect, value and lack of love and care from significant others, which patients undergoing hysterectomy experience when they face gynaecological problems.

### **Adaptive response**

Adaptive response are the responses that promote integrity of the persons in terms of goal of survival ,growth and reproduction .In this study the adaptive response can be measured through the effectiveness of clinical pathway upon hysterectomy by using practice checklist on hysterectomy.

**Role function adaptive mode**

A role as the functioning unit of society is defined as a set of expectation about how a person occupying one position behaves toward a person occupying another person. The women after hysterectomy has to adopt herself to the changes arising out of the stimuli with the help of above mentioned adaptive modes. When she fails to adapt, it is manifested as effective responses and needs professional assistance. Nurses are in position to correct maladaptive behaviour by manipulation of stimuli as direct care teaching, and helping them to perform their appropriate role functions.



**Fig. 1 Conceptual Framework Based on Roy's Adaptation Model**

## **Projected Outcome**

The projected outcome will be increase in knowledge and practice of nurses regarding clinical pathway for patients undergoing hysterectomy. There will be decrease in the length of stay and complications and increase in the level of satisfaction of patients.

## **Summary**

This chapter has dealt with background of the study, need for the study, statement of the problem, objectives of the study, operational definitions, assumptions, null hypothesis, delimitations and conceptual framework.

## **Organization of the Report**

Further aspects of the study are presented in the following five chapters.

Further aspects of the study are presented in the following five chapters.

**In Chapter II :** Review of literature

**In Chapter III :** Research methodology – which includes research approach, design, Setting, population, sample and sampling techniques, tool description, content validity and reliability of tools, pilot study, data collection procedure and plan for data analysis.

**In Chapter IV :** Analysis and interpretation of data

**In Chapter V :** Discussion

**In Chapter VI :** Summary, conclusion, implications and recommendations

## **CHAPTER II**

### **REVIEW OF LITERATURE**

A literature review is an organized written presentation of what has been published on a topic by scholars. (Burns & Groove, 2004)

This chapter deals with a review of published and unpublished research studies and from related material for the present study. The review helped the researcher to develop an insight into problem area. This helped the researcher in building foundation of study.

The review of literature in this chapter has been presented under the following headings

- Literature related to hysterectomy
- Literature related to clinical pathway
- Literature related to clinical pathway on hysterectomy.

#### **Literature related to hysterectomy**

Early fed group had a statistically significant shorter length of stay. Early feeding could be tolerated well in TAH patients, with statistically significant improvements in usage of some pain medication and length of stay were noted in the early fed group. Oral fluids and food are traditionally introduced slowly after total abdominal hysterectomy (TAH). This descriptive study examined the effect and tolerance of early oral intake following this surgery. A retrospective chart review was conducted on 164 patients who had been on a clinical pathway following TAH.

Comparisons in initiation of fluids and foods and gastrointestinal effects were made between the early fed group (n=82) and the traditionally fed group (n=82). Both groups had the similar gastrointestinal symptoms postoperatively, but the early fed group had an earlier bowel movement (Flesher, Wagner and Jones., 2008).

Moon et al., (2006) conducted a randomized, double-blinded, placebo-controlled clinical trial was performed in 76 women undergoing abdominal hysterectomy. Patients received either acetaminophen 2 g (group A) or placebo (group C) intravenously 30 min before surgery under general anesthesia.. There was no significant difference in pain scores. The incidence of postoperative nausea and vomiting after the operation were significantly lower in group A than in group C .Premedication with acetaminophen reduced hydromorphone consumption and opioid-related side effect in patients undergoing abdominal hysterectomy, but did not significantly reduce pain intensity.

In La Grave Hospital, France a study was done to review results concerning 1,127 hysterectomies performed in the Department of Obstetrics and Gynecology They compare those of abdominal hysterectomy and those of vaginal hysterectomy (359) with regard to vaginal procedures, they draw a distinction between simple hysterectomies and prolapse repairs. The results shows, similar overall morbidity after vaginal (41%) and abdominal (33%) hysterectomy. This morbidity was lower in cases of simple vaginal hysterectomy (26 %). The majority of complications were infectious or febrile: 29 per cent of abdominal hysterectomies and 30 per cent of vaginal hysterectomies, including 16.4 per cent of simple vaginal hysterectomies (Perineau et al., 2006).

In the year 2005, Kalogirou et al conducted a study to compare patient characteristics, diagnosis and complications associated with vaginal or abdominal hysterectomy in the last two decades, Areteion Hospital, Greece (1985 to 2005). 6,420 women were included in the study. Complications were classified in two categories: intraoperative and postoperative, and psychosexual complications. Women who underwent vaginal hysterectomy experienced significantly fewer complications than women who had undergone abdominal hysterectomy. Vagina hysterectomy was associated with less febrile morbidity, bleeding requiring transfusion and convalescence than abdominal hysterectomy.

Draca et al., (2004) analyses complications following 817 vaginal hysterectomies (VH). The mortality rate was 0.24%. Laparotomy during VH was performed in 3 patients (0.36%) Early complications were recorded in 34.02% (278 cases). Most infections occurred in the small pelvis. Late complications were encountered in 41.07% (207 cases) out of 504 followed-up patients. Granulation tissue has proved to be the most frequent complication in this group of women (33.13%). Incontinence of urine was found in 2.5% (13 cases).

Exercise significantly increased VPA (vaginal pulse amplitude;) but not subjective sexual responses in both groups of women. VPA responses were marginally higher among the fibroid than hysterectomy group in the no-exercise condition conducted a experimental study on Effects of Hysterectomy on Sexual Arousal in Women with a History of Benign Uterine Fibroids .Thirty-two women with a history of benign uterine fibroids who had or had not undergone hysterectomy participated in two experimental sessions in which self-report and physiological (vaginal pulse amplitude;

VPA) sexual responses were recorded during an erotic film presentation. In one of the sessions, the women exercised on a treadmill for 20 min prior to viewing the erotic films as a means inducing autonomic arousal. (Meston., 2004)

In King Fahad National Guard Hospital, Saudi Arabia conducted chart review a study to compared indications, short, intermediate and long term complications of total abdominal versus vaginal hysterectomy at. Group one consisted of patients who had total abdominal hysterectomy (N=82), and group 2 consisted of patients who had vaginal hysterectomy (N=26). Indication for the vaginal hysterectomy was uterine prolapse 81%, indications for the total abdominal hysterectomy were menstrual disorders and uterine fibroids 56%. The overall complication rates were 51.2% and 23.1%, in women who underwent total abdominal hysterectomy and vaginal hysterectomy (Al-Kadri et al. 2002-2006).

Kayastha et al. (2002) conducted a prospective study, to analyze the intraoperative complications, postoperative morbidities and complications between abdominal and vaginal hysterectomy in Services Hospital, Lahore. Sample size 100. this study shows duration of surgery of abdominal hysterectomy was 96.8 min and that of vaginal was 89 min .The mean blood loss in abdominal hysterectomy was 311 ml and that in vaginal hysterectomy was 244ml .Postoperatively febrile morbidity was seen in 10 (20.0%) cases of abdominal hysterectomy group and 6 (12.0%) of vaginal hysterectomy group. This study showed that vaginal hysterectomy was associated with less intraoperative complications and postoperative morbidities and complications as compared to abdominal hysterectomy.

In the year 2002, Dallenbach conducted a case control study on incidence rate and risk factors for vaginal vault prolapse repair after hysterectomy . Population 6,214 women who underwent hysterectomy. Cases (n = 32) were women who required vaginal vault suspension following the hysterectomy through December 2005. Controls (n = 236) were women, who did not require pelvic organ prolapse surgery. The incidence of vaginal vault prolapse repair was 0.36 per 1,000 women . The cumulative incidence was 0.5%. Risk factors included preoperative prolapse (CI 1.5-28.4) and sexual activity (CI 1.0-1.5). Vaginal hysterectomy was not a risk factor when preoperative prolapse was taken into account (CI 0.5-1.8).

### **Literature related to clinical pathway**

Aga Khan University Hospital, Nairobi, Kenya conducted a study about the utility of clinical care pathways in determining perinatal outcomes for women with one previous caesarean section; A retrospective service evaluation by review of delivery case notes and records was undertaken at the between January 2008 and December 2009. A total of 215 women with one previous caesarean section were followed up using a standard care pathway. The median parity (minimum-maximum) was 1.0. The other demographic characteristics were comparable. Only 44.6% of eligible mothers opted to have a To S. (wanyonyiosz et al. 2010).

Verdu et al. (2008) conducted a study on designing clinical pathway, implemented and assessed lower-extremity deep venous thrombosis, and to compare the length of hospital stay in two different periods. The mean length of hospital stay was 6.78 days in 2002 and 4.72 days in 2004. This means a reduction of 2.06 days

( $p < 0.012$ ). The reduction in the length of hospital stay in 2004 situates the hospital 1.98 days below the mean stay of our community (6.7 days) for the same diagnosis and year.

In the year 2007, Simon et al conducted a study on Emergency department activation of an interventional cardiology team reduces door-to-balloon times in ST-segment-elevation myocardial infarction. The Subjects were a consecutive sample of patients presenting to the ED with ST-segment-elevation myocardial infarction evident on the initial ECG. The intervention was the use of a central paging system for activation of the interventional cardiology team by emergency physicians in patients presenting to the ED with ST-segment-elevation myocardial infarction.

Rotter et al., in the year 2006 analyse the existing evidence base for clinical pathways via a rigorous systematic review. Systematic reviews and meta-analyses provide a high level of evidence for the effectiveness of interventions. This method is especially useful when research results are known to be inconsistent instead of conducting another primary evaluation. This states the effectiveness of clinical pathways in hospitals, based on professional practice, patient outcomes, length of stay and hospital costs. A pathway reflects the activities of a multidisciplinary team and can incorporate established guidelines and evidence-based medicine.

Implementation of the pathway would have reduced the number of admissions by 505 (17%) and days of hospitalization by 1407(11%). Retrospective analysis suggests that a critical pathway for patients with acute chest pain may substantially reduce resource use.this study reported that 2898 of 4585 patients (63%) were admitted to the hospital, 1152 (40%) are classified as potentially eligible for the pathway and

1068 (93%) had a benign clinical course during the initial observation period. The 1068 patients had a mean length of stay of  $2.8 \pm 4.8$  days. If 47% of these patients had been discharged after observation and exercise testing (Graham et al. 2001).

A clinical study has been undertaken by Carlos et al. (2000) conducted a retrospective cohort study to compare the assessment of a clinical pathway for community-acquired pneumonia with and without adjusting for patient characteristics and disease. Compared with patients receiving usual care ( $n=275$ ), patients in the pathway group ( $n=97$ ) were more likely to be treated by family physicians than specialists and had lower pneumonia severity scores. In the unadjusted analysis, total hospital charges were lower among pathway patients and in the adjusted analysis, the difference in total charges was smaller. In the unadjusted analysis, length of stay was lower among pathway patients and in the adjusted analysis, the difference in length of stay was smaller. Thus, Clinical pathways may reduce costs and improve quality of care in community-acquired pneumonia.

Deluc et al. (2000) conducted on care pathways for an evaluation of their effectiveness conducted through quasi-experimental case study of two care pathways a midwifery-led maternity pathway and a breast disease pathway developed within one British National Health Service Trust. The results are mixed, in the breast disease pathway five of 12 clinical indicators showed change, but only two of these showed statistically significant changes; three were considered of clinical significance but could not be tested statistically. In the maternity pathway, after allowing for the effect of gravid status, five of 10 indicators showed changes between the pre-pathway and pathway users and of these four showed statistically significant changes. Patient

satisfaction levels showed little overall change - only 15% of the questions for breast disease and 9% for maternity showed any statistically significant change. However, both surveys indicated precise areas where a change resulting from the introduction of the pathway could be linked to an increase in satisfaction.

Timothy et al. (1996) conducted a study to assess the effectiveness on Implementation of a Clinical Pathway, Decreases Length of Stay and Cost for Bowel Resection. Data about length of stay and cost was collected for all patients undergoing bowel resection 1 year before and 1 year after pathway implementation. Three groups were compared: patients undergoing bowel resection in the year prior to pathway implementation, patients in the year after pathway implementation but not included on the pathway, and patients included in the pathway. Implementation of the pathway produced significant decreases in length of stay and cost in the pathway group as compared to the pre pathway group.

### **Literature related to clinical pathway on hysterectomy**

Sangs et al. (2008 - 2009) conducted a experimental study to explore the value of clinical pathway who underwent hysterectomy. 64 cases of patients with uterine fibroids were randomly divided into experiment and control group. Clinical pathway is Applied to the nurses of the experimental group while conventional nursing was applied to the group. hospitalization, time, cost of the treatment group was significant lower than that of the control group  $p < 0.05$ . patient satisfaction and acquired knowledge during hospital stay were significant more than that control group ( $p < 0.05$ ), application of clinical pathway in the perioperative nurse of hysterectomy can shorter the

hospitalization time lower the cost, raise patient satisfaction and help them acquired health knowledge.

In USA study was conducted to improve the treatment outcomes with a clinical pathway for hysterectomy and myomectomy Case-control design was adopted to compare administrative and clinical data for patients managed with (n = 28) and without (n = 28) the aid of the clinical pathway. . Clinical differences between pathway and non pathway patients included a mean six-hour-shorter period of indwelling bladder catheters (P = .019), mean 11-hour more rapid return to regular diet (P = .014) and more pain assessments among pathway patients (mean, five vs. two; P < .001). There was no significant difference in length of stay between groups. (Broder and Bovone., 2003).

In the year 2002, Amato et al conducted a non randomised study to develop a clinical protocol for standardizing preoperative and postoperative care in abdominal hysterectomy patients with benign disease while maintaining quality and increasing efficiency at Toledo Hospital, USA, protocol implementation improved quality of care by increasing the percentage of patients receiving appropriate antibiotic prophylaxis; maintained quality as monitored through 30-day readmission rates and a post discharge patient survey; and improved efficiency, as evidenced by shorter times to incision and length of hospital stay.

Chang, Lee, Wu & Yeh., (2002) conducted a retrospective study to evaluate the impact on costs and quality of care based on clinical pathway for laparoscopy-assisted vaginal hysterectomy. This retrospective study involved a sample of 124 patients who underwent LAVH in a medical center in central Taiwan. The preclinical pathway group

was comprised of 40 patients who underwent LAVH before clinical pathway implementation (May-December 2001). The clinical pathway group included 84 patients who underwent LAVH after implementation of the clinical pathway (January 2002-March 2003). The results showed a significant reduction in cost, average length of hospital stay, and average duration of surgery and anesthesia ( $p < 0.01$ ).

Critical pathways intervention to reduce length of hospital stay it was conducted at Brigham and Women's Hospital, Boston A total of 6,796 patients underwent one of the procedures during the study. For most procedures, the postoperative length of stay was decreasing during the baseline period. The percentage of eligible patients managed on a critical pathway ranged from 94% for hysterectomy to 26% for colectomy. After pathway implementation, the length of stay decreased 5% for hysterectomy (Pearson et al., (2001).

## **Summary**

This chapter has dealt with review of literatures related to the problem stated. The literatures presented here were extracted from 22 primary sources. It has helped the researcher to design the study, develop the tool and plan the data collection procedure and to analyze the data.

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

This chapter deals with the methodology adopted by the researcher for the study. It includes research approach, research design, the setting, population, sample and sampling techniques, development and description tool, validity, reliability ,pilot study, data collection procedure, plan for data analysis.

#### **Research Approach**

Research approach is the most significant part of any research. The appropriate choice of the research approach depends on the purpose of the research study which is undertaken. According to Polit and Beck (2004) evaluative research is an extremely applied form of research and involves finding out how well a programme, the practice or policy is working. Its goal is to evaluate the success of the programme. In this study, the investigator wants to assess the knowledge of nurses and effectiveness of clinical pathway by using experimental research design.

#### **Research Design**

A research design incorporates the most important methodological design that a researcher works in conducting research study (polit and beck, 2008).

In this study Quasi Experimental research design was adopted, but for availability the limited number of nurse's one group pretest and posttest design was adopted for nurses to conduct the study. It fulfills the criteria such as manipulation and control but no randomization. In this study, the investigator administered pre-test for the

selected nurses and the investigator manipulated the independent variables i.e. administration of clinical pathway for the same group of nurses and the post test was conducted.

The research design is represented diagrammatically as follows:

### **Nurses**

#### **01 X 02**

**01** --- Pre test to assess the knowledge and practice of nurses regarding clinical pathway for patients undergoing hysterectomy.

**X** --- Structured teaching on clinical pathway for patients undergoing hysterectomy.

**02** --- Post test to assess the gained knowledge and practice of nurses regarding clinical pathway for patients undergoing hysterectomy.

### **Patients**

— **O<sub>1</sub>**

**X** **O<sub>1</sub>**

**X** – Implementation of clinical pathway for patients undergoing hysterectomy.

**O<sub>1</sub>** – Assessment of patient outcome and satisfaction in control group.

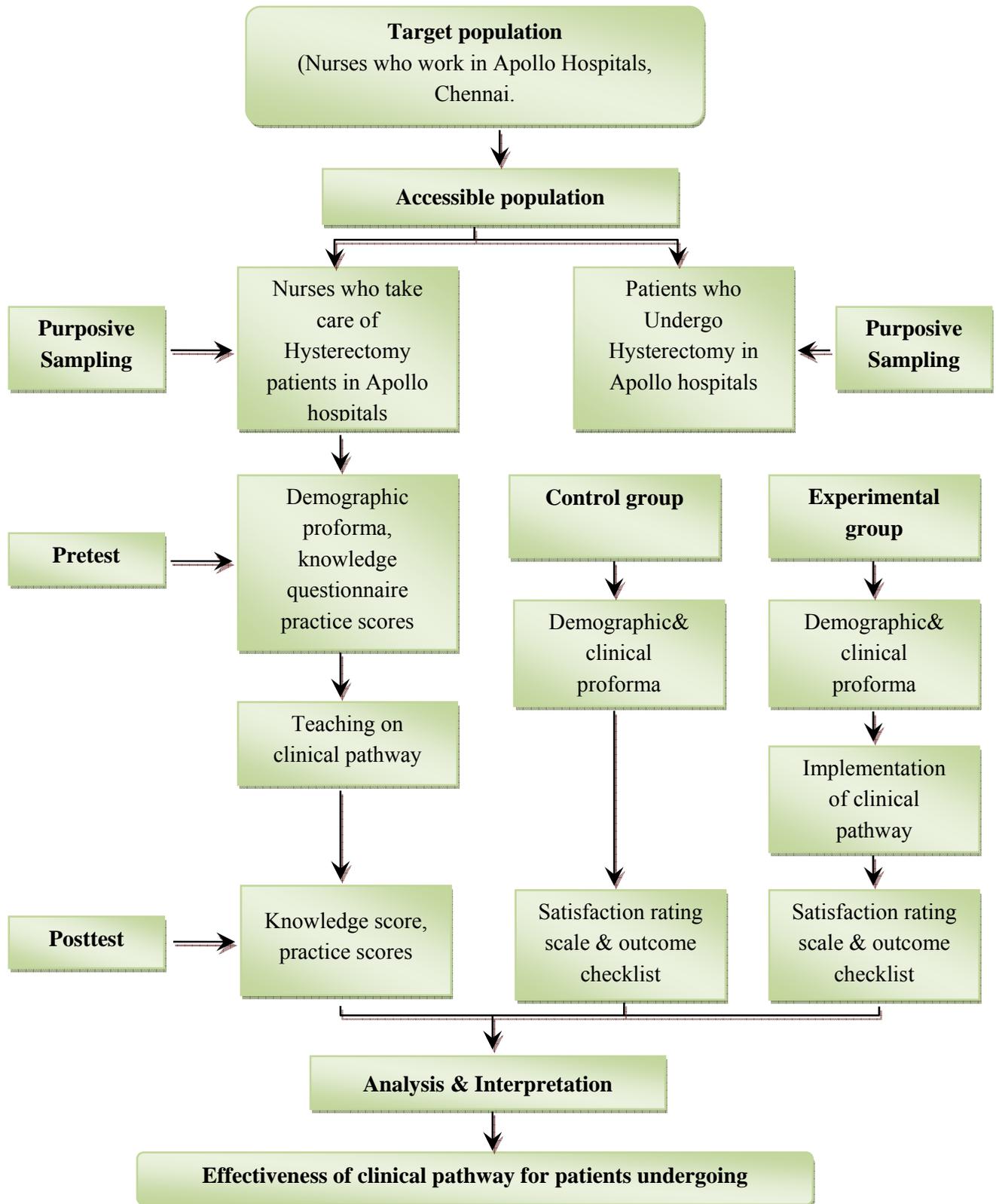


Fig.2 Schematic Representation of Research Design

## **Variables**

### **Independent variable**

The variable that is believed to cause or influence the dependent variable is the **independent** variable (Polit and Beck, 2008). The independent variable for this study was the clinical pathway for patients with hysterectomy.

### **Dependent variable**

The variable hypothesized to depend on or be caused by another variable is the dependent variable (Polit and Beck, 2008). The dependent variable for this study was knowledge and practice of nurses and patient outcome.

### **Attribute variable**

Variables that describe the study sample characteristics are termed as attribute variables (Polit and Beck, 2008). In this study the attribute variables were demographic variable proforma of nurses and patient and clinical variable proforma of patients.

## **Research Setting of the Study**

Research setting is the specific place where the information is gathered and may be one or more sites (**Polit & Beck 2008**). The study was conducted in the Apollo Hospitals, Chennai. The hospital is Joint Commission Accredited and it specializes in cutting edge medicine procedures. It has 60 departments spearheaded by internationally trained doctors who work by dedicated patient care. They are doing nearly 50 to 60 hysterectomy surgeries per month. The hospital is well equipped and well planned infrastructure such as minor and major operation theatre, post-operative ward and

outpatient department with X-ray facilities, ECG, MRI & CT scans ultra sonogram and laboratories services.

### **Population**

Population is the entire set of individuals or objects having some common characteristics (Polit and Beck 2008). The target population is the entire population in which a researcher is interested and to which he or she would like to generalize the study results. In this study, the target population comprises of all nurses and the hysterectomy patients in the Apollo Hospitals. The accessible population is the list of population that the researcher finds in the study area. The accessible population in this study was nurses who working in gynaec wards and hysterectomy patients at Apollo Hospitals, Chennai.

### **Sample**

A sample consists of a sub-set of the units which comprises the population (Polit and Beck 2008). Sample size of this study was 30 nurses and 70 hysterectomy patients.

### **Sampling Technique**

Sampling is the process of selecting a portion of the population to represent the entire population (Polit and Beck 2008). Purposive sampling technique was used for hysterectomy patients and nurses for selection of samples based on the criteria included in the study.

## **Sampling Criteria**

### **Inclusion criteria**

The study includes patient who

- were with hysterectomy.
- were admitted in the Apollo Hospitals.
- patients who are willing to participate in the study.
- Patients who speak and understand English and Tamil.

The study includes nurses who

- nurses who are willing to participate in the study.

### **Exclusion criteria**

The study excluded patient who;

- were critically ill.

The study excluded nurses who;

- are not willing to participate.
- are not available during data collection period.
- are handling hysterectomy patients in ICU, OT, and emergency.

## **Selection and Development of the Study Instruments**

As the study aimed to evaluate the effectiveness of clinical pathway for patients undergoing hysterectomy, the data collection instruments were developed through an extensive review of literature and Henderson 14 needs such as assessment, nutrition, elimination, position, comfort, activity, sleep, hygiene, safety, psychosocial aspects, spiritual needs and patient education. Total care is planned for 5 days from admission to

discharge. The instruments used in this study were demographic variable proforma for nurse, demographic proforma for patients undergoing hysterectomy, clinical variable proforma for patients undergoing hysterectomy, structured knowledge questionnaire for nurses regarding clinical pathway for patients undergoing hysterectomy, practice checklist for patients undergoing hysterectomy, clinical pathway for patients undergoing hysterectomy, outcome check list for patients undergoing hysterectomy, rating scale on satisfaction of nursing care of patients undergoing hysterectomy.

### **Demographic variable proforma for nurse**

Demographic variable proforma for nurses includes age in years, educational status, marital status, year of experience, religion, previous information regarding clinical pathway.

### **Demographic variable proforma for patients undergoing hysterectomy**

Demographic variable proforma for hysterectomy patients such as age in years, education, occupation, type of work, marital status, age at marriage in year, mode of delivery, number of children's, religion, type of family.

### **Clinical variables proforma for patients undergoing hysterectomy**

Clinical variable proforma for height, weight, body mass index, Presents of co morbid illness, treatment co morbid illness, family history of uterine disorder, history of fibroid uterus ,history of uterine tumour, history of contraceptives usage, history of dysfunctional uterine bleeding, pattern of menstrual cycle and frequency and duration.

### **Clinical pathway for patients undergoing hysterectomy**

The researcher developed the clinical pathway for patients undergoing hysterectomy by extensive review of literature, participatory observation of nursing care of patients undergoing hysterectomy from admission to discharge and suggestion from the health care team members. After formulating, the pathway was validated by the experts. Henderson's 14 basic needs was the basis for pathway. Henderson identified 14 basic needs of the patient, which comprise the components of nursing care. These include the following needs.

1. Breathe normally
2. Eat and drink adequately
3. Eliminate body wastes
4. Move and maintain desirable postures
5. Sleep and rest
6. Select suitable clothes- dress and undress
7. Maintain body temperature within normal range by adjusting clothing and modifying the environment
8. Keep the body clean and well groomed and protect the integument
9. Avoid dangers in the environment and avoid injuring others
10. Communicate with others in expressing emotions, needs, fears or opinions
11. Worship according to ones faith
12. Work in such a way that there is a sense of accomplishment
13. Play or participate in various forms of recreation

14. Learn, discover or satisfy the curiosity that leads to normal development and health and use the available health facilities

The pathway contains eligibility criteria and activities were tabulated on 14 aspects for five days. The aspects are assessment, nutrition, elimination, position, comfort, activity, sleep, hygiene, safety, psychosocial aspects, spiritual needs and patient education. The prescribed length of stay was 5 days. The clinical pathway was attached with patients file and the nurse caring for the patient should act according to it and document it. If any variances were observed, it should be noted in the pathway.

**Structures knowledge questionnaire for nurses regarding clinical pathway for patients undergoing hysterectomy**

The structured knowledge questionnaire was formed very carefully considering language and sequence of item. The questions were formulated and options were given below the each question. It consisted of 30 multiple choice question, had 4 options which include one right answer. Every correct answer was assigned a score of 1 and wrong answer of score 0. The total score of structured questionnaire was 30. The knowledge scores are classified into 3 levels.

| <b>Scores</b> | <b>Percentage</b> | <b>Level of knowledge</b> |
|---------------|-------------------|---------------------------|
| <15           | <50               | Inadequate                |
| 15 to 22      | 51 to 75          | Moderately adequate       |
| 23 to 30      | >75               | Adequate                  |

### **Rating scale on satisfaction of nursing care of patients undergoing hysterectomy**

It includes satisfaction expressed by nurses regarding environment, comfort, nursing care, nutrition, elimination needs, activity, rest, position, personal hygiene, safety, spiritual need, communication, family health education, and discharge plan given with scores ranging from low to highly satisfaction.

| <b>Score</b> | <b>Percentage</b> | <b>Level of satisfaction</b> |
|--------------|-------------------|------------------------------|
| <20          | <25%              | Highly dissatisfied          |
| 21 to 39     | 25-50%            | Dissatisfied                 |
| 40 to 59     | 51-75%            | Satisfied                    |
| 60 to 80     | 76-100%           | Highly satisfied             |

### **Outcome checklist for patients undergoing hysterectomy**

It is a checklist recorded by the researcher by observing on patients outcome for presence of complication. It includes regulatory functions, oxygenation, nutrition, elimination, rest, comfort, personal hygiene, communication, activity, diversional needs, health teaching and discharge plan.

| <b>Scores</b> | <b>Percentage</b> | <b>Level</b>        |
|---------------|-------------------|---------------------|
| 0 to 13       | (>75)             | Positive outcome    |
| 14 to 19.5    | (51 -75)          | Moderately positive |
| 19.6 to 26    | (≤50)             | Negative outcome    |

### **Practice checklist for patients undergoing hysterectomy**

Compliant is activity that has been completed by the nurse, partially compliant indicates attempt to perform, but not completed, non compliance indicates unable to complete a specific activity by nurses. Practice checklist includes admission,

assessment, oxygenation, nutrition, elimination, sleep and rest, mobility and comfort, personal hygiene, communication, activity, safety, spiritual needs, diversional needs, health teaching discharge plan and transport with ranging from compliance to non-compliance.

| <b>Percentage</b> | <b>Level</b>        |
|-------------------|---------------------|
| $\geq 76\%$       | Compliant           |
| 51-75%            | Partially compliant |
| $\leq 50\%$       | Non Compliant       |

### **Psychometric Properties of the Instruments**

#### **Validity**

Validity is the degree to which an instrument measures what it is intended to measure (Polit, 2010).

Content validity of the tool was obtained by getting opinion from seven experts in the field of Obstetrics and Gynecology. The validators had suggested some specific modification in the objectives, practice checklist for patients undergoing hysterectomy, rating scale on satisfaction of nursing care of patients undergoing hysterectomy. The modification and suggestions of experts were incorporated in the final preparation of the tool.

Prepared Questionnaires, Observational check list and clinical pathway tool was given for validation to the experts in the field of research and nursing. Based on the opinion given by the experts, tool was modified.

## **Reliability**

Reliability is the degree of consistency with which an instrument measures the attribute it intended to measure (Polit & Beck, 2009). The reliability of the tools was determined by using split half method and inter rater technique. Karl Pearson's 'r' was computed for finding out the reliability.

|                                       |   |                                  |
|---------------------------------------|---|----------------------------------|
| Structured knowledge questionnaire    | – | Split half method (r = 0.97)     |
| Practice check list for nurses        | – | Inter rater technique (r = 0.82) |
| Rating scale for patient satisfaction | – | Split half method (r = 0.87)     |
| Checklist for patients outcome        | – | Split half method (r = 0.89)     |

## **Pilot Study**

Pilot study was conducted with ten hysterectomy patients who got admitted in Apollo hospital, Chennai. The purpose was to find out the feasibility and practicability of the design. The structured knowledge questionnaire and clinical pathway were administered and found to be feasible on the whole clinical pathway was found to be feasible.

## **Protection of Human Rights**

The study was conducted,

- After the approval of ethical committee of Apollo hospital, Chennai.
- After obtaining permission from principal and HOD of obstetrics and Gynaecological Nursing and Nursing director of Apollo hospital, Chennai.
- Consent was obtained from the study participants.
- By maintaining confidentiality throughout the study.

## **Data Collection Procedure**

Data collection is the precise, systematic gathering of information relevant to the research purpose. The researcher presented the proposal to the ethical committee of Apollo Hospitals and got ethical clearance to proceed the study. The investigator collected the data from Apollo Main Hospital after obtaining proper administrative permission from concerned authorities. The observation time schedule was from 7 am – 12noon and 12.30 to 5.30 pm. The data collection period was from June 17<sup>th</sup> to July 17<sup>th</sup> 2011.

A group of 30 nurses were selected from A, B and General Ward by purposive sampling method and obtained verbal consent for the study. During the shift changing time (2-3 pm) the nurses were gathered in the nurses station and collected the baseline data by using demographic variable proforma .Their pretest knowledge level was assessed by using structured knowledge questionnaire on clinical pathway for patients with hysterectomy.

The control group of 30 hysterectomy patients were selected from the same wards by purposive sampling method. On the day of their admission baseline data was collected by using demographic and clinical variable proforma, after obtaining consent from them. Nursing care received by the patients was assessed by using practice checklist through participatory observation method. Outcome of these patients was monitored by using outcome check list. At the time of their discharge rating scale on satisfaction of nursing care was distributed and their level of satisfaction was assessed.

The same group of nurses were then educated for one hour over a period of one week about the clinical pathway for patients undergoing hysterectomy by using the pathway tool and the doubts of nurses were cleared. The nurses were instructed to use the clinical pathway from the time of admission of hysterectomy patients. After one week the investigator assessed the post test knowledge level of same group of nurses. The patients admitted with hysterectomy were selected by purposive sampling and base line data was collected by using demographic and clinical variable proforma. Nursing care of these patients was assessed by using practice checklist upon the nurses by participatory observation method. Outcome of these patients was monitored by using outcome check list. At the time of their discharge rating scale on satisfaction of nursing care was distributed and their level of satisfaction was assessed. The researcher was able to collect the data for 40 hysterectomy Patients.

### **Problem Faced during the Process of Data Collection**

- Lack of time for nurses to fill the questionnaire.
- Some nurses not interested to fill the questionnaire.

### **Plan for Data analysis**

Data analysis is the systematic organization, synthesis of research data, and testing of null hypothesis by using obtained data (polit & beck, 2007). Analysis and interpretation of the the data was carried out by using descriptive and inferential statistics .Descriptive statistics like frequency distribution ,percentage ,mean standard deviation and inferential statistics like t-test and chi square test will used to analyze the data.

## **Summary**

This chapter dealt with the research approach, design, setting, population, sample and sample technique, description and validation of study instruments, reliability of the instruments, data collection procedure and plan for data analysis.

## **CHAPTER IV**

### **ANALYSIS AND INTERPRETATION**

This chapter deals with the methods of obtaining and analysing figures or data in order to take decision. Chapter includes both descriptive and inferential statistical analysis of data. According to Croxton and Gowden (2008), statistics is the collection, preservation, analysis and interpretation of numerical data. The data was collected from the 30 nurses as pre & post test regarding knowledge questionnaire on clinical pathway for patients undergoing hysterectomy, 70 hysterectomy patients– 30 in control and 40 in experimental group by using clinical pathway practice checklist.

The data includes knowledge questionnaire for nurses, level of satisfaction rating scale, patients outcome rating scale and the clinical pathway practice checklist. Once the master coding sheet was prepared, the data were analysed. The researcher has used descriptive and inferential statistics for analysing the data.

#### **Organization of findings**

- Frequency and percentage distribution of demographic variables of nurses.
- Frequency and percentage distribution of demographic variables of control and experimental group of patients undergoing hysterectomy.
- Frequency and percentage distribution of clinical variables in the control and experimental group of patients undergoing hysterectomy.
- Frequency and percentage distribution of pre & post test level of knowledge on clinical pathway among nurses.

- Frequency and percentage distribution of practice of nurses in control & experimental group of patients undergoing hysterectomy.
- Frequency and percentage distribution of practice scores of nurses in control and experimental group of patients undergoing hysterectomy.
- Frequency and percentage distribution of level of satisfaction in control and experimental group of patients undergoing hysterectomy.
- Frequency and percentage distribution of patient's outcome in control and experimental group of patients undergoing hysterectomy.
- Comparison of mean and standard deviation of pre & post test level of knowledge of nurses on clinical pathway for patients undergoing hysterectomy.
- Comparison of mean and standard deviation of pre & post test level of knowledge among nurses in relation to various aspects of clinical pathway for patients undergoing hysterectomy.
- Comparison of mean and standard deviation of practice of nurses in control and experimental group of patients undergoing hysterectomy.
- Comparison of mean and standard deviation practice of the nurses in control and experimental group of patients undergoing hysterectomy.
- Comparison of mean and standard deviation of patients outcome of control and experimental group of patients undergoing hysterectomy.
- Comparison of mean and standard deviation of level of satisfaction in control and experimental group of patients undergoing hysterectomy.
- Comparison of mean and standard deviation of satisfaction scores in relation to various aspects of control and experimental group of patients undergoing hysterectomy.

- Association between selected demographic variables and the level of knowledge of nurses in pre & post test regarding clinical pathway for patients undergoing hysterectomy.
- Association between selected demographic variables and the level of satisfaction in control and experimental group of patients undergoing hysterectomy.
- Association between selected demographic variables and the patient's outcome in experimental and control group of patients undergoing hysterectomy.
- Association between selected clinical variables and the level of satisfaction in control and experimental group of patients undergoing hysterectomy
- Association between selected clinical variables and patient's outcome in control and experimental group of patients undergoing hysterectomy.

**Table. 1**

**Frequency and Percentage Distribution of Demographic Variables of nurses in the Pre and Post test (Age in Years, Education, Marital Status, Years of Experience, Religion and Previous information about CP)**

(n=30)

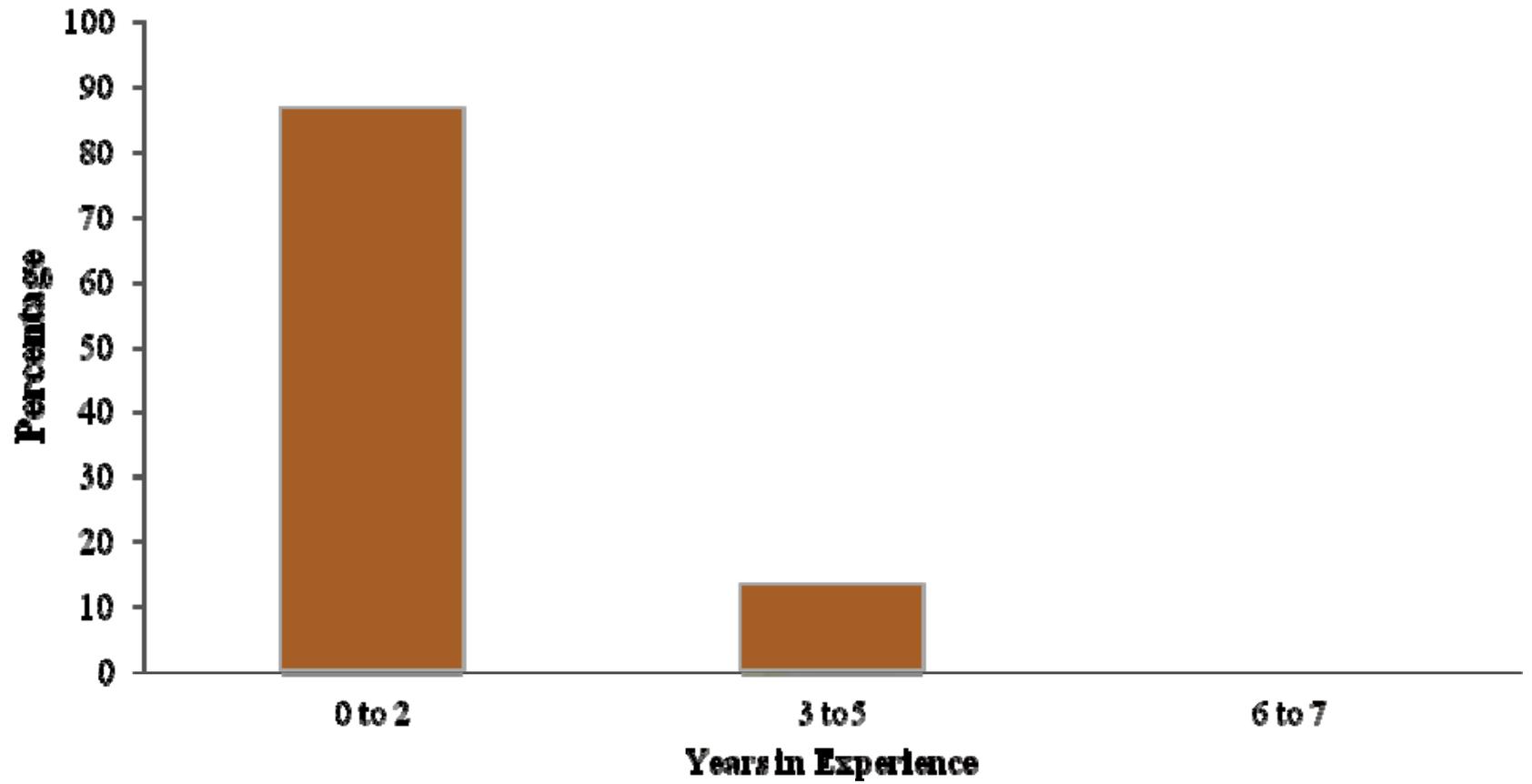
| <b>Demographic variables</b>         | <b>n</b> | <b>p</b> |
|--------------------------------------|----------|----------|
| <b>Age (in years)</b>                |          |          |
| 22 to 26                             | 24       | 80.00    |
| 27 to 31                             | 6        | 20.00    |
| 32 to 36                             | 0        | 0.00     |
| <b>Marital status</b>                |          |          |
| Married                              | 3        | 10.00    |
| Unmarried                            | 27       | 90.00    |
| <b>Religion</b>                      |          |          |
| Hindu                                | 14       | 46.67    |
| Muslim                               | 1        | 3.33     |
| Christian                            | 15       | 50.00    |
| Others                               | 0        | 0.00     |
| <b>Previous information about cp</b> |          |          |
| Yes                                  | 4        | 13.33    |
| No                                   | 26       | 86.67    |

The data presented in the table 1 shows that majority of the nurses were unmarried (90%), between the age group of 22 to 26 (80%), have 0 to 2 years of experience (86.67%), and had no previous information about clinical pathway (86.67%). Most of the them were in the educational status of B.Sc (N) (66.67), belong to the Christian religion (50%).

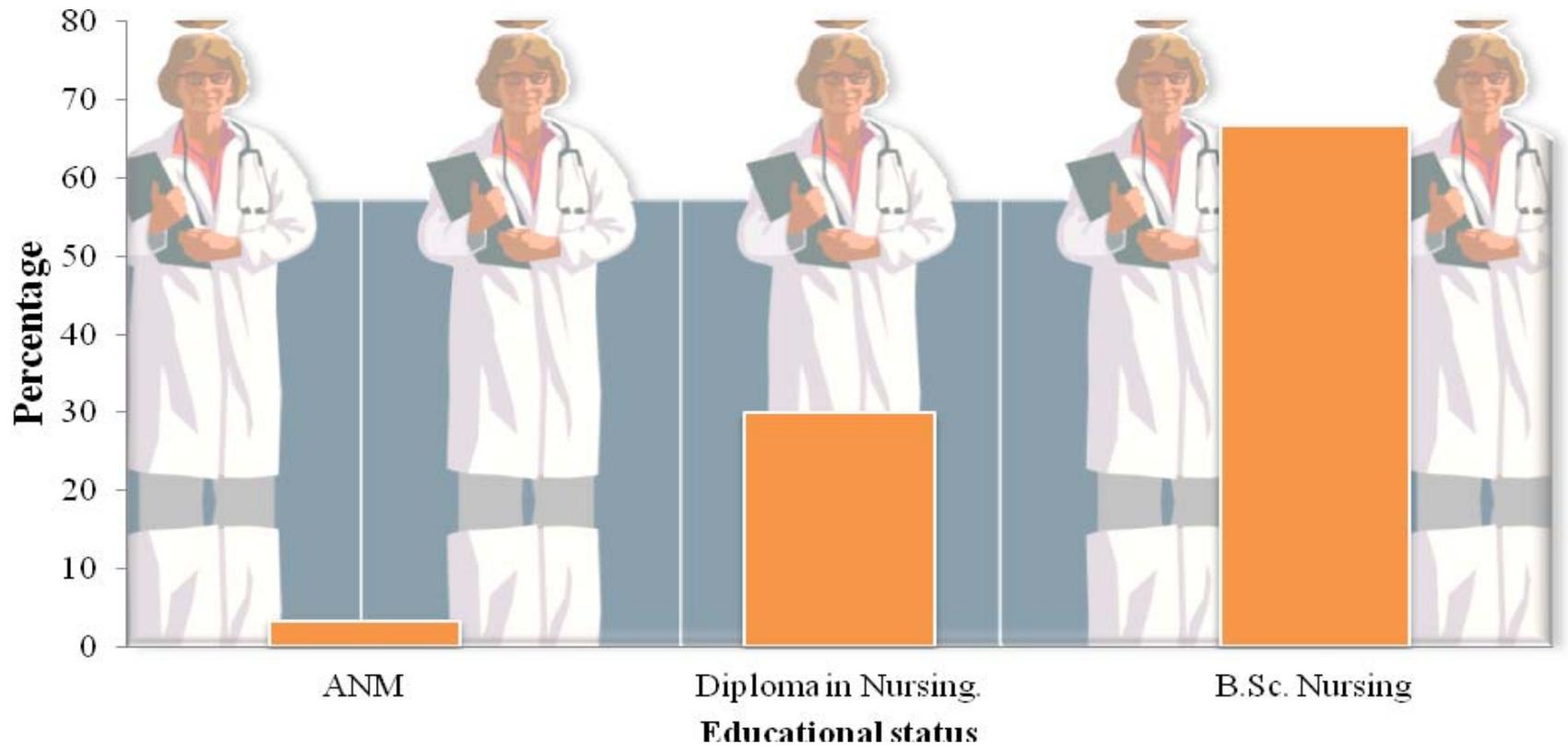
Fig.3 depicts that in the pre-test most of the nurses (62.5%) had adequate knowledge. Majority of the nurses (95%) had adequate knowledge after the post-test.

Fig. 3 depicts that majority of the nurses had 0 to 2 years of experience (86.67%).

Fig. 4 depicts that majority of the nurses educational status B.sc (Nursing) (66.67 %), GNM (30 %).



**Fig.3 Percentage Distribution of Years of Experience in Nurses**



**Fig.4 Percentage Distribution of Educational Status in Nurses**

**Table. 2**

**Frequency and Percentage Distribution of Demographic Variables of Control and Experimental group of Patients undergoing hysterectomy (Age ,education, Occupation, Type of work ,Marital status, Age at marriage ,Mode of delivery, Number of children, Religion, Type of family.)**

| Sample Characteristics     | Control Group |       | Experimental Group |       |
|----------------------------|---------------|-------|--------------------|-------|
|                            | n=30          |       | n=40               |       |
|                            | n             | p     | n                  | p     |
| <b>Age in years</b>        |               |       |                    |       |
| 20 to 30 yrs               | 1             | 3.33  | 2                  | 5.00  |
| 31 to 40 yrs               | 11            | 36.67 | 11                 | 27.50 |
| 41 to 50 yrs               | 15            | 50.00 | 23                 | 57.50 |
| 51 yrs                     | 3             | 10.00 | 4                  | 10.00 |
| <b>Education</b>           |               |       |                    |       |
| Non literate               | 3             | 10.00 | 4                  | 10.00 |
| Primary education          | 5             | 16.67 | 4                  | 10.00 |
| High school education      | 2             | 6.67  | 0                  | 0.00  |
| Higher secondary education | 5             | 16.67 | 7                  | 17.50 |
| Graduate                   | 12            | 40.00 | 21                 | 52.50 |
| Post graduate              | 3             | 10.00 | 4                  | 10.00 |
| <b>Occupation</b>          |               |       |                    |       |
| Employed                   | 10            | 33.33 | 17                 | 42.50 |
| Housewife                  | 20            | 66.67 | 23                 | 57.50 |

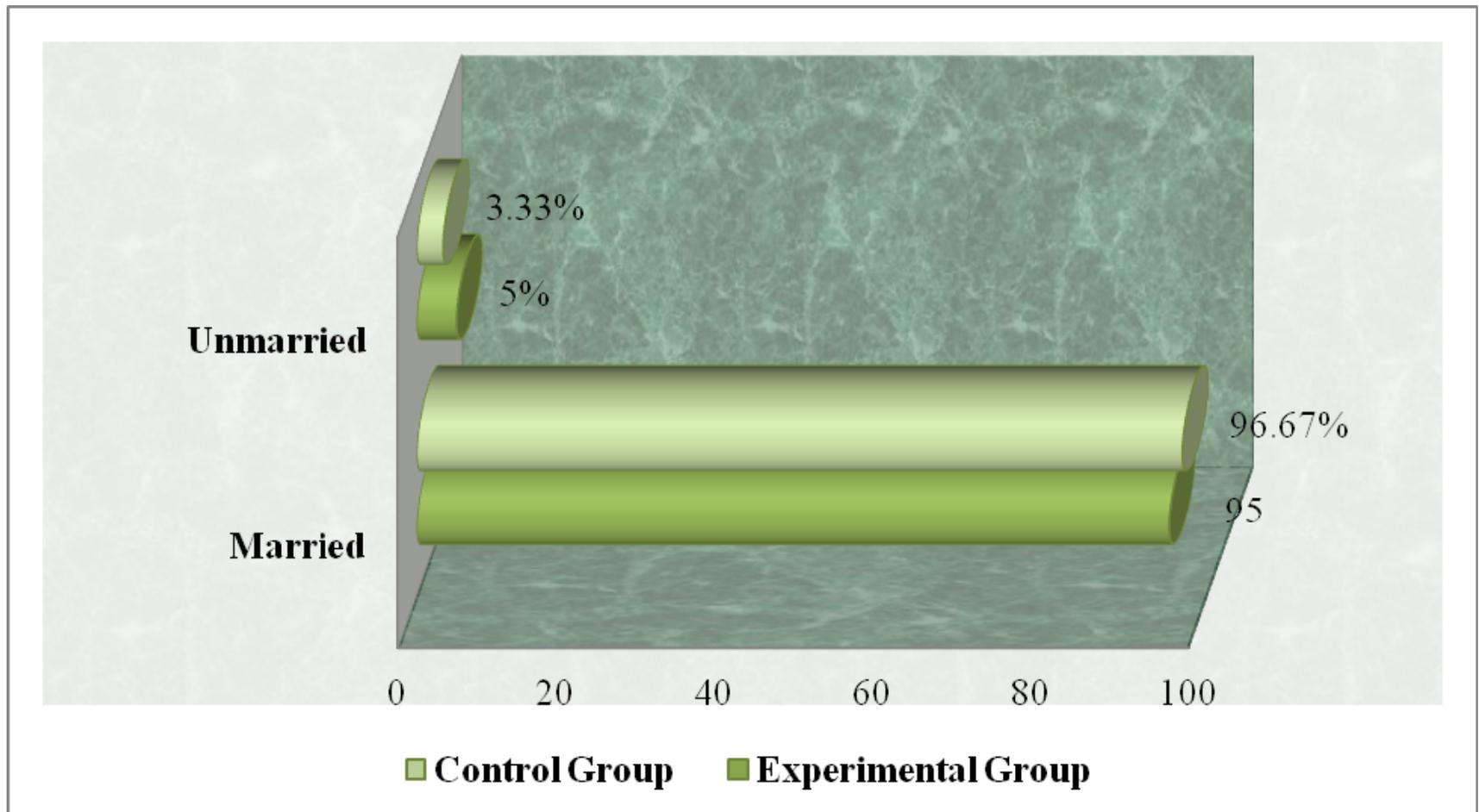
|                        |    |       |    |       |
|------------------------|----|-------|----|-------|
| <b>Type of work</b>    |    |       |    |       |
| Heavy worker           | 0  | 0.00  | 1  | 2.50  |
| Moderate worker        | 24 | 80.00 | 30 | 75.00 |
| Sedentary worker       | 6  | 20.00 | 9  | 22.50 |
| <b>No. of children</b> |    |       |    |       |
| One                    | 6  | 20.00 | 18 | 45.00 |
| Two                    | 7  | 56.67 | 15 | 37.50 |
| More than three        | 3  | 10.00 | 3  | 7.50  |
| None                   | 4  | 13.33 | 4  | 10.00 |
| <b>Religion</b>        |    |       |    |       |
| Hindu                  | 29 | 96.67 | 34 | 85.00 |
| Muslim                 | 0  | 0.00  | 1  | 2.50  |
| Christian              | 0  | 0.00  | 0  | 0.00  |
| Others                 | 1  | 3.33  | 5  | 12.50 |
| <b>Type of family</b>  |    |       |    |       |
| Nuclear                | 25 | 83.33 | 30 | 75.00 |
| Joint                  | 5  | 16.67 | 10 | 25.00 |

Table 2 depict that the most of the patients in the control group and experimental group were in the age group of 41 to 50 years (50%,57.50%), majority of patients have undergone normal vaginal delivery (80%,70%) and had co morbid illness (80%,60%) respectively.

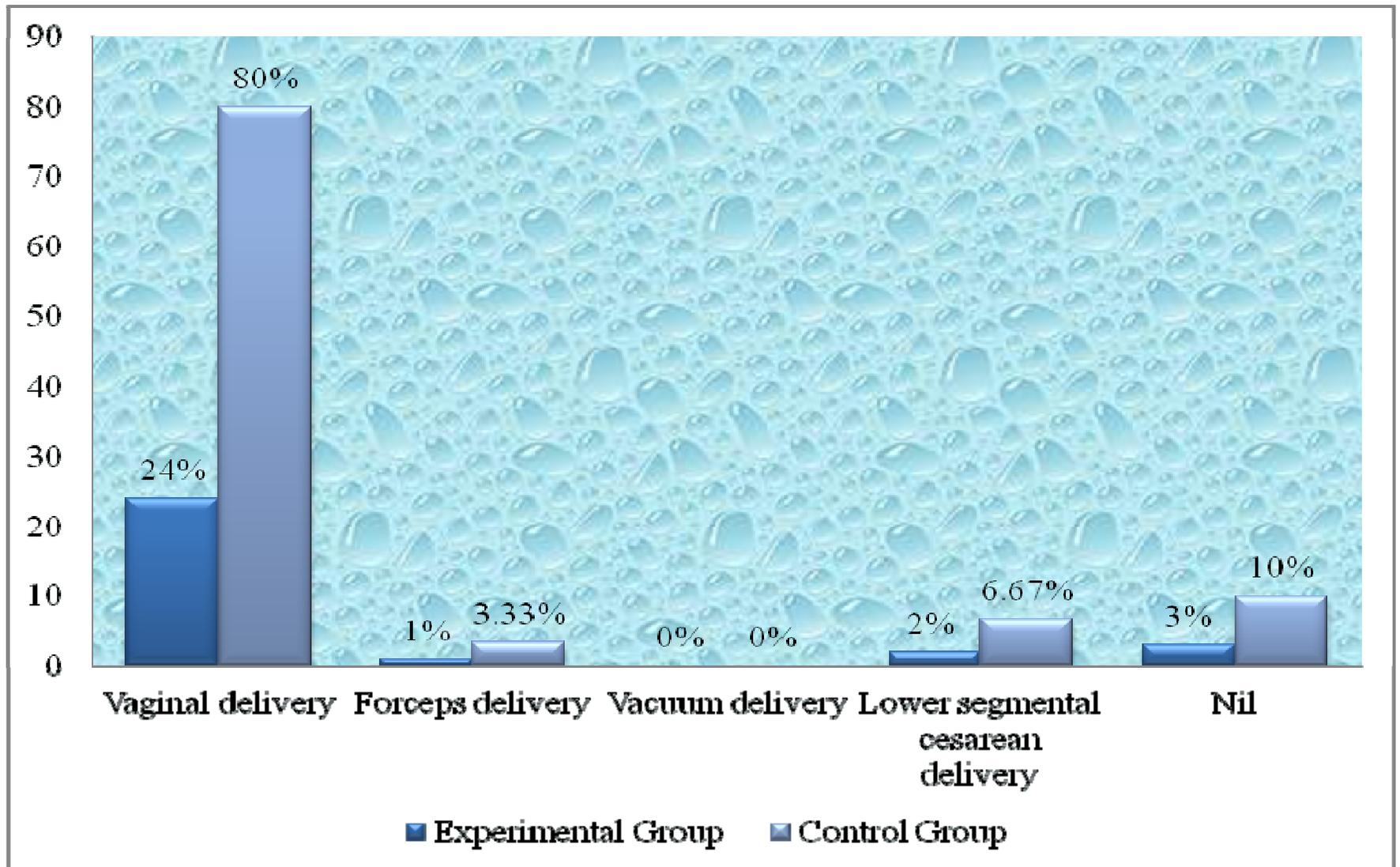
Fig. 5 depicts that majority of the patient's marital status in the control group (95 %) and experimental group (96.67 %).

Fig. 6 depicts that majority of the patient's undergone normal vaginal delivery in the control group (70%) and experimental group (80%).

Fig. 7 depicts that majority of the patient's undergone normal delivery in the control group (84.21%) and experimental group (63.33%).



**Fig.5 Percentage Distribution of Marital Status in Control and Experimental Group of Patients**



**Fig.6 Percentage Distribution of Mode of Delivery in Control and Experimental Group of Patients**



**Fig.7 Percentage Distribution of Age at Marriage in Control and Experimental Group of Patients**

**Table. 3**

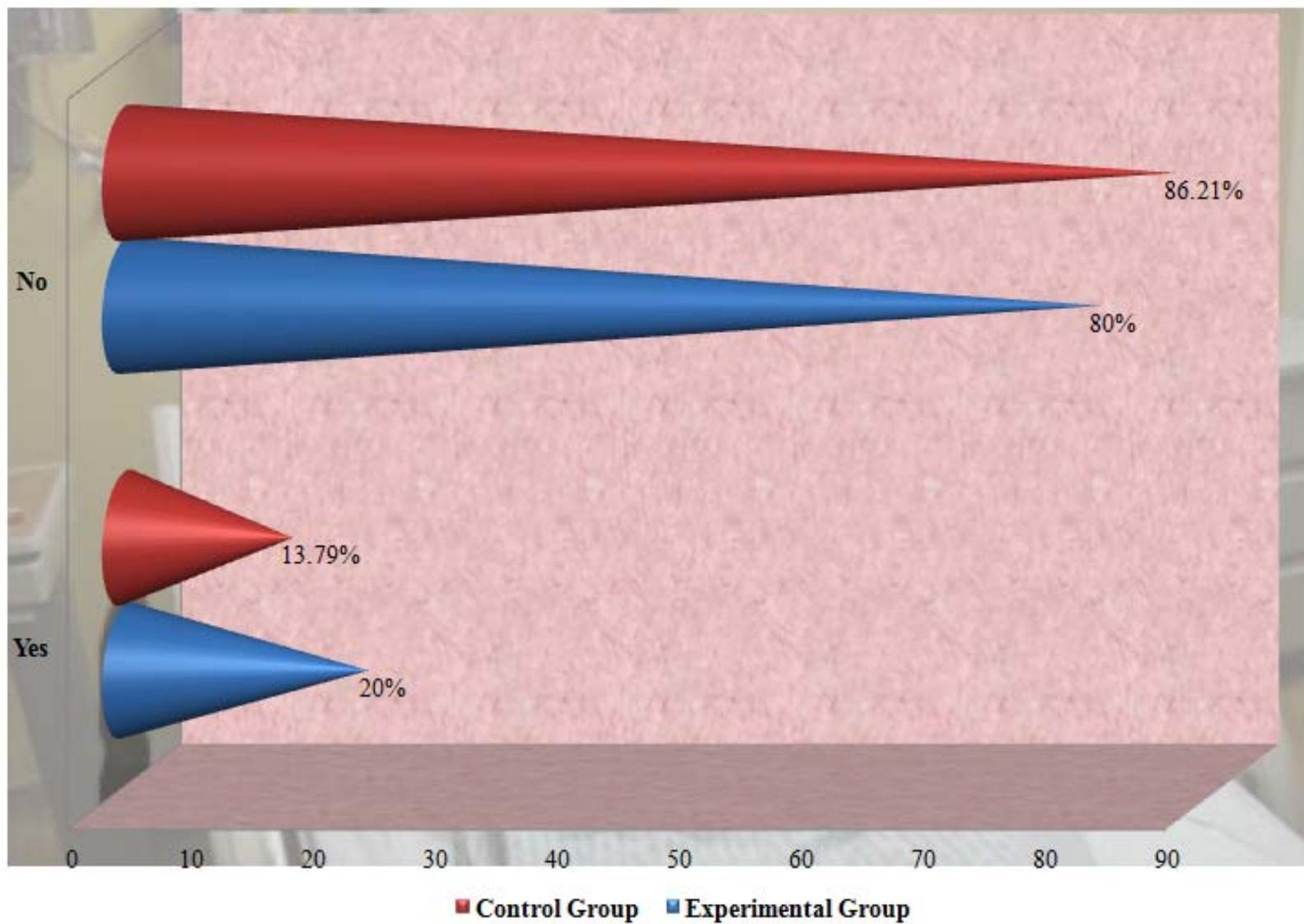
**Frequency and Percentage Distribution of Clinical Variables in the Control and Experimental Group of Patients undergoing hysterectomy** (Height, Weight, BMI, Comorbid illness, Treatment of co morbid illness, Family history of uterine disorder, History of fibroid uterus, History of uterine tumour, History of Contraceptive Usage, History of Dysfunctional uterine Bleeding, History Of dysmenorrhoea, Pattern of menstrual Cycle).

| Clinical Variable           | Control Group<br>n=30 |       | Experimental Group<br>n=40 |       |
|-----------------------------|-----------------------|-------|----------------------------|-------|
|                             | n                     | p     | n                          | p     |
| <b>Height in cm</b>         |                       |       |                            |       |
| 141 to 150                  | 2                     | 6.67  | 3                          | 7.50  |
| 151 to 155                  | 8                     | 26.67 | 10                         | 25.00 |
| 156 to 160                  | 17                    | 56.67 | 22                         | 55.00 |
| >165                        | 3                     | 10.00 | 5                          | 12.50 |
| <b>Weight in Kg</b>         |                       |       |                            |       |
| 40 to 50                    | 5                     | 16.67 | 5                          | 12.50 |
| 51 to 60                    | 12                    | 40.00 | 18                         | 45.00 |
| 61 to 70                    | 10                    | 33.33 | 1                          | 27.5  |
| >70                         | 3                     | 10.00 | 6                          | 15.00 |
| <b>BMI</b>                  |                       |       |                            |       |
| 19 - 24.9 kg/m              | 28                    | 93.33 | 38                         | 95.00 |
| 25 - 29.9 kg/m              | 1                     | 3.33  | 1                          | 2.50  |
| 30 - 34.9 kg/m              | 1                     | 3.33  | 1                          | 2.50  |
| 35 - 39.9 kg/m              | 0                     | 0.00  | 0                          | 0.00  |
| 40 kg/m                     | 0                     | 0.00  | 0                          | 0.00  |
| <b>Presence of comorbid</b> |                       |       |                            |       |
| Yes                         | 24                    | 60.00 | 24                         | 60.00 |
| No                          | 6                     | 40.00 | 16                         | 40.00 |

|                                   |    |        |    |        |
|-----------------------------------|----|--------|----|--------|
| <b>Treatment of Co-morbid</b>     |    |        |    |        |
| Yes                               | 15 | 50.00  | 22 | 91.67  |
| No                                | 3  | 10.00  | 2  | 8.33   |
| <b>History of Fibroid uterus</b>  |    |        |    |        |
| Yes                               | 20 | 66.67  | 28 | 70.00  |
| No                                | 10 | 33.33  | 12 | 30.00  |
| <b>History Of uterine tumour</b>  |    |        |    |        |
| Yes                               | 0  | 0.00   | 0  | 0.00   |
| No                                | 30 | 100.00 | 40 | 100.00 |
| <b>History of Contraceptive</b>   |    |        |    |        |
| Yes                               | 19 | 63.33  | 28 | 70.00  |
| No                                | 11 | 36.67  | 12 | 30.00  |
| <b>History of Dysfunctional</b>   |    |        |    |        |
| Yes                               | 11 | 36.67  | 27 | 67.50  |
| No                                | 19 | 63.33  | 13 | 32.50  |
| <b>History Of dysmenorrhoea</b>   |    |        |    |        |
| Yes                               | 27 | 90.00  | 34 | 85.00  |
| No                                | 3  | 10.00  | 6  | 15.00  |
| <b>Pattern of menstrual Cycle</b> |    |        |    |        |
| Regular                           | 25 | 83.33  | 28 | 70.00  |
| Irregular                         | 5  | 16.67  | 12 | 30.00  |

Table 3 reveals majority of the patients in the control and experimental group had BMI between 19 to 24.9 (93.33%, 95%) and regular pattern of menstrual flow (83.33%, 70%). Most of them had the history of fibroid uterus (66.7%, 60%), and the presence of co-morbidity (60%, 60%) respectively.

Fig. 6 depicts that majority of the patient's in both the control group and experimental group had family history of uterine disorder (80%, 86.21%) respectively.



**Fig.8 Percentage Distribution of Family History of Uterine Disorder in Control and Experimental Group of Patients.**

**Table. 4**

**Frequency and Percentage Distribution of Pre & Post Test Level of Knowledge on Clinical Pathway among Nurses.**

(n =30)

| Knowledge Scores | Inadequate |      | Moderately |      | Adequate |       |
|------------------|------------|------|------------|------|----------|-------|
|                  | n          | P    | n          | p    | n        | p     |
| Pre-test         | 15         | 50.0 | 15         | 50.0 | 0        | 0     |
| Post test        | 0          | 0    | 2          | 6.67 | 28       | 93.33 |

Table 4 depicts that most of the nurses in pre-test had inadequate knowledge (50%).Majority of the nurses had adequate knowledge (93.33%) during the post-test.

**Table. 5**

**Frequency and Percentage Distribution of Level of Practice of Nurses in Control & Experimental Group of Patients undergoing hysterectomy**

| Practice Scores     | Control Group<br>n=30 |       | Experimental group<br>n=40 |     |
|---------------------|-----------------------|-------|----------------------------|-----|
|                     | n                     | p     | n                          | p   |
| Compliant           | 22                    | 73.33 | 40                         | 100 |
| Partially compliant | 8                     | 26.66 | -                          | -   |
| Non-compliant       | -                     | -     | -                          | -   |

The data given in table 5 indicates most of the control group of hysterectomy patients were delivered compliant level of practice (73.33%) and the rest had partially compliant level (26.66%) and the experimental group of hysterectomy patients were delivered compliant level of practice (100%).

**Table. 6**

**Frequency and Percentage Distribution of practice scores of nurses in control and experimental group of patients undergoing hysterectomy**

| Practice scores | Control Group<br>(n=30) |       |           |       | Experimental Group<br>(n=40) |       |
|-----------------|-------------------------|-------|-----------|-------|------------------------------|-------|
|                 | Partially compliant     |       | Compliant |       | Compliant                    |       |
|                 | n                       | p     | n         | p     | n                            | p     |
| Pre op          | 18                      | 60.0  | 12        | 40.0  | 40                           | 100.0 |
| Day 0           | 1                       | 3.33  | 29        | 96.67 | 40                           | 100.0 |
| Day 1           | 8                       | 26.67 | 22        | 73.33 | 40                           | 100.0 |
| Day 2           | 21                      | 70.0  | 9         | 30.0  | 40                           | 100.0 |
| Day 3           | 20                      | 66.67 | 10        | 33.33 | 40                           | 100.0 |

Table 6 reveals that most of the nurses practice in control group in the pre op day was partially compliance (60%), at day 0, compliance (96.67%), at day 1, compliance (73.33%), at day 2 partially compliance (70%), day 3 is partially compliance (66.67%). All the nurses practice in experimental group on pre op day was compliance (100%), at day 0 is compliance (100%), at day 1 is compliance (100%), at day 2 compliance (100%), day 3 compliance (100%).

**Table. 7**

**Frequency and Percentage Distribution of Level of Satisfaction in Control and Experimental Group of Patients undergoing hysterectomy.**

| Level of satisfaction | Control Group<br>n=30 |       | Experimental Group<br>n=40 |     |
|-----------------------|-----------------------|-------|----------------------------|-----|
|                       | n                     | p     | n                          | p   |
| Highly satisfied      | 13                    | 43.33 | 40                         | 100 |
| Satisfied             | 17                    | 56.67 | -                          | -   |
| Dissatisfied          | 0                     | 0     | -                          | -   |
| Highly dissatisfied   | 0                     | 0     | -                          | -   |

It was observed that majority of the patients were satisfied (56.67%) in the control group. Majority (100%) of the patients were highly satisfied in the experimental group.

**Table. 8**

**Frequency and Percentage Distribution of Patient's Outcome in Control and Experimental Group of Patients undergoing hysterectomy.**

| <b>Patient Outcome</b>      | <b>Control Group<br/>n=30</b> |          | <b>Experimental Group<br/>n=40</b> |          |
|-----------------------------|-------------------------------|----------|------------------------------------|----------|
|                             | <b>n</b>                      | <b>p</b> | <b>n</b>                           | <b>p</b> |
| Negative outcome            | -                             | -        | -                                  | -        |
| Moderately negative outcome | -                             | -        | -                                  | -        |
| Moderately positive outcome | -                             | -        | -                                  | -        |
| positive outcome            | 30                            | 100      | 40                                 | 100      |

It was observed that in control and experimental group of hysterectomy patients had positive outcome (100%).

**Table. 9**

**Comparison of Mean and Standard Deviation of Pre & Post Test Level of Knowledge of Nurses on Clinical Pathway for Patients undergoing Hysterectomy.**

(n=70)

| Knowledge scores | M     | SD   | 't' value     |
|------------------|-------|------|---------------|
| Pre-test         | 15.30 | 3.46 | t = 16.740*** |
| Post test        | 26.87 | 1.91 |               |
| Improvement      | 11.57 | 1.52 |               |

\*\*\*p<0.001

From table 9 it can be incurred that mean and standard deviation of level of knowledge of nurses were low in the pre-test (M=15.30, SD=3.46) in comparison to the post-test (M=26.87, SD=1.52). The difference was statistically proved at 99.9% level of confidence and it shows that effectiveness of clinical pathway upon the nurses. Hence the null hypothesis  $H_{01}$  was rejected.

**Table 10**

**Comparison of Mean and Standard Deviation of Pre & Post test Level of Knowledge among Nurses in relation to Various aspects of Clinical pathway for Patients undergoing hysterectomy.**

(n=30)

| Knowledge               | Pre test |      | Post test |      |           |
|-------------------------|----------|------|-----------|------|-----------|
|                         | Mean     | SD   | Mean      | SD   | 't' Value |
| Clinical pathway        | 0.32     | 0.80 | 1.25      | 1.2  | 10.56***  |
| Pre op and post op care | 0.46     | 0.90 | 1.66      | 2.32 | 10.52***  |
| Oxygen                  | 0.4      | 0.97 | 1.08      | 1.70 | 11.53***  |
| Nutrition               | 0.60     | 0.92 | 1.8       | 2.35 | 8.39***   |
| Position and exercise   | 0.60     | 0.82 | 1.55      | 1.80 | 4***      |
| Wound care              | 0.72     | 1    | 1.46      | 1.72 | 9.71***   |
| Patient education       | 0.7      | 0.87 | 1.43      | 1.61 | 6.25***   |

\*\*\*p&lt;0.001

The result from the Table 10 shows that the mean and standard deviation of Knowledge on clinical pathway was low in pre test in all aspects of care and high in the post test. This shows that the knowledge of the nurses improved after implementation of clinical pathway that is Clinical pathway (M=0.32, SD=0.80; M=1.25, SD=1.2), Pre op and post op care (M=0.46, SD=0.90; M=1.66, SD=2.32), oxygen administration (M=0.4, SD=0.97; M=1.08, SD=1.70), Nutrition (M=0.60, SD=0.920; M=1.8, SD=2.35), position and exercise (M=0.60, SD=0.82; M=1.55, SD=1.80), wound care (M=0.72, SD= 1; M=1.46, SD=1.72) and patient education (M=0.7, SD=0.87; M=1.43, SD=1.61) respectively. The difference was statistically proved at 99.9% level of confidence and it was attributed to the effectiveness of clinical pathway upon the nurses in various aspects of care.

**Table. 11**

**Comparison of Mean and Standard Deviation of Practice of Nurses in Control and Experimental Group of Patients undergoing hysterectomy.**

(n=70)

| Practice scores | Mean   | SD    | t'value   |
|-----------------|--------|-------|-----------|
| Control         | 260.56 | 14.30 | 22.385*** |
| Experimental    | 322.02 | 5.63  |           |

\*\*\*P< 0.001

It can be incurred from table 11 that mean and standard deviation of practice scores of nurses were high after the clinical pathway administration (M=322.02, SD=5.63) compared to the scores before clinical pathway administration (M=260.56, SD=2.8). The difference was statistically proved at 99.9% level of confidence and it shows the effectiveness of clinical pathway upon the nurses on patients undergoing hysterectomy. Hence the null hypotheses  $H_{01}$  was rejected.

**Table. 12**

**Comparison of Mean And Standard Deviation Practice of the Nurses in Control And Experimental Group of patients undergoing hysterectomy.**

| Practice | Control Group<br>n=30 |      | Experimental Group<br>n=40 |      | t' Value |
|----------|-----------------------|------|----------------------------|------|----------|
|          | Mean                  | SD   | Mean                       | SD   |          |
| Pre op   | 121.6                 | 5.34 | 154                        | 1.1  | 45**     |
| Day 0    | 118.3                 | 2.1  | 134.3                      | 1.36 | 38.8**   |
| Day 1    | 83.2                  | 2.3  | 98.6                       | 1.28 | 2.8**    |
| Day 2    | 67.2                  | 7.18 | 86.5                       | 1.54 | 11.2**   |
| Day 3    | 123.2                 | 6.27 | 155.2                      | 1.4  | 15.8**   |

\*\*P< 0.01

The result from above table 12 shows that mean and standard deviation of practice of nurses in control group were less compared to the experimental group of patients undergoing hysterectomy. This shows the practice of the nurses in control and experimental group at pre op day is (M=121.6, SD=5.34; M=154, SD=1.1), day 0 (M=118.3, SD=2.1; M=134.3, SD=1.36), day 1 (M=83.2, SD=2.3; M=98.6, SD=1.28), day 2 (M=67.2, SD=7.18; M=86.5, SD=1.54), day 3 (M=123.2, SD=6.27; M=155.2, SD=1.4) respectively. The difference was statistically proved at 99% level of confidence and it was concluded that the practice of nurses in clinical pathway for patients undergoing hysterectomy was compliant in experimental group.

**Table. 13**

**Comparison of Mean and Standard Deviation of Patients Outcome of Control and Experimental Group of Patients undergoing hysterectomy.**

(n=70)

| Patient outcome    | Mean | SD   | 't' value    |
|--------------------|------|------|--------------|
| Control group      | 2.97 | 3.61 | t = 3.527*** |
| Experimental group | 0.52 | 1.32 |              |

\*\*\*p<0.001

Table 12 represents that mean and standard deviation of outcome of hysterectomy patients in the control group (M=2.97, SD=3.61) were greater when compared to the experimental group (M=0.52, SD= 1.32). This indicates the experimental group of patients did not developed complications. The difference was statistically proved at 99.9% level of confidence and it shows that effectiveness of clinical pathway upon the patients outcome of the hysterectomy patients. Hence the null hypothesis  $H_0$  was rejected.

**Table. 14**

**Comparison of Mean and Standard Deviation of Level of Satisfaction in Control and Experimental Group of Patients undergoing hysterectomy.**

(n=70)

| Patient outcome    | Mean   | SD   | 't' value   |
|--------------------|--------|------|-------------|
| Control group      | 121.93 | 9.52 | t = 13.3*** |
| Experimental group | 147.2  | 9.62 |             |

\*\*\*p<0.001

Table 14 denotes that mean and standard deviation of satisfaction in the control group (M=121.93, SD= 9.52) were less when compared to the experimental group of patients undergoing hysterectomy (M=147.2, SD=9.62) which indicates that the experimental group of patients are highly satisfied. The level of confidence was 99.9% and it shows that effectiveness of clinical pathway upon the patients satisfaction.. Hence the null hypothesis  $H_0$  was rejected.

**Table. 15**

**Comparison of Mean and Standard Deviation of Satisfaction scores in relation to various aspects of Control and Experimental group of patients undergoing hysterectomy**

| Satisfaction  | Control Group<br>n=30 |      | Experimental Group<br>n=40 |       | t' Value |
|---|-----------------------|------|----------------------------|-------|----------|
|   | Mean                  | SD   | Mean                       | SD    |          |
| Environment, Comfort ,Activity, Rest, position      | 17.33                 | 3.22 | 19.62                      | 0.74  | 3.88     |
| Nutrition, Elimination                              | 17.06                 | 2.81 | 19.52                      | 1.012 | 2.17     |
| Personal Hygiene, Safety                            | 14.7                  | 2.57 | 18.25                      | 1.48  | 2.29     |
| Communication, Spiritual needs, Family involvement, | 14.35                 | 2.52 | 18.05                      | 1.66  | 7.25***  |

\*\*\*P< 0.001

The result from above table 15 represents that mean and standard deviation of satisfaction (M=17.33, SD=3.22), (M=17.06,SD=2.81), (M=14.7, SD=2.57), (M=14.35, SD=2.52), of control group of patients components was less compared to the experimental group (M=19.62, SD=0.74), (M=19.52, SD=1.012), (M=18.25, SD=1.48), (M=18.05, SD=1.66) of patients undergoing hysterectomy. This shows that significant difference was found in the communication, spiritual needs, family involvement, health education. The difference was statistically proved at 99.9% level of confidence and can be attributed to the effectiveness of clinical pathway upon patient's satisfaction in various aspects.

**Table. 16**

**Association Between Selected Demographic Variables and the Pretest and Posttest Level of Knowledge of Nurses in Pre & Post Test Regarding Clinical Pathway for Patients undergoing hysterectomy. (Age in years, Educational status, Religion, Marital Status, Years of experience, Previous Information)**

| Demographic variables     | Pre-Test (n=30)  |                |    |                         | Post Test (n=30) |    |    |          |
|---------------------------|------------------|----------------|----|-------------------------|------------------|----|----|----------|
|                           | Inadeq-uate<br>n | Mode-rate<br>n | df | Inade-quate<br>$\chi^2$ | Mode-r-ate<br>n  | n  | df | $\chi^2$ |
| <b>Age in years</b>       |                  |                |    |                         |                  |    |    |          |
| 22 to 26 years            | 11               | 13             | 1  | 0.833                   | 2                | 22 | 1  | 0.536    |
| 27 to 31 years            | 4                | 2              |    |                         | 0                | 6  |    |          |
| 32 to 36 years            | -                | -              |    |                         | -                | -  |    |          |
| <b>Educational Status</b> |                  |                |    |                         |                  |    |    |          |
| ANM                       | 1                | 0              |    |                         | 0                | 1  |    |          |
| Diploma in Nursing.       | 5                | 4              | 2  | 1.311                   | 1                | 8  | 2  | 0.446    |
| B.Sc. Nursing             | 9                | 11             |    |                         | 1                | 19 |    |          |
| <b>Religion</b>           |                  |                |    |                         |                  |    |    |          |
| Hindu                     | 7                | 7              |    |                         | 0                | 14 |    |          |
| Muslim                    | 0                | 1              | 2  | 1.067                   | 0                | 1  | 2  | 2.143    |
| Christian                 | 8                | 7              |    |                         | 2                | 13 |    |          |
| Others                    | -                | -              |    |                         | -                | -  |    |          |

|                             |    |    |   |       |   |    |   |       |
|-----------------------------|----|----|---|-------|---|----|---|-------|
| <b>Marital Status</b>       |    |    |   |       |   |    |   |       |
| Married                     | 1  | 2  |   |       | 0 | 3  |   |       |
| Unmarried                   | 14 | 13 | 1 | 0.370 | 2 | 25 | 1 | 0.238 |
| <b>Years of experience</b>  |    |    |   |       |   |    |   |       |
| 0 – 2                       | 15 | 11 |   |       | 2 | 24 |   |       |
| 3 – 5                       | 0  | 4  | 1 | 4.615 | 0 | 4  | 1 | 0.330 |
| 6 – 7                       | -  | -  |   |       | - | -  |   |       |
| <b>Previous Information</b> |    |    |   |       |   |    |   |       |
| Yes                         | 3  | 1  |   |       | 0 | 4  |   |       |
| No                          | 12 | 14 | 1 | 1.154 | 2 | 24 | 1 | 0.330 |

It can be incurred from table 16 that there is no association between the age, educational qualification, marital status and years of experience, religion, previous information in the level of knowledge for the nurses in the pre & post-test. It has proven that there no is association between the selected demographic variables and level of knowledge. Hence the null hypothesis  $H_{o3}$  was retained with regard to age, educational qualification, marital status and years of experience, religion, previous information.

**Table. 17**

**Association Between Selected Demographic Variables and the Level of Satisfaction in Control and Experimental Group of Patients Undergoing Hysterectomy.** (Age in years, Education, Occupation, Type of work, Marital status, Age at Marriage, Mode of Delivery, Number of children ,Religion, Type of family, Comorbidity, History of contraceptive usage)

| Demographic Variables            | Control Group<br>(n=30) |          |          | Experimental Group<br>(n=40) |          |
|----------------------------------|-------------------------|----------|----------|------------------------------|----------|
|                                  | H.Sat<br>n              | Sat<br>n | $\chi^2$ | H.Sat<br>n                   | $\chi^2$ |
| <b>Age in years</b>              |                         |          |          |                              |          |
| 20 to 30 years                   | 1                       | 1        |          | 2                            |          |
| 31 to 40 years                   | 6                       | 11       | 3.279    | 11                           |          |
| 41 to 50 years                   | 5                       | 2        | df=3     | 23                           | -        |
| 51 yrs                           | 1                       | 3        |          | 4                            |          |
| <b>Education</b>                 |                         |          |          |                              |          |
| Non literate                     | 3                       | -        |          | 4                            |          |
| Primary education                | 3                       | 2        |          | 4                            |          |
| High School                      | 1                       | 1        | 17.26*** | -                            |          |
| Higher secondary                 | 2                       | 3        | df=5     | 7                            | -        |
| Graduate                         | 3                       | 9        |          | 21                           |          |
| Post graduate                    | 1                       | 2        |          | 4                            |          |
| <b>Occupation</b>                |                         |          |          |                              |          |
| Employed                         | 8                       | 2        | 23.98*** | 17                           |          |
| Housewife                        | 5                       | 15       | df=1     | 23                           | -        |
| <b>Type of work</b>              |                         |          |          |                              |          |
| Heavy worker                     | -                       | -        |          | 1                            |          |
| Moderate worker                  | 15                      | 9        | 3.214    | 30                           |          |
| Sedentary worker                 | 6                       | 0        | df = 1   | 9                            | -        |
| <b>Marital status</b>            |                         |          |          |                              |          |
| Married                          | 20                      | 9        | 0.443    | 38                           |          |
| Unmarried                        | 1                       | 0        | df = 1   | 2                            | -        |
| <b>Age at marriage in years</b>  |                         |          |          |                              |          |
| <17                              | 0                       | 1        |          | 1                            |          |
| 18 to 23                         | 13                      | 6        | 3.044    | 32                           |          |
| 24 to 29                         | 7                       | 2        | d.f = 3  | 5                            | -        |
| 30 yrs and above                 | 1                       | 0        |          |                              |          |
| <b>Mode of previous delivery</b> |                         |          |          |                              |          |
| Vaginal delivery                 | 16                      | 8        |          | 28                           |          |
| Forceps delivery                 | 1                       | 0        |          | 2                            |          |
| Vacuum delivery                  | -                       | -        | 2.222    | 6                            | -        |

|                            |    |   |        |    |   |
|----------------------------|----|---|--------|----|---|
| Lower segmental cesarean   | 1  | 1 | df = 3 | 4  |   |
| Nil                        | 3  | 0 |        |    |   |
| <b>No. of children</b>     |    |   |        |    |   |
| One                        | 3  | 3 |        | 18 |   |
| Two                        | 13 | 4 | 1.545  | 15 | - |
| More than three            | 2  | 1 | df = 3 | 3  |   |
| None                       | 3  | 1 |        | 4  |   |
| <b>Religion</b>            |    |   |        |    |   |
| Hindu                      | 20 | 9 |        | 34 |   |
| Muslim                     | -  | - |        | 1  |   |
| Christian                  | -  | - | 0.443  |    |   |
| Others                     | 1  | 0 | df = 1 | 5  | - |
| <b>Type of family</b>      |    |   |        |    |   |
| Nuclear                    | 18 | 7 | 0.286  | 30 |   |
| Joint                      | 3  | 2 | df = 1 | 10 | - |
| <b>Co-morbidity</b>        |    |   |        |    |   |
| Present                    | 16 | 8 | 0.635  | 24 |   |
| Absent                     | 5  | 1 | df = 1 | 16 | - |
| <b>History of usage of</b> |    |   |        |    |   |
| Yes                        | 14 | 8 | 1.591  | 28 |   |
| No                         | 7  | 1 | df = 1 | 12 | - |

\*\*\*P<0.001

From the data presented in table 17 it can be revealed that there was association between demographic variables such and level of satisfaction in the control group of patients undergoing hysterectomy. Hence the null hypotheses Ho<sub>4</sub> was rejected with regard to education and occupation.

**Table. 18**

**Association Between Selected Demographic Variables and the Patients Outcome in Control and Experimental Group of Patients Undergoing Hysterectomy.** (Age in years, Education, Occupation, Type of Work, Marital status, Age at Marriage ,Mode of Delivery, Number of Children ,Religion ,Type of family, Comorbidity, Contraceptives)

| Demographic Variables      | Control Group<br>n=30 |          | Experimental Group<br>n=40 |          |
|----------------------------|-----------------------|----------|----------------------------|----------|
|                            | n                     | $\chi^2$ | n                          | $\chi^2$ |
| <b>Age in years</b>        |                       |          |                            |          |
| 20 to 30 yrs               | 1                     |          | 2                          |          |
| 31 to 40 yrs               | 11                    |          | 11                         |          |
| 41 to 50 yrs               | 15                    |          | 23                         |          |
| 51 yrs                     | 3                     | -        | 4                          | -        |
| <b>Education</b>           |                       |          |                            |          |
| Non literate               | 3                     |          | 4                          |          |
| Primary education          | 5                     |          | 4                          |          |
| High school education      | 2                     |          |                            |          |
| Higher secondary education | 5                     |          | 7                          |          |
| Graduate                   | 12                    |          | 21                         |          |
| Post graduate              | 3                     | -        | 4                          | -        |
| <b>Occupation</b>          |                       |          |                            |          |
| Employed                   | 10                    |          | 17                         |          |
| Housewife                  | 20                    | -        | 23                         | -        |
| <b>Type of work</b>        |                       |          |                            |          |
| Heavy worker               |                       |          | 1                          |          |
| Moderate worker            | 24                    |          | 30                         |          |
| Sedentary worker           | 6                     | -        | 9                          | -        |
| <b>Marital status</b>      |                       |          |                            |          |
| Married                    | 29                    |          | 38                         |          |
| Unmarried                  | 1                     | -        | 2                          | -        |

|                                    |    |   |    |   |
|------------------------------------|----|---|----|---|
| <b>Age at marriage in years</b>    |    |   |    |   |
| <17                                | 1  |   | 1  |   |
| 18 to 2                            | 19 |   | 32 |   |
| 24 to 29                           | 9  |   | 5  |   |
| 30 yrs and above                   | 1  | - |    | - |
| <b>Mode of previous delivery</b>   |    |   |    |   |
| Vaginal delivery                   | 24 |   | 28 |   |
| Forceps delivery                   | 1  |   | 2  |   |
| Vacuum delivery                    | 2  |   | 6  |   |
| Lower segmental caesarean delivery | 3  |   | 4  |   |
| Nil                                |    | - |    | - |
| <b>No. of children</b>             |    |   |    |   |
| One                                | 6  |   | 18 |   |
| Two                                | 17 |   | 15 |   |
| More than three                    | 3  |   | 3  |   |
| None                               | 4  | - | 4  | - |
| <b>Religion</b>                    |    |   |    |   |
| Hindu                              | 29 |   | 34 |   |
| Muslim                             | -  | - | 1  | - |
| Christian                          | -  | - | -  | - |
| Others                             | 1  | - | 5  | - |
| <b>Type of family</b>              |    |   |    |   |
| Nuclear                            | 25 |   | 30 |   |
| Joint                              | 5  | - | 10 | - |

From the data presented in table 18 it can be revealed there was no association between demographic variable and outcome of patients undergoing hysterectomy control group and experimental group. No statistics could be applied to find the association between clinical variables and the patient outcome. Hence the null hypothesis  $H_{04}$  was retained.

**Table. 19**

**Association Between Selected Clinical Variables and the Level of Satisfaction in Control and Experimental Group of Patients Undergoing Hysterectomy.** (Weight in Kg, BMI, Presence of co-morbid, History of Fibroid uterus)

| Clinical variables                     | Control group<br>(n=30) |           |                 | Experimental Group<br>(n=40) |          |
|--|-------------------------|-----------|-----------------|------------------------------|----------|
|  | Highly Satisfied        | Satisfied | $\chi^2$        | Highly satisfied             | $\chi^2$ |
|  | n                       | n         |                 | n                            |          |
| <b>Weight in Kg</b>                    |                         |           |                 |                              |          |
| 40 to 50                               | 3                       | 2         | 3.279<br>df=3   | 5                            |          |
| 51 to 60                               | 7                       | 5         |                 | 18                           |          |
| 61 to 70                               | 2                       | 8         |                 | 11                           |          |
| >70                                    | 1                       | 2         |                 | 6                            |          |
| <b>BMI</b>                             |                         |           |                 |                              |          |
| 19 - 24.9 kg/m                         | 12                      | 16        |                 | 38                           |          |
| 25 - 29.9 kg/m                         | 1                       | -         |                 | 1                            |          |
| 30 - 34.9 kg/m                         | -                       | 1         |                 | 1                            | -        |
| 35 - 39.9 kg/m                         | -                       | -         |                 | -                            |          |
| 40 kg/m                                | -                       | -         |                 | -                            |          |
| <b>Presence of co-morbid</b>           |                         |           |                 |                              |          |
| Yes                                    | 10                      | 8         | 10.46**<br>df=1 | 24                           |          |
| No                                     | 3                       | 9         |                 | 16                           |          |
| <b>Treatment of Co-morbid</b>          |                         |           |                 |                              |          |
| Yes                                    | 10                      | 5         | 1.169<br>df = 1 | 22                           |          |
| No                                     | 1                       | 2         |                 | 2                            | -        |
| <b>Family History Uterine disorder</b> |                         |           |                 |                              |          |
| Yes                                    | 3                       | 1         | 0.079<br>df = 1 | 8                            |          |
| No                                     | 17                      | 8         |                 | 32                           | -        |
| <b>History Fibroid uterus</b>          |                         |           |                 |                              |          |
| Yes                                    | 14                      | 6         | 0.000<br>df = 1 | 28                           |          |
| No                                     | 7                       | 3         |                 | 12                           | -        |

|                                    |    |   |        |    |   |
|------------------------------------|----|---|--------|----|---|
| <b>History of uterine tumor</b>    |    |   |        |    |   |
| Yes                                | -  | - |        |    |   |
| No                                 | 21 | 9 |        | 40 | - |
| <b>History Contraceptive Usage</b> |    |   |        |    |   |
| Yes                                | 13 | 6 | 0.062  | 28 |   |
| No                                 | 8  | 3 | df = 1 | 12 | - |
| <b>History DUB</b>                 |    |   |        |    |   |
| Yes                                | 10 | 1 | 3.616  | 27 |   |
| No                                 | 11 | 8 | df = 1 | 13 | - |
| <b>History of dysmenorrhea</b>     |    |   |        |    |   |
| Yes                                | 18 | 9 | 1.429  | 34 |   |
| No                                 | 3  | 0 | df = 1 | 6  | - |
| <b>Pattern of menstrual Cycle</b>  |    |   |        |    |   |
| Regular                            | 18 | 7 | 0.286  | 28 |   |
| Irregular                          | 3  | 2 | df = 1 | 12 | - |

It was noted from the table 19 it can be revealed there was significant association between clinical variables and level of satisfaction of patients in control group. Hence the null hypothesis  $H_{05}$  was rejected with regard to the co morbidity.

**Table 20**

**Association Between Selected Clinical Variables and Patient's Outcome in Control and Experimental Group of Patients Undergoing Hysterectomy.** (Height ,Weight, BMI, Presence of co morbid, Treatment of Comorbidity, Family History of Uterine Disorders, History of Fibroid uterus, History of DUB, History of Uterine Tumour, History of Contraceptives, History of dysmenorrhoea, Pattern of Menstrual Cycle)

| Clinical variables          | Control Group<br>n=30 |          | Experimental Group<br>n=40 |          |
|-----------------------------|-----------------------|----------|----------------------------|----------|
|                             | n                     | $\chi^2$ | n                          | $\chi^2$ |
| <b>Height in cm</b>         |                       |          |                            |          |
| 141 to 150                  | 2                     |          | 3                          |          |
| 151 to 155                  | 8                     | -        | 19                         | -        |
| 156 to 160                  | 17                    |          | 22                         |          |
| >165                        | 3                     |          | 5                          |          |
| <b>Weight in Kg</b>         |                       |          |                            |          |
| 40 to 50                    | 5                     |          | 5                          |          |
| 51 to 60                    | 12                    | -        | 18                         | -        |
| 61 to 70                    | 10                    |          | 11                         |          |
| >70                         | 3                     |          | 6                          |          |
| <b>BMI</b>                  |                       |          |                            |          |
| 19 - 24.9 kg/m              | 28                    |          | 38                         |          |
| 25 - 29.9 kg/m              | 1                     |          | 1                          |          |
| 30 - 34.9 kg/m              | 1                     | -        | 1                          | -        |
| 35 - 39.9 kg/m              | -                     |          |                            |          |
| 40 kg/m                     |                       |          |                            |          |
| <b>Presence of comorbid</b> |                       |          |                            |          |
| Yes                         | 18                    |          | 24                         |          |
| No                          | 12                    | -        | 16                         | -        |

|  |    |   |    |   |
|--|----|---|----|---|
| <b>Treatment of Co-morbid</b>          |    |   |    |   |
| Yes                                    | 15 |   | 22 |   |
| No                                     | 3  | - | 2  | - |
| <b>Family History Uterine Disorder</b> |    |   |    |   |
| Yes                                    | 4  |   | 8  |   |
| No                                     | 25 | - | 32 | - |
| <b>History Fibroid uterus</b>          |    |   |    |   |
| Yes                                    | 20 |   | 28 |   |
| No                                     | 10 | - | 12 | - |
| <b>History of uterine tumour</b>       |    |   |    |   |
| Yes                                    |    |   |    |   |
| No                                     | 30 | - | 40 | - |
| <b>History Contraceptive Usage</b>     |    |   |    |   |
| Yes                                    | 19 |   | 28 |   |
| No                                     | 11 | - | 12 | - |
| <b>History DUB</b>                     |    |   |    |   |
| Yes                                    | 11 |   | 27 |   |
| No                                     | 19 | - | 13 | - |
| <b>History of dysmenorrhoea</b>        |    |   |    |   |
| Yes                                    | 27 |   | 34 |   |
| No                                     | 3  | - | 6  | - |
| <b>Pattern of menstrual Cycle</b>      |    |   |    |   |
| Regular                                | 25 |   | 28 |   |
| Irregular                              | 5  | - | 12 | - |

From the data presented in table 20 it can be revealed that there was no association between clinical variable and outcome of patients undergoing hysterectomy in control group and experimental group. No statistics could be applied to find the association between clinical variables and the patient outcome. Hence the null hypothesis  $H_{05}$  was retained.

## **Summary**

This chapter has dealt with analysis and interpretation of the data obtained by the researcher. The analysis showed that the post test knowledge of nurses were improved. The patient satisfaction, patient outcome and practice of nurses were higher in experimental group after implementation of clinical pathway.

## **CHAPTER V**

### **DISCUSSION**

#### **Statement of the Problem**

A quasi experimental study to assess the effectiveness of clinical pathway for patients undergoing hysterectomy upon the knowledge and practice of nurses and patient outcomes at Apollo hospitals, Chennai.

#### **Objectives of the Study**

##### **The objectives of the study**

1. To assess the pre and post test level of knowledge and practice of nurses regarding clinical pathway for patients undergoing hysterectomy.
2. To evaluate the effectiveness of clinical pathway for patients undergoing hysterectomy upon the knowledge and practice of nurses.
3. To assess and compare the patients outcome in control and experimental group regarding clinical pathway for patients undergoing hysterectomy.
4. To determine the level of satisfaction upon clinical pathway for hysterectomy in the control and experimental group of hysterectomy patients.
5. To determine the association between the selected demographic variables of nurses with their pre and post test level of knowledge regarding clinical pathway for patients undergoing hysterectomy.
6. To determine the association between the selected demographic variables of hysterectomy patients with patients outcome and level of satisfaction in control and experimental groups.

7. To determine the association between the selected clinical variables with patients outcome and level of satisfaction in control and experimental groups of patients undergoing hysterectomy.

This study was carried upon 70 patients and 30 nurses with hysterectomy in A ,B and General wards, Apollo hospitals, Chennai .The researcher conducted the study among the nurses upon their level of knowledge and the practice before and after administration of clinical pathway, among the patients undergoing hysterectomy with their level of satisfaction and the patients outcome in the control and experimental group.

The discussion is presented under the following heading:

- Demographic variables of nurses in pre & post test with the level of knowledge.
- Demographic variables of control and experimental group of patients undergoing hysterectomy.
- Clinical variables of control and experimental group of patients undergoing hysterectomy.
- Comparison of mean and standard deviation of pre and post test knowledge scores of nurses regarding clinical pathway for hysterectomy.
- Comparison of Mean and Standard Deviation of Pre and Post test Knowledge of Nurses in various Dimensions of Clinical Pathway for patients undergoing hysterectomy.
- Comparison of mean and standard deviation of practice scores of patients in the control and experimental group.
- Comparison of Mean and Standard Deviation of level of Patient Satisfaction in

Control and Experimental group of patients undergoing hysterectomy.

- Comparison of Mean and Standard Deviation of Level of Patient Satisfaction in various Dimensions in Control and Experimental group of patients undergoing hysterectomy.
- Comparison of Mean and Standard Deviation of Patient Outcome in Control and Experimental group of patients.
- Association between selected Demographic Variables and Pre and Post test Knowledge of nurses regarding clinical Pathway on patients undergoing hysterectomy.
- Association between selected Demographic Variables of patients and their Level of Satisfaction and outcome in Control and Experimental group of patients undergoing hysterectomy.
- Association between selected Clinical Variables of patients and their Level of Satisfaction and Outcome for Control and Experimental group of patients undergoing hysterectomy

### **Demographic variables of nurses**

In this study most of the staff nurses had B.Sc (N) Qualification (66.67%), so it is suggestive that the number of B.Sc (Nurses) have increased, as everyone is opting graduate programme than diploma. Higher the educational qualification, greater the practical skills to provides standard quality of care.

This view was highlighted by Fero et al., (2010) in a study conducted to identify critical thinking skills and learning needs of new and experienced nurses. Controlling the level of educational preparation, associate ( $P = 0.007$ ) and baccalaureate ( $P <$

0.0001) nurses were more likely to meet patient expectations as years of experience increased; a similar trend was not seen for diploma nurses ( $P = 0.10$ ). Controlling for years of experience, new graduates were less likely to meet expectations compared with nurses with  $\geq 10$  years experience ( $P = 0.046$ ).

Majority of the nurses did not have previous information regarding clinical pathway (86.67%) before the administration. This findings denotes that it can be due to lack of in service education and lack of interest among the nurses to update their knowledge. Nurses need to be educated on clinical pathway and to be insisted to follow the pathway. Many new techniques and nursing care delivery methods incorporated into their practice but the clinical pathway help the nurses to provide continuous quality care.

### **Demographic variables of patients undergoing hysterectomy**

The researcher found that the majority of the patients were in the age group of 41 to 50 years (57.50%, 50%) in experimental group and control group respectively. Hence the researcher found that most of the uterine disorders occur during premenopausal and menopausal period. The hormonal imbalance, poor muscle tone and thyroid disorder were commonly found for patient undergoing hysterectomy in this age group. When nurses came across patients with such risk factors, she should educate them about the importance of nutrition, exercise such as kegel exercise and pelvic floor exercise and proper screening.

CDC has provided epidemiologic surveillance of hysterectomies performed on women 15-44 years of age; This report provides an analysis of the influence of age,

race, geographic region, and surgical approach on hysterectomy rates for 2001-2002.

Researcher found that the majority of the patients in the control and experimental group had undergone normal vaginal delivery (80%, 70%). Most of the hysterectomy patients were found to have history of vaginal delivery. This denotes that increased number of vaginal delivery may lead to poor muscle tone and relaxation of pelvic muscles. Women need to be educated and encouraged to do the exercises such as pelvic floor exercise, kegels exercise and breathing technique to strengthen the pelvic floor muscles.

This study findings was consistent with study findings of the Bodelon C 2009 conducted a study to identify factors associated with peripartum hysterectomy performed within 30 days postpartum. As compared with vaginal delivery, vaginal delivery after caesarean (27 cases compared with 105 controls; OR 1.9, 95% CI 1.2-3.0), primary cesarean (270 compared with 504; or 4.6, 95% CI 3.5-6.0), and repeat cesarean (296 compared with 231; or 7.9, 95% CI 5.8-10.7) increased the risk of peripartum hysterectomy.

### **Clinical variables of patients undergoing hysterectomy**

Most of the patients with or without DUB in the experimental and control group were having fibroid uterus (70%, 66.67%). This findings indicate that fibroid uterus is the primary indication for hysterectomy. Environmental changes, hormonal imbalance, hereditary factors are the main risk factors to develop fibroid uterus. The nurses should educate the patient's lifestyle modifications and conservative management of fibroids.

This study findings was consistent with study findings of Becker ER (1998; 2002) to analyze the impact of patient and organizational characteristics on surgical treatment patterns for patients with uterine fibroids. More than 1.2 million patients with a primary diagnosis of uterine fibroids were treated from 1998 to 2002. Of these, 84.4% received a hysterectomy and 12.3% received a myomectomy. Total abdominal hysterectomy was the most common procedure.

Most of the patients in experimental group and control group (67.50%, 37.67%) were having DUB. The findings that DUB is an second most important indication for hysterectomy and it is one of the common symptom of fibroid uterus. Extreme emotional stress and excessive exercise is one of risk factor of the dysfunctional uterine bleeding. Clinical pathway for patients undergoing hysterectomy is included the psychological aspects, exercises, education. Nurse should educate the psychological aspects, exercise, importance of menstrual calendar to the patients.

It is supported by Rubina Bashir. This study was conducted in the Department of Gynaecology, Ayub Teaching Hospital, Abbottabad, Iran. Indications, complications and mortality associated with hysterectomy were assessed with a total 316 hysterectomies performed in two years. Major Indications for hysterectomies were dysfunctional uterine bleeding (38%) and fibroid uterus, (27%) followed by prolapse (22%). Complications developed in 14% out of these. It was found that frequency of complications in fibroid uterus was higher (1.2%) than that for Dysfunctional uterine bleeding (DUB) (1.0%).

### **Comparison of mean and standard deviation of pre and post test knowledge scores of nurses regarding clinical pathway for hysterectomy**

Mean and standard deviation of level of knowledge of nurses were low in the pre-test (M=15.30, SD=3.46) in comparison to the post-test (M=26.87, SD=1.52). The difference was statistically proved at 99.9% level of confidence and it shows that effectiveness of clinical pathway upon the nurses. Hence the null hypothesis  $H_{01}$  was rejected.

Educating nurses on clinical pathway for patients undergoing hysterectomy has improved their knowledge, which in turn helps them to practice nursing intervention in an effective manner. This fills the gap between the nurse patient relationships. These findings establish that clinical pathway is an effective guideline program to improve the knowledge of nurses.

### **Comparison of Mean and Standard Deviation of Pre and Post test Knowledge of Nurses in various Dimensions of Clinical Pathway for patients undergoing hysterectomy.**

Mean and standard deviation of Knowledge on clinical pathway was low in pre test in all aspects of care and high in the post test. This shows that the knowledge of the nurses improved after implementation of clinical pathway that is Clinical pathway (M=0.32, SD=0.80; M=1.25, SD=1.2), Pre op and post op care (M=0.46, SD=0.90; M=1.66, SD=2.32), oxygen administration (M=0.4, SD=0.97; M=1.08, SD=1.70), Nutrition (M=0.60, SD=0.920; M=1.8, SD=2.35), position and exercise (M=0.60, SD=0.82; M=1.55, SD=1.80), wound care (M=0.72, SD= 1; M=1.46, SD=1.72) and

patient education (M=0.7, SD=0.87; M=1.43, SD=1.61) respectively. The difference was statistically proved at 99.9% level of confidence and it was attributed to the effectiveness of clinical pathway upon the nurses in various aspects of care.

Nurses were not aware about the clinical pathway before implementation. It can be due to lack of adequate in service education and also lack of time to spend in reading the books and journals. After implementation of clinical pathway for patients undergoing hysterectomy, nurses started to concentrate on various aspects of patients care. Clinical pathway is based on 14 basic needs, so the nurses acquire adequate knowledge in all aspects in post test.

#### **Comparison of mean and standard deviation of practice scores of patients in the control and experimental group of patients undergoing hysterectomy**

Mean and standard deviation of practice scores of nurses were high in after the clinical pathway administration (M=322.02, SD=5.63) in comparison to the before clinical pathway administration (M=260.56, SD=2.8). The difference was statistically proved at 99.9% level of confidence and it shows the effectiveness of clinical pathway upon the nurses on patients undergoing hysterectomy. Hence the null hypothesis  $H_{01}$  was rejected.

Patients were receiving standard nursing care, but by the implementation of clinical pathway for patients undergoing hysterectomy nurses provides comprehensive and holistic care, which in turn enhances the well being of the patient and practice of nurses. Clinical pathway helps to improve practice standards of the nurses.

Similar findings were obtained by Chang et al., (2002), who conducted a

retrospective study to evaluate the impact on costs and quality of care based on clinical pathway for laparoscopy-assisted vaginal hysterectomy. This retrospective study involved a sample of 124 patients who underwent LAVH in a medical center in central Taiwan. The preclinical pathway group comprised of 40 patients who underwent LAVH before clinical pathway implementation (May-December 2001). The clinical pathway group included 84 patients who underwent LAVH after implementation of the clinical pathway (January 2002-March 2003). The results showed a significant reduction in cost, average length of hospital stay, and average duration of surgery and anesthesia ( $p < 0.01$ ).

#### **Comparison of mean and standard deviation of level of patient satisfaction in control and experimental group of patients undergoing hysterectomy**

The mean and standard deviation of satisfaction in the control group ( $M=121.93$ ,  $SD= 9.52$ ) were less when compared to the experimental group of patients undergoing hysterectomy ( $M=147.2$ ,  $SD=9.62$ ), which indicates that the experimental group of patients are highly satisfied. The level of confidence was 99.9% and it shows that effectiveness of clinical pathway upon the patients satisfaction. Hence the null hypothesis  $H_0$  was rejected.

These findings indicate that clinical pathway for patients undergoing hysterectomy was very effective in improving the quality of care, reduce the hospitalization, and improve patient satisfaction. Nurses concentrating mainly on the physical care of the patient, but they were not focusing much on psychological, spiritual aspects and patient education. After implementation of clinical pathway for patients

undergoing hysterectomy they were able to focus on all aspects of care like holistic approach.

This view have been emphasized by Carol (2008-2009) in a study to explore the path to care in the Application of hysterectomy patients.64 patients were randomly divided into experimental and control group of 32 cases each .The knowledge of health care workers and patient satisfaction was more in the experimental group compared to the control group (P <0.05). Implementation of nursing clinical pathway can reduce uterine fibroid hospitalization time, reduce hospitalization costs, while improving patient satisfaction and knowledge level of Nurses, thereby improving the quality of care.

#### **Comparison of mean and standard deviation of level of patient satisfaction in various dimensions in control and experimental group of patients undergoing hysterectomy**

Mean and standard deviation of satisfaction (M=17.33, SD=3.22), (M=17.06, SD=2.81), (M=14.7, SD=2.57), (M=14.35,SD=2.52) in control group of patients components was less compared to the experimental group (M=19.62, SD=0.74), (M=19.52, SD=1.012), (M=18.25, SD=1.48), (M=18.05, SD=1.66) of patients undergoing hysterectomy. This shows that significant difference was found in spiritual needs communication, family involvement, health education and discharge plan. The difference was statistically proved at 99.9% level of confidence and can be attributed to the effectiveness of clinical pathway upon patient's satisfaction of the hysterectomy.

These findings establish that after implementation of clinical pathway level of satisfaction improved regarding aspects such as spiritual needs communication, family involvement, health education and discharge plan. It shows that nurses are involving the family members in client care they are able to concentrate the psychological aspects of the patient by maintaining the effective nurse patient relationship. Before implementation of pathway patients knowledge regarding care is very less. Now the patients receiving the health education based on their condition so the patient satisfaction is improved.

Sangs et al. (2008-2009) conducted an experimental study to explore the value of clinical pathway who underwent hysterectomy. 64 cases of patients with uterine fibroids were randomly divided into experiment and control group. Clinical pathway is applied to the nurses of the experimental group while conventional nursing was applied to the control group. Hospitalization, time and cost of the treatment group was significantly lower than that of the control group ( $p < 0.05$ ). Patient satisfaction and acquired knowledge during hospital stay were significantly more than the control group ( $p < 0.05$ ). Application of clinical pathway by nurses for patients undergoing hysterectomy can shorten the hospitalization time, lower the cost, raise patient satisfaction and help them acquire knowledge regarding clinical pathway.

#### **Comparison of mean and standard deviation of patient outcome in control and experimental group of patients**

The mean and standard deviation of outcome of hysterectomy patients in the control group ( $M=2.97$ ,  $SD=3.61$ ) were greater when compared to the experimental group ( $M=0.52$ ,  $SD= 1.32$ ). This indicates the experimental group of patients did not

develop complications. The difference was statistically proved at 99.9% level of confidence and it shows that effectiveness of clinical pathway upon the patients outcome of the hysterectomy patients. Hence the null hypothesis  $H_0$  was rejected.

The interpretation from the findings was that patients who received the intervention of clinical pathway had positive outcome. Clinical pathway leads to continuous monitoring of regulatory functions of patient and fulfillment of nutrition, elimination, hygiene, sleep, comfort and communication needs. This supports the evidence, that patient outcomes are positive and patients complications are reduced because of integrated care pathway.

Broder MS (June 2002 to January 2003) conducted a study on Improving treatment outcomes with a clinical pathway for hysterectomy and myomectomy at USA. Case-control design was adopted to compare administrative and clinical data for patients managed with ( $n = 28$ ) and without ( $n = 28$ ) the aid of the clinical pathway. . Clinical differences between pathway and nonpathway patients included a mean six-hour-shorter period of indwelling bladder catheters ( $P = .019$ ), mean 11-hour more rapid return to regular diet ( $P = .014$ ) and more pain assessments among pathway patients (mean, five vs. two;  $P < .001$ ). There was no significant difference in length of stay between groups. Clinical pathways can improve quality of care, even if they do not reduce length of stay and improve clinical outcome.

**Association between selected demographic variables and pre and post test knowledge of nurses regarding clinical pathway on patients undergoing hysterectomy**

There is no association between the age, educational qualification, marital status

and years of experience, religion, previous information in the level of knowledge for the nurses in the pre & post-test. It has proven that there no is association between the selected demographic variables and level of knowledge. Hence the null hypothesis Ho<sub>3</sub> was retained with regard to age, educational qualification, marital status and years of experience, religion, previous information.

Irrespective of demographic variables of nurses the nurse's knowledge improved regarding clinical pathway for patients undergoing hysterectomy and also it denotes clinical pathway for patients undergoing hysterectomy is effective.

**Association between selected Demographic Variables of patients and their Level of Satisfaction and outcome in Control and Experimental group of patients undergoing hysterectomy**

There was association between demographic variables and level of satisfaction in the control group of patients undergoing hysterectomy. Hence the null hypotheses Ho<sub>4</sub> was rejected with regard to education and occupation. Most of the patients in the experimental and control group were graduates (52.50%, 40.00%).

Findings suggest that there is an association between the level satisfaction and education and occupation. It suggests that level of understanding of the educated people is better. They can able to identify the limitations of care provided by the nurses since they know the limitations. Educated people have better compliance to care and they know the rationale for each activities.

This view was highlighted by Nadine (1992) Women of lower socioeconomic status (SES) are more likely than higher SES women to undergo a hysterectomy. Data

for this study came from the Wisconsin Longitudinal Study, a longterm study of a random sample of 10317 men and women who graduated from Wisconsin high schools in 1957. Data were collected from the original respondents, their parents, or administrative records from 1957 through 1975. In 1992 and 1993, telephone interviews were completed with 89.9% of living respondents. These results suggest that higher education's association with lower rate of hysterectomy is not due to ability, but due to the opportunities that more educated women have for higher status employment and health related benefits. Women who had never worked before age 35 or 36 were at the greatest risk: their odds were about 32% higher than those of working high-occupational-status women.

There was no association between demographic variable and outcome of patients undergoing hysterectomy in control group and experimental group. No statistics could be applied to find the association between demographic variables and the patient outcome. Since the patients fall in the category of positive outcome. Hence the null hypothesis  $H_{04}$  was retained.

**Association between selected clinical variables of patients and their level of satisfaction and outcome for control and experimental group of patients undergoing hysterectomy**

There was significant association between clinical variables and level of satisfaction of patients in control group. Hence the null hypothesis  $H_{05}$  was rejected with regard to the co morbidity. Presence of any co-morbid illness and its management also plays a role in a patients satisfaction. Most of the patients having the history of

thyroid disorder. Even though the patient having co morbidity, they are receiving appropriate care. Their present desires are fulfilled, so this care makes the patient satisfied.

There was no association between clinical variable and outcome of patients undergoing hysterectomy in control group and experimental group. No statistics could be applied to find the association between clinical variables and the patient outcome. Since all patients fall in the category of positive put come. Hence the null hypothesis  $H_0$  was retained.

### **Summary**

This chapter has dealt about the discussion of various aspects of the study findings. These findings explain demographic variables of nurses, demographic and clinical variables of the hysterectomy patients. It has also dealt level of knowledge and their practice scores in the pre-test and post test, patients level of satisfaction and outcome in the control and experimental group of patients undergoing hysterectomy. The discussion has been made with various research articles and current statistical data presented with the studies published that support the journal findings.

## **CHAPTER VI**

### **SUMMARY, CONCLUSION, IMPLICATION AND RECOMMENDATIONS**

#### **Summary**

The heart of the study is writing report of the findings. The researcher concise the whole study and made it for future references. This chapter includes summary, conclusion, implication and recommendation.

A quasi experimental study to assess the effectiveness of clinical pathway for patients undergoing hysterectomy upon the knowledge and practice of nurses and patient outcomes at Apollo hospitals, Chennai

#### **Objectives of the study were**

1. To assess the pre and post test level of knowledge and practice of nurses regarding clinical pathway for patients undergoing hysterectomy.
2. To evaluate the effectiveness of clinical pathway for patients undergoing hysterectomy upon the knowledge and practice of nurses.
3. To assess and compare the patients outcome in control and experimental group regarding clinical pathway for patients undergoing hysterectomy.
4. To assess and compare the level of satisfaction upon clinical pathway for hysterectomy in the control and experimental group of hysterectomy patients.
5. To determine the association between the selected demographic variables of nurses with their pre and post test level of knowledge regarding clinical pathway for patients undergoing hysterectomy.

6. To determine the association between the selected demographic variables of hysterectomy patients with patients outcome and level of satisfaction in control and experimental groups.
7. To determine the association between the selected clinical variables with patients outcome and level of satisfaction in control and experimental groups of patients undergoing hysterectomy.

### **Null Hypotheses**

- Ho<sub>1</sub>** There will be no significant difference between pre and post test level of knowledge and practice of nurses regarding clinical pathway for patients undergoing hysterectomy.
- Ho<sub>2</sub>** There will be no significant difference in the patients outcome and level of satisfaction between the control and experimental group of patients undergoing hysterectomy.
- Ho<sub>3</sub>** There will be no significant association between selected demographic variables with their pre and post test level of knowledge among nurses regarding clinical pathway for patients undergoing hysterectomy.
- Ho<sub>4</sub>** There will be no significant association between selected demographic variables with patients outcome and the level of satisfaction in control and experimental group of patients undergoing hysterectomy.
- Ho<sub>5</sub>** There will be no significant association between selected clinical variables with patient's outcome and the level of satisfaction in control and experimental group of patients undergoing hysterectomy.

## **Major findings of the study**

### **Demographic variables of the nurses**

Majority of the nurses were unmarried (90%), between the age group of 22 to 26 (80%), have 0 to 2 years of experience (86, 67%), and had no previous information about clinical pathway (86.67%). Most of them were in the educational status of B.Sc (N) (66.67), belong to the Christian religion (50%).

### **Demographic variables of the hysterectomy patients**

Most of them in the control group were between the age group of 41 to 50 year (50%), and majority of the patients undergone normal vaginal delivery (80%) and had co morbid illness (80%).

Most of the patients in the experimental group between the age group of 41 to 50 years (57.50%), undergone normal vaginal delivery (70%) and had co morbid illness (60%).

### **Clinical variables of the patients undergoing hysterectomy**

Majority of the patients in the control and experimental group had BMI between 19 to 24.9 (93.33%, 95%) and regular pattern of menstrual flow (83.33%, 70%). Most of them had the history of fibroid uterus (66.7%, 60%), and the presence of co-morbidity (60%, 60%) respectively.

### **Comparison of mean and standard deviation of pre and post test knowledge scores of nurses regarding clinical pathway for hysterectomy**

Mean and standard deviation of level of knowledge of nurses were low in the pre-test (M=15.30, SD=3.46) in comparison to the post-test (M=26.87, SD=1.52). The

difference was statistically proved at 99.9% level of confidence and it shows that effectiveness of clinical pathway upon the nurses . Hence the null hypothesis  $H_{01}$  was rejected.

**Comparison of mean and standard deviation of pre and post test knowledge of nurses in various dimensions of clinical pathway for patients undergoing hysterectomy.**

Mean and standard deviation of Knowledge on clinical pathway low in pre test in all aspects of care and High in the post test. This shows that the knowledge of the nurses improved after implementation of clinical pathway that is Clinical pathway(M=0.32, SD=0.80; M=1.25, SD=1.2), Pre op and post op care(M=0.46, SD=0.90; M=1.66, SD=2.32), oxygen administration (M=0.4, SD=0.97; M=1.08, SD=1.70), Nutrition (M=0.60, SD=0.920; M=1.8, SD=2.35), position and exercise (M=0.60, SD=0.82; M=1.55, SD=1.80), wound care (M=0.72, SD= 1; M=1.46, SD=1.72) and patient education (M=0.7, SD=0.87; M=1.43, SD=1.61) respectively. The difference was statistically proved at 99.9% level of confidence and it was attributed that the effectiveness of clinical pathway upon the nurses in various aspects of care.

**Comparison of mean and standard deviation of practice scores of patients in the control and experimental group**

Mean and standard deviation of practice scores of nurses were high in after the clinical pathway administration (M=322.02, SD=5.63) in comparison to the before clinical pathway administration (M=260.56, SD=2.8).The difference was statistically proved at 99.9% level of confidence and it shows the effectiveness of clinical pathway upon the nurses on patients undergoing hysterectomy. Hence the null hypothesis  $H_{01}$

was rejected.

Mean and standard deviation of practice of nurses in control group were less compared to the experimental group of patients undergoing hysterectomy. This shows the practice of the nurses in pre op in control and experimental group (M=121.6, SD=5.34; M=154, SD=1.1), day 0 (M=118.3, SD=2.1; M=134.3, SD=1.36), day 1 (M=83.2, SD=2.3; M=98.6, SD=1.28), day 2 (M=67.2, SD=7.18; M=86.5, SD=1.54), day 3 (M=123.2, SD=6.27; M=155.2, SD=1.4) respectively . The difference was statistically proved at 99% level of confidence and it was attributed that the practice of nurses in clinical pathway for patients undergoing hysterectomy was effective in experimental group.

**Comparison of mean and standard deviation of level of patient satisfaction in control and experimental group of patients undergoing hysterectomy.**

The mean and standard deviation of satisfaction in the control group (M=121.93, SD= 9.52) were less when compared to the experimental group of patients undergoing hysterectomy (M=147.2, SD=9.62), which indicates that the experimental group of patients are highly satisfied. The level of confidence was 99.9% and it shows that effectiveness of clinical pathway upon the patients satisfaction. Hence the null hypothesis  $H_0$  was rejected.

**Comparison of mean and standard deviation of level of patient satisfaction in various dimensions in control and experimental group of patients undergoing hysterectomy**

Mean and standard deviation of satisfaction (M=17.33, SD=3.22), (M= 17.06, SD=2.81), (M=14.7, SD=2.57), (M=14.35, SD=2.52) in control group of patients components was less compared to the experimental group (M=19.62, SD=0.74), (M=19.52, SD=1.012), (M=18.25, SD=1.48), (M=18.05, SD=1.66) of patients undergoing hysterectomy. This shows that significant difference was found in spiritual needs communication, family involvement, health education and discharge plan. The difference was statistically proved at 99.9% level of confidence and can be attributed to the effectiveness of clinical pathway upon patient's satisfaction of the hysterectomy.

**Comparison of mean and standard deviation of patient outcome in control and experimental group of patients**

The mean and standard deviation of outcome of hysterectomy patients in the control group (M=2.97, SD=3.61) were greater when compared to the experimental group (M=0.52, SD= 1.32). This indicates the experimental group of patients are not developed complications. The difference was statistically proved at 99.9% level of confidence and it shows that effectiveness of clinical pathway upon the patients outcome of the hysterectomy patients. Hence the null hypothesis  $H_{o2}$  was rejected.

**Association between selected demographic variables and pre and post test knowledge of nurses regarding clinical pathway on patients undergoing hysterectomy**

There is no association between the age, educational qualification, marital status

and years of experience, religion, previous information in the level of knowledge for the nurses in the pre & post-test. It has proven that there no is association between the selected demographic variables and level of knowledge. Hence the null hypothesis  $H_{o3}$  was retained with regard to age, educational qualification, marital status and years of experience, religion, previous information.

**Association between selected demographic variables of patients and their level of satisfaction and outcome in control and experimental group of patients undergoing hysterectomy**

There was association between demographic variables and level of satisfaction in the control group of patients undergoing hysterectomy. Hence the null hypotheses  $H_{o4}$  was rejected with regard to education and occupation.

There was no association between demographic variable and outcome of patients undergoing hysterectomy in control group and experimental group. No statistics could be applied to find the association between demographic variables and the patient outcome. Hence the null hypothesis  $H_{o4}$  was retained.

**Association between selected clinical variables of patients and their level of satisfaction and outcome for control and experimental group of patients undergoing hysterectomy**

There was significant association between clinical variables and level of satisfaction of patients in control group. Hence the null hypothesis  $H_{o5}$  was rejected with regard to the co morbidity.

There was no association between clinical variable and outcome of patients

undergoing hysterectomy in control group and experimental group. No statistics could be applied to find the association between clinical variables and the patient outcome. Hence the null hypothesis  $H_{05}$  was retained.

### **Conclusion**

This study shows that effectiveness of the clinical pathway on patients undergoing hysterectomy. The researcher found that there is increase in knowledge after post-test among the nurses with practice of clinical pathway checklist. Among the hysterectomy patients in the control and experimental group, the level of satisfaction and clinical outcome differs with slight significant differences. Finally the researcher reveals that the clinical pathway is very essential for practicing the nursing care activities among all groups of clients with varying clinical conditions.

### **Implications**

Health is the right as well as responsibility of every individual. A high level of wellness cannot be purchased but has to be maintained through individual efforts. Nursing personnel in their day to day work identify the problems of gynecological patients and educate regarding personal hygiene, exercise, healthy diet. The findings of the study has implications in the different branches of nursing profession i.e. nursing practice, nursing education, nursing administration and nursing research, nursing theory. By assessing the effectiveness of clinical pathway for patients undergoing hysterectomy, we get a clear picture regarding different steps to be taken in all fields to improve the standards of nursing profession.

### **Nursing practice**

Clinical pathway can provide continuity, coordination of care and improve the patient outcome. Such pathways can be used in the clinical settings for normal vaginal delivery; LSCS and other gynecological conditions .clinical pathway provide stepwise guidelines for the nurses to practice nursing intervention in an efficient manner.

### **Nursing education**

Clinical pathway should be taught in the basic nursing curriculum. The education to the students and the nurses in the clinical area could be in the form of continuing nursing education programs on clinical pathway for patients undergoing hysterectomy. The research findings serves as a guide to evidence based practice and hence the student should be informed about the research findings.

### **Nursing administration**

Clinical pathway supports the clinical and non clinical management. So, the administrators have a responsibility to support the development of clinical pathway and they should provide facilities for implementation of clinical pathway. Nurse administrators should conduct periodical review meetings to evaluate and revise the quality of clinical pathway.

### **Nursing research**

Clinical pathway is using as an audit tool identify the characteristics of care .Scope should be more for clinical pathway in the field of research. As evidence based practice is the recent trend in obstetrics and gynecological nursing, this will further encourage studies on the effectiveness of clinical pathway upon the knowledge and

practice of nurses and patient outcome. Clinical pathway developed for various conditions and implemented into the practice. Dissemination of the findings of evidence based practice through conferences, seminars, publications in national and international nursing journals and World Wide Web will benefit a wider community.

### **Nursing theory**

The conceptual framework for the present study is based on Roy's adaptation model views the person as an adaptive system in constant interaction with an internal and external environment. This framework was chosen as it illustrates the stimuli that influence the hysterectomy patients and the effect of clinical pathway on patient satisfaction and outcome. This model provides a framework to identify needs of the patients in an organised manner and it can be used to educate and guide the nurses.

### **Recommendations**

- A similar study can be conducted in different settings.
- A comparative study between two clinical settings can also be conducted
- The same study can be conducted with a larger number of samples of hysterectomy patients.
- A similar study can be conducted by using prospective study and retrospective study design.
- A comparative study can be conducted in different clinical pathways to evaluate the best practices.
- A study can be conducted among nursing personnel for each of their nursing activities.
- A study can be conducted for other clinical conditions.

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## APPENDIX I

### LETTER SEEKING PERMISSION TO CONDUCT STUDY



To

Ms.Punitha Singh  
Asst. Nursing Director  
Apollo Main Hospitals,  
Greams Road  
Chennai – 600 006.

Dear Ms.Punitha ,

Sub.: To request permission for research study – Reg.

**Greetings!** As part of the curriculum requirement our 2nd year M. Sc. (N) student Ms.A. Jenifar monisha has selected the following title for her research study.

**“A quasi experimental study to assess the effectiveness of clinical pathway for patients with hysterectomy upon the knowledge and practice of nurses and patients outcome at Apollo Hospitals, Chennai”.**

So I kindly request your goodselves to permit her to conduct study in your esteemed institution.

Thanking You,

  
**Dr. LATHA VENKATESAN**  
**PRINCIPAL**

IS/ISO 9001:2000



Vanagaram to Ambattur Main Road, Ayanambakkam, Chennai - 600 095.  
Ph. : 044 - 2653 4387 Tele fax : 044 - 2653 4923 / 044- 2653 4386

**APPENDIX II**

**LETTER PERMITTING TO CONDUCT STUDY**



**Apollo College of Nursing**

*(Recognised by the Indian Nursing Council and Affiliated to the Tamil Nadu Dr. M.G.R. Medical University, Chennai)*

CO/01276/11

02.06.11

To

The Nursing Director  
Apollo Main Hospitals  
Greems Road  
Chennai – 600 006.

Respected Sir / Madam,

Sub.: To request permission for research study – Reg.

**Greetings!** As part of the curriculum requirement our 2nd year M. Sc. (N) student Ms.A. Jenifar monisha has selected the following title for her research study.

**“A quasi experimental study to assess the effectiveness of clinical pathway for patients with hysterectomy upon the knowledge and practice of nurses and patients outcome at Apollo Hospitals, Chennai”.**

So I kindly request your goodselves to permit her to conduct study in your esteemed institution.

Thanking You,

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**APPENDIX III**  
**ETHICAL COMMITTEE LETTER**

**Ethics Committee**



22 June, 2011

To  
Ms. Jenifar Monisha  
1<sup>st</sup> Year M.Sc (Nursing)  
Dept. of Obstetrics & Gynaecology  
Apollo College of Nursing, Chennai  
Tamil Nadu, India

**Ref:** A quasi experimental study to assess the effectiveness of clinical pathway for patients with hysterectomy upon knowledge and practice of nurses and patients outcome at Apollo Hospitals, Chennai

**Sub:** Your letter dated 9 June, 2011 for approval of the above referenced project and its related documents

Dear Ms. Jenifar Monisha,

Ethics committee – Apollo Hospitals has received the following document submitted by you related to the conduct of the above – referenced study.

- Project Proposal titled “A quasi experimental study to assess the effectiveness of clinical pathway for patients with hysterectomy upon knowledge and practice of nurses and patients outcome at Apollo Hospitals, Chennai”
- Study Performa

The above-mentioned documents have been reviewed and approved (through expedited review) by the Chairman, Vice-Chairman and Member Secretary at a specially convened meeting of the Ethics Committee. The study is hereby approved to be conducted by you in the presented form.

The following Ethics Committee members were present at the meeting held on 22 June, 2011

| Name                     | Profession                              | Position in the committee |
|--------------------------|---|---------------------------|
| Mr. S. S. Narayanan      | Ethicist                                | Chairman                  |
| Dr.Radha Rajagopalan     | Clinician                               | Vice - Chairman           |
| Dr. Jayanthi Swaminathan | Sr.GM Clinical & Collaborative Research | Member Secretary          |

---

Apollo Hospitals Enterprise Limited  
21, Greams Lane, Off Greams Road, Chennai - 600 006  
Tel : 91 - 44 - 2829 3333 Extn : 6008, 91 - 44 - 2829 5465 Extn : 6639 Fax : 91 - 44 - 2829 4449  
E - Mail : [ecapollochennai@gmail.com](mailto:ecapollochennai@gmail.com)

## Ethics Committee

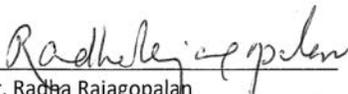
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After due ethical and scientific consideration, the Ethics Committee has approved the above presentation submitted by you. Since your dissertation does not involve any administration of drug(s) or therapeutic composition(s) to patients and involves only interpretation of collected data, the Ethics Committee has decided to waive the requirement of informed consent.

The Ethics Committee is constituted and works as per ICH-GCP, ICMR and revised Schedule Y guidelines.

Yours sincerely,

  
Dr. Radha Rajagopalan  
Ethics Committee – Vice Chairman  
Apollo Hospitals, Chennai

Date 22/6/11

DR. RADHA RAJAGOPALAN  
Vice Chairman  
Ethics Committee  
Apollo Hospitals Enterprise Limited  
Chennai-600 006 Tamil Nadu.

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Apollo Hospitals Enterprise Limited  
21, Greams Lane, Off Greams Road, Chennai - 600 006  
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E - Mail : [ecapollochennai@gmail.com](mailto:ecapollochennai@gmail.com)

## APPENDIX IV

### LETTER REQUESTING OPINIONS AND SUGGESTIONS OF EXPERTS FOR ESTABLISHING CONTENT VALIDITY OF RESEARCH TOOL

From

MS. A. Jenifar Monisha,  
M.Sc., (Nursing) Second Year,  
Apollo College of Nursing,  
Chennai - 600095.

To

Forwarded Through:  
Dr. Latha Venkatesan,  
Principal,  
Apollo College of Nursing.

Sub: **Requesting for opinions and suggestions of experts for establishing content validity for research tool.**

Respected Madam,

I am a postgraduate student of the Apollo College of Nursing, I have selected the below mentioned topic for research project to be submitted to The Tamil Nadu Dr. M.G.R Medical University, Chennai as a partial fulfilment of Masters of Nursing Degree.

#### **TITLE OF THE TOPIC:**

“A quasi experimental study to assess the effectiveness of clinical pathway for patient undergoing hysterectomy upon the knowledge and practice of nurses and patient outcomes at Apollo hospitals, Chennai”

With regards may I kindly request you to validate my tool for its appropriateness and relevancy. I am enclosing the Background, Need for the study, Statement of the problem, Objectives of the study, Demographic Variable Proforma, Clinical Variable Proforma, practice checklist for patients undergoing hysterectomy, rating scale for patient satisfaction, checklist for patients outcome for your reference. I would be highly obliged and remain thankful for your grate help if you could validate and send it as soon as possible.

**Thanking you,**

**Yours sincerely,  
(A. JENIFAR MONISHA)**

## APPENDIX V

### LIST OF EXPERTS

**Dr. Latha Venkatesan., M.Sc (N). M.Phil., Ph.D.,**

Principal cum Professor,  
Apollo College of Nursing,  
Chennai - 600095.

**Dr. Deepa Thangamani., M.D. OG., DNB. OG., MRCOG (UK).,**

Consultant Obstetrician & Gynaecologist,  
Apollo First Med Hospitals,  
Chennai - 600010

**Mrs. Lizy Sonia., M.Sc (N)., Ph.D.,**

Vice Principal cum Professor,  
Apollo College of Nursing,  
Chennai - 600095.

**Ms. Jaslina Gnana Rani., M.Sc (N), Ph.D**

Reader,  
Apollo College of Nursing,  
Chennai - 600095.

**Mrs. Nesa Sathya Satchi, M.Sc (N).,**

Reader  
Apollo College of Nursing,  
Chennai - 600095.

**Mrs.pappy yuvarani, M.Sc (N).,**

Lecturer  
Apollo College of Nursing,  
Chennai - 600095.

**Mrs.Saraswathi, M.Sc (N).,**

Lecturer  
Apollo College of Nursing,  
Chennai - 600095.

**APPENDIX VI  
PLAGIARISM ORIGINALITY REPORT**



**Plagiarism Detector - Originality Report**

Plagiarism Detector Project: [ <http://plagiarism-detector.com> ] Application core version: 557



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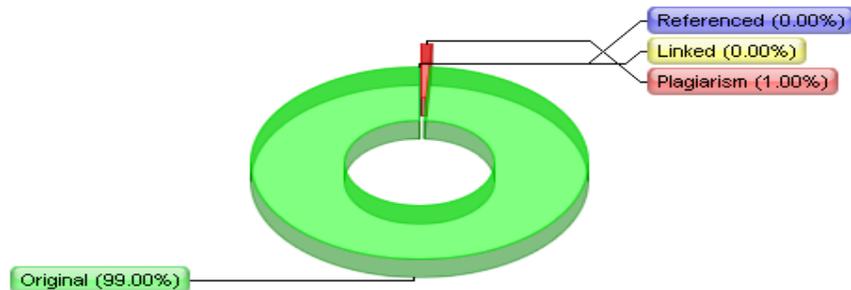
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**APPENDIX VII**  
**RESEARCH PARTICIPANT’S CONSENT FORM**

Dear Participant,

I am A.JENIFER MONISHA, M.Sc. Nursing student of Apollo College of Nursing, Chennai. As a part of my study, I have selected a Research Project on “A quasi experimental study to assess the effectiveness of Clinical Pathway for patients undergoing hysterectomy upon the knowledge and practice of Nurses and patient outcomes at Apollo Hospitals, Chennai.”

I hereby seek your consent and co-operation to participate in the study. Please be frank and honest in your response. The information collected will be kept confidential and anonymity will be maintained.

**Signature of the Researcher**

I ....., hereby give my consent to participate in the study.

**Signature of the Participant**

**APPENDIX VIII**

**CERTIFICATE FOR ENGLISH EDITING  
TO WHOMSOEVER IT MAY CONCERN**

This is to certify that the dissertation titled “**A Quasi Experimental Study to Assess the Effectiveness of Clinical Pathway for Patient with Hysterectomy upon the Knowledge and Practice of Nurses and Patient Outcome at Apollo Hospitals,Chennai.**” by Ms.A.Jenifar Monisha II Year M.Sc.,Nursing student of Apollo College of Nursing was edited for English language appropriateness by,\_\_\_\_\_

**Signature**

*E. Mercy*  
22/1/12  
**E. MERCY, M.A., M.Ed., M.Phil.,**  
**Teacher Educator (SSA)**  
**Block Resource Centre,**  
**Arakkonam.**

## APPENDIX IX

### DEMOGRAPHIC VARIABLE PROFORMA FOR NURSES

#### Purpose:

This Proforma is used by the researcher to collect information on demographic variables of nurses such as age in years, educational status, marital status, year of experience, religion, type of the residential area, income.

#### Instruction:

- Please put a tick mark (✓) in the following options.
- Please be frank in answering.

Sample no:

#### 1. Age in years:

- 1.1 22 to 26 yrs
- 1.2 27 to 31yrs
- 1.3 32 to 36 yrs

#### 2. Educational status

- 2.1 ANM
- 2.2 Diploma in nursing
- 2.3 B.sc nursing

#### 3. Marital status.

- 3.1 Married
- 3.2 Unmarried

**4. Years of experience**

5.1 0-2

5.2 3-5

5.3 6-7

**5. Religion**

5.1 Hindu

5.2 Muslim

5.3 Christian

5.4 Others

**6. Previous information acquired regarding clinical pathway**

6.1 Yes

6.2 No

**APPENDIX X  
DEMOGRAPHIC VARIABLE PROFORMA FOR PATIENTS UNDERGOING  
HYSTERECTOMY**

**Purpose**

This Proforma is used by the researcher to collect information on demographic variables of patients such as age in years, education, occupation ,type of work ,marital status, age at marriage in year, order of pregnancy, mode of delivery number of children's, religion, type of family, comorbidity.

**Instruction**

The researcher collects the following information from the participant by asking questions in the interview form. Please be frank and free in answering. It will be kept confidential and anonymity will be maintained.

**Sample no:**

**1. Age in years**

- 20 to 30 yrs
- 31 to 40 yrs
- 41 to 50 yrs
- 51 yrs

**2. Education**

- 2.1 Non literate
- 2.2 Primary education
- 2.3 high school education
- 2.4 higher secondary education
- 2.5 Graduate
- 2.6 Post-graduate

**3. Occupation**

- 3.1 Employed
- 3.2 House wife

**4. Type of Work**

- 4.1 Heavy worker
- 4.2 moderate worker
- 4.3 sedentary worker

**5. Marital status.**

- 5.1 Married
- 5.2 Unmarried

**6. Age at marriage in years**

- 6.1 <17
- 6.2 18 to 23
- 6.3 24 to 29
- 6.4 30yrs and >30

**7. Mode of previous delivery**

- 7.1 Vaginal delivery
- 7.2 forceps delivery
- 7.3 Vacuum delivery
- 7.4 lower segmental Caesarean delivery
- 7.5 Nil

**8. No of children**

- 8.1 One
- 8.2 Two
- 8.3 More than three
- 8.4 none

**9. Religion**

- 9.1 Hindu
- 9.2 Muslim
- 9.3 Christian
- 9.4 Others

**10. Type of the family**

- 10.1 Nuclear
- 10.2 Joint

**11. Co-morbidity**

- 11.1 Present
- 11.2 Absent

**12. History of usage of contraceptives**

- 12.1 Yes
- 12.2 No

**13. If yes, specify the duration of usage of contraceptives**

**APPENDIX XI  
CLINICAL VARIABLE PROFORMA FOR PATIENTS UNDERGOING  
HYSTERECTOMY**

**Purpose**

This proforma is used to measure clinical variables like height, weight, body mass index, comorbid illness, history of uterine disorder and fibroid uterus, history of contraceptive usage and dysfunctional uterine bleeding, history of dysmenorrhoea and its duration, frequency.

**Instruction**

The researcher collects the following information from the participants by asking questions in the interview form. Please be frank and free in answering .it will be kept confidential and anonymity will be maintained .some of the data gathered by the researcher herself by using biophysical instrument.

**1. Height\_\_\_\_\_cm**

- 1.1 141 to 150
- 1.2 151 to 155
- 1.3 156 to 160
- 1.4 161 to 165
- 1.5 >165

**2. Weight\_\_\_\_\_kg**

- 2.1 40 to 50
- 2.2 51 to 60
- 2.3 60 to 70
- 2.4 >70

**3. Body mass index**

3.1 19-24.9kg/m

3.2 25-29.9kg/m

3.3 30\_34.9kg/m

3.4 35-39.9kg/m

3.5 40kg/m

**4 Presents of comorbid illness**

4.1.yes

4.2 No

**5. If yes specify**

**6. Treatment of comorbid illness**

6.1 yes (if specify)

6.2No

**7. Family history of uterine disorder**

7.1 yes

7.2 No

**8. History of fibroid uterus**

8.1 yes

8.2 No

**9. History Of uterine tumour**

9.1 yes

9.2 No

**10. History of contraceptives usage**

10.1 Yes

10.2 No

**11.If yes specify the type of contraceptive**

**12. History of dysfunctional uterine bleeding**

12.1 Yes

12.2 No

**13 History of dysmenorrhea**

13.1 Yes

13.2 No

**14 pattern of menstrual cycle**

14.1 Regular

14.2 Irregular

**14 .If irregular specify the frequency and duration**

**APPENDIX XII**

**BLUE PRINT**

**STRUCTURED QUESTIONNAIRE ON KNOWLEDGE REGARDING  
HYSTERECTOMY**

| <b>S.NO</b> | <b>CONTENT</b>                           | <b>ITEMS</b>      | <b>TOTAL<br/>ITEMS</b> | <b>PERCENTAGE</b> |
|-------------|--|-------------------|------------------------|-------------------|
| 1           | Clinical Pathway                         | 1,2,3,4,5         | 5                      | 17%               |
| 2           | Preoperative care,<br>Postoperative care | 6,7,8,9,10,11     | 6                      | 20%               |
| 3           | Oxygen administration                    | 12,13,14          | 3                      | 10                |
| 4           | Nutrition and elimination                | 15,16,17,18,19,20 | 6                      | 20%               |
| 5           | Position and exercise                    | 21,22,23,24       | 4                      | 13%               |
| 6           | Dressing                                 | 25,26,27          | 3                      | 10%               |
| 7           | Patient education                        | 28,29,30          | 3                      | 10%               |
|             |  | <b>Total</b>      | <b>30</b>              | <b>100%</b>       |

**STRUCTURED QUESTIONNAIRE ON KNOWLEDGE REGARDING  
HYSTERECTOMY**

**Purpose**

This structured questionnaire is used to collect the information on knowledge of nurses regarding hysterectomy.

**Instructions**

The structured questionnaire consists of multiple choice questions. Please read the questions and the answers given. Place (✓) mark against the right answer for each question. Please be frank in your responses. The information collected will be kept confidential and anonymity will be maintained.

**1. What is clinical pathway?**

- 1.1 Blue print for a plan of care
- 1.2 Mandatory treatment plan
- 1.3 Standard of care
- 1.4 Substitute for physician order

**2. Why Clinical pathways are used?**

- 2.1 Reduce variability and cost
- 2.2 Increase efficiency
- 2.3 Improve patient care
- 2.4 All the above

**3. Who is having more responsible for formulating Clinical pathway?**

- 3.1 Multidisciplinary team members
- 3.2 Individual
- 3.3 Nurses
- 3.4 Researcher

**4. Which of following not termed as Clinical pathway?**

- 4.1 Integrated care pathway
- 4.2 Care maps
- 4.3 Pathway of care
- 4.4 Care protocol

**5. What are all the Components in the clinical pathway?**

- 5.1 Care, outcome, intervention
- 5.2 Outcome, intervention
- 5.3 Activities, intervention, outcome
- 5.4 Activities, intervention, variance, outcome

**6. Based on what the Clinical pathways promote organized and efficient patient care?**

- 6.1 Evidence based practice.
- 6.2 protocols
- 6.3 standard of care
- 6.4 existing practice

**7. How long the patient will be in nil per oral during the pre operative period?**

7.1 8 hours

7.2 9 hours

7.3 10 hours

7.4 11 hours

**8. How long the patient will be in recovery room after hysterectomy?**

8.1 1 hour

8.2 2hour

8.3 3hour

8.4 4hour

**9. What is the rate of IV fluids infusion per hour?**

9.1 100ml/hour

9.2 110ml/hour

9.3 120ml/hour

9.4 130ml/hour

**10. How many hours of nil per oral should be maintained after surgery?**

10.1 Up to 7 hours

10.2 Up to 8 hours

10.3 Up to 9 hours

10.4 Up to 10 hours

**11. For how many hours, the dressing should be observed for signs of bleeding?**

- 11.1 Frequently during first 8 hours
- 11.2 Frequently during the first 9 hours
- 11.3 Frequently during the first 10 hours
- 11.4 Frequently during the 12 hours

**12. What is the frequency of monitoring vital signs in the first two hours?**

- 12.1 ½ hour once
- 12.2 15 minutes
- 12.3 1 hour
- 12.4 1 1/2 hour

**13. What is the criterion for administering oxygen to the client?**

- 13.1 oxygen saturation <90
- 13.2 oxygen saturation <92
- 13.3 oxygen saturation <94
- 13.4 oxygen saturation <96

**14. What is the frequency of monitoring oxygen saturation for first two hours?**

- 14.1 ½ hour
- 14.2 1 hour
- 14.3 1 ½ hours
- 14.4 2 hours

**15. How many liters of oxygen should be administered during the initial post-operative period?**

15.1 1-2 lit

15.2 3-4 lit

15.3 5-6 lit

15.4 7-8 lit

**16. What type of diet is recommended for the patient after nil per oral?**

16.1 Clear fluid diet

16.2 Full fluid diet

16.3 Semi solid diet

16.4 Solid diet

**17. Which among the following is the primary responsibility of the nurse before initiation of the diet?**

17.1 Maintaining Intake and output chart

17.2 Ensuring the type of diet pattern

17.3 Monitoring the weight of the patient

17.4 Assess the bowel sounds

**18. What type of diet is recommended during the third post-operative day?**

18.1 Normal diet

18.2 Solid diet

18.3 Clear fluid diet

18.4 Soft solid diet

**19. When the foleys catheter should be removed after surgery?**

- 19.1 First post operative day
- 19.2 Second post operative day
- 19.3 Third post operative day
- 19.4 Fourth post operative day

**20 What should be the urine output of the client until she is mobiled?**

- 20.1 20 ml/ hour
- 20.2 30 ml/hour
- 20.3 90 ml/hour
- 20.4 100ml/hour

**21. What is the residual level of urine for removal of catheter?**

- 21.1 <100ml
- 21.2 <200ml
- 21.3 <300 ml
- 21.4 <400 ml

**22. How frequently the position should be changed during the initial post-operative period?**

- 22.1 Once in 2 hours
- 22.2 Once in 4 hours
- 22.3 Once in 6 hours
- 22.4 Once in 8 hours

**23 Which among the following type of exercise should be provided to promote the circulation?**

- 23.1 Kegel exercise
- 23.2 Leg exercise
- 23.3 Pelvic tilting
- 23.4 Rocking exercise

**24. How long the client should be kept in supine position after spinal anaesthesia?**

- 24.1 2 hours
- 24.2 4 hours
- 24.3 6 hours
- 24.4 8 hours

**25. Of the following post- operative days, when a nurse will begin ambulating the client?**

- 25.1 Firstday
- 25.2 Second day
- 25.3 Third day
- 25.4 Fourth day

**26. During the post-operative period, when the dressing of the client has to be changed?**

- 26.1 Second day
- 26.2 Third day
- 26.3 Fourth day
- 26.4 Fifth day

**27. Which among the following REEDA score indicates no infection?**

- 27.1 0
- 27.2 1-5
- 27.3 6-10
- 27.4 11-15

**28. Which among the following is an early signs of wound infection?**

- 28.1 Fever and oozing
- 28.2 Itching
- 28.3 Paleness
- 28.4 Cyanosis

**29. How long the client can avoid sexual intercourse?**

- 29.1 Upto 1 month
- 29.2 Upto 2 month
- 29.3 Upto 3 month
- 29.4 Upto healing

**30 how long the client should avoid heavy lifting after surgery?**

- 30.1 2 months
- 30.2 3 months
- 30.3 4 months
- 30.4 5 months

## INTERPRETATION

| Scores   | Percentage | Level of knowledge  |
|----------|------------|---------------------|
| ≤15      | ≤50        | Inadequate          |
| 15 to 22 | 51 to 75   | Moderately adequate |
| 23 to 30 | >75        | Adequate            |

## STRUCTURED KNOWLEDGE QUESTIONNAIRE KEY

| S.NO | ANSWER | S.NO | ANSWER |
|------|--------|------|--------|
| 1    | 1      | 16   | 1      |
| 2    | 4      | 17   | 4      |
| 3    | 1      | 18   | 4      |
| 4    | 3      | 19   | 1      |
| 5    | 4      | 20   | 2      |
| 6    | 4      | 21   | 1      |
| 6    | 1      | 22   | 1      |
| 8    | 2      | 23   | 2      |
| 9    | 3      | 24   | 3      |
| 10   | 4      | 25   | 1      |
| 11   | 1      | 26   | 2      |
| 12   | 2      | 27   | 1      |
| 13   | 3      | 28   | 1      |
| 14   | 1      | 29   | 4      |
| 15   | 3      | 30   | 1      |

## APPENDIX XIII

### PRACTICE CHECK LIST FOR PATIENTS UNDERGOING HYSTERECTOMY

#### Purpose

This checklist is used to assess the practice of nurses on clinical pathway for patients undergoing hysterectomy on 14 aspects of nursing care such as assessment, investigation, medication, nutrition, elimination, position and comfort, activity, sleep pattern, hygiene, psychological aspect, spiritual needs, patient education and safety.

#### Instruction

The researcher completes this checklist by direct observation of nursing care and from nurse's documentation in patient records.

Name of the patient:

Age :

Address :

IP No :

Consultant :

Date of admission :

Expected length of stay :

Date of discharge :

#### Score Key

1. **Compliant(C)** : It refers to an activity that has been completed by the nurse, then the researcher mention as compliant (score-2).
2. **Partially Compliant (PC)**: It indicates that the nurse attempted to perform the activity but not completed, then the researcher mention as partially compliant (score-1).
3. **Non-Compliant(NC)** : It refers to an activity neither attempted nor completed then the researcher mention as non-compliant (score-0)

**PRACTICE CHECKLIST FOR PATIENTS UNDERGOING HYSTERECTOMY**

| <b>Pre operative</b>  | <b>C</b> | <b>P</b> | <b>N</b> | <b>Day 0</b>  | <b>C</b> | <b>P</b> | <b>N</b> | <b>Day 1</b>  | <b>C</b> | <b>P</b> | <b>N</b> |
|---|----------|----------|----------|---|----------|----------|----------|---|----------|----------|----------|
|   |          | <b>C</b> | <b>C</b> |   |          | <b>C</b> | <b>C</b> |   |          | <b>C</b> | <b>C</b> |
| <b>Admission</b><br>1.Orientation<br>•Orientation to the staff<br>•Orientation to the ward<br>•Orientation to the ward routines and rules<br>2.Maintain IPR |          |          |          | <b>1.Physical Assessment</b><br>1.1 Check the level of conscious.<br>1.2 Wound assessment should be performed.<br>(carefully observe for first 8 hours to check the bleeding If it is present check Color of the oozing and inform to the doctor).<br>1.3perform Pain assessment<br>1.4Watch for bleeding pv(if any)<br>1.5Vital signs<br>(every 15 min upto 2 hours, Check 1/2hourly for 2 hours Continue second hourly upto 12 hours) |          |          |          | <b>1Physical assessment</b><br>1.1 Perform the general examination<br>1.2 Perform wound dressing assessment<br>(Check for REEDA score,if Oozing is present observe the colour of the oozing and inform to the doctor)<br>1.3 Perform pain assessment<br>1.4 Vital signs ( 4 hourly) |          |          |          |

|   |  |  |   |  |  |   |  |  |
|---|--|--|---|--|--|---|--|--|
| <p><b>Assessment</b></p> <p><b>2 History collection</b></p> <p>2.1 patient profile</p> <p>2.2 complaints</p> <p>2.3 family history</p> <p>2.4 medical and surgical history</p> <p>2.5 obstetrical history</p> <p>2.6 marital and sexual history</p> <p><b>3 Physical examination</b></p> <p>3.1 General examination</p> <p>3.2 Vaginal examination<br/>(To note the size of uterus, and to rule out adnexal mass, bleeding)</p> <p>3.3 Vital signs( 4 hourly)</p> |  |  | <p><b>2 Oxygen</b></p> <p>2.1 Check the ABC</p> <p>2.2 Check the oxygen saturation</p> <p>2.3 Administer oxygen<br/>(for 30 min then check the saturation if it is &lt;94 continue the oxygen administration, using face mask 4 to 5 lit/ml, inform to physician if it is less than normal)</p>         |  |  | <p><b>2 Nutrition</b></p> <p>2.1 Administer IV fluids as per ordered.</p> <p>2.2 Free fluids .</p> <p>2.3 Provide clear liquid diet.</p> <p>2.4 Maintain intake output chart.</p> |  |  |
| <p><b>4 Nutrition</b></p> <p>4.1 Start IV line (administered IV fluids as ordered .)</p> <p>4.2 Patient must be nil per oral.</p> <p>4.3 mouth wash</p>   |  |  | <p><b>3 Nutrition</b></p> <p>3.1 Administer IV fluids as prescribed(120ml/hour)</p> <p>3.2 Keep the client nil per oral up to 6 hours</p> <p>3.3 Check bowel movement.</p> <p>3.4 Nil per oral up to 6 hours after that sips of fluid should be administer.</p> <p>3.5 Maintain intake output chart</p> |  |  | <p><b>3 Communication</b></p> <p>3.1 Reassure the patient</p> <p>3.2 Encourage to ask doubts.</p> <p>3.3 Communicating with family members.</p>                                   |  |  |

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| <b>5Communication</b><br>5.1Provide Psychological support(clarify the client doubt ,allow the family members to communicate)<br>5.2Provide information regarding pre op preparation.                |  |  | <b>4).Communication</b><br>4.1Reassure patient.<br>4.2Encourage to ask doubts.<br>4.3Communicating with family members.  |  |  | <b>4)Elimination</b><br>4.1Remove the Indwelling catheter in situ<br>4.2Check the amount of urine output<br>4.3Check the color of the urine<br>4.4Remove the vaginal package (if any)  |  |  |  |  |
| <b>6Elimination</b><br>6.1Administer enema as per ordered.<br>6.2Pass the urinary catheter based on the type of surgery.<br>6.3Check the colour of the urine<br>6.4Maintain intake and output chart |  |  | <b>5)Elimination</b><br>5.1Check the position of indwelling catheter<br>5.2 Check the color of the urine if any variation in the colour inform to the doctor.<br>5.3Output should be greater than 30ml per hour until patient mobile.<br>5.4Perform the catheter care.<br>6.5 Residual level of urine should be <100 ml for removal of catheter. |  |  | <b>5)Safety</b><br>5.1Administer medication<br>5.2Perform investigation<br>5.3Put side rails   |  |  |  |  |
| <b>7Spiritual needs</b><br>7.1Identify spiritual habits   |  |  | <b>6)Safety</b><br>6.1Administer medications<br>6.2Arrangement of Emergency drugs and articles<br>6.3Perform investigation<br>6.4Put safety first board<br>6.5Put side rails   |  |  | <b>6)Mobility and comfort</b><br>6.1Maintain Comfort position.<br>6.2Maintain comfortable devices.<br>6.3Patient assisted to ambulated.<br>6.4Provide back care<br>6.5Help the client to do active and passive exercise.(leg exercise,breathing and coughing exercise) |  |  |  |  |
| <b>8Safety</b><br>8.1 Get consent from  |  |  | <b>7)Mobility and comfort</b><br>7.1 If the client has undergone   |  |  | <b>7)Sleep and rest</b><br>7.1Control of environment   |  |  |  |  |

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| <p>patient<br/> 8.2 Verify for anaesthetic fitness<br/> 8.3 Reservation for blood transfusion( if required)<br/> 8.4 Skin preparation should be performed.<br/> 8.5 Do the hair clipping<br/> 8.6Remove the dentures, contact lens, spectacles, jewellery, metal items.<br/> 8.7Surgical site marking (first bath without surgical site marking, second bath with surgical site marking)<br/> 8.8 Valuable item should be handed over to the relatives.<br/> 8.9 Administer medication.</p> |  |  | <p>spinal anesthesia client should be flattened upto 6 hours.<br/> 7.2 After 6 hours change the position every 2 hours<br/> 7.3 Perform back care<br/> 7.4 Demonstrate Leg exercise ,breathing exercise</p> |  |  |  |  |  |  |
| <p><b>9)Clothing</b><br/> 9.1Provide garments to the client.<br/> 9.2Change the linens.</p>   |  |  | <p><b>8)Sleep and rest</b><br/> 8.1Sedate if ordered<br/> 8.2Control environment</p>  |  |  | <p><b>8)Hygiene</b><br/> 8.1Meet the basic Hygienic needs .</p>                              |  |  |  |
| <p><b>10)Hygiene</b><br/> 10.1 Advice the patient to take bath.(previous night and one hour before surgery</p>  |  |  | <p><b>9)Hygiene</b><br/> 9.1Meet the basic Hygienic needs .</p>   |  |  | <p><b>9)Patient education</b><br/> 9.1Educate about benefits of exercise and ambulation.</p> |  |  |  |

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| <b>11)Recreation</b><br>11.1 Allow the family members   |  |  |  | <b>10)Patient education</b><br>10.1 Advise the client about nil per oral<br>10.2 Advise the client about benefits of early ambulation |  |  |  |  |  |  |  |
| <b>12)Patient education</b><br>12.1 demonstrate post operative exercise<br>12.2 Explain surgical procedure  |  |  |  |   |  |  |  |  |  |  |  |
| <b>13)Handing over</b><br>13.1 Verify pre op checklist<br>13.2 Handing over the patient to the OT nurse with investigation, medication and other reports. |  |  |  |   |  |  |  |  |  |  |  |

| Day 2   | C | PC | NC | Day 3   | C | PC | NC |
|---|---|----|----|---|---|----|----|
| <b>1Physical assessment</b><br>1.1 Perform the general examination<br>1.2 Dressing should be observed properly frequently<br>(if Oozing is present observe the colour of the oozing and inform to the doctor)<br>1.3 Perform pain assessment<br>1.4 Vital signs ( 4 hourly) |   |    |    | <b>1Assessment</b><br>1.1 Perform general examination<br>1.2 Wound assessment<br>1.3 Observe dressing area.<br>1.4 Change the dressing<br>1.5 Check the REEDA score<br>1.6 Check any signs of infection<br>1.7 Perform pain assessment<br>1.8 Vital signs ( 4 hourly) |   |    |    |

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|--|--|--|--|---|--|--|--|
| <b>2 Nutrition</b><br>2.1 Free fluids<br>2.2 Intake output chart<br>2.3 Provide liquid diet.<br>2.4 Maintain intake output chart.  |  |  |  | <b>2 Nutrition</b><br>2.1 free fluids<br>2.2 Intake output chart<br>2.3 Provide soft diet<br>2.4 Maintain intake output chart   |  |  |  |
| <b>3 Communication</b><br>3.1 Reassure patient<br>3.2 Encourage to ask question<br>3.3 Communicating with family members   |  |  |  | <b>3 Communication</b><br><b>3.1</b> Reassure patient<br>3.2 Encourage to ask question<br>3.2 Communicating with family members   |  |  |  |
| <b>4 Elimination</b><br>4.1 Check the amount of urine<br>4.2 Check the color of the urine<br>4.3 Check whether the client voiding urination normally.<br>4.4 Bowel elimination pattern should be monitored   |  |  |  | <b>4 Elimination</b><br>4.1 Check the amount of urine<br>4.2 Check the colour of the urine<br>4.3 Encourage to void frequently<br>4.4 Monitor bowel elimination pattern |  |  |  |
| <b>5) Safety</b><br>5.1 Administer medication as per order and perform the investigation.  |  |  |  | <b>5) Spiritual needs</b><br>5.1 Identify the spiritual habits  |  |  |  |
| <b>6) Mobility and comfort</b><br><b>6.1</b> Patient assisted to mobilize.<br>6.2 Provide back care Maintain Comfortable devices<br>6.3 Provide comfortable position<br>Help the client to do active and passive exercise. (leg exercise, breathing and coughing exercise) |  |  |  | <b>6) Safety</b><br>6.1 Administer the prescribed medication  |  |  |  |
| <b>7) Sleep and rest</b><br>7.1 Control of environment   |  |  |  | <b>7) Mobility and comfort</b><br>7.1 Patient assisted to ambulate.<br>7.2 Provide comfortable position<br>7.3 Provide back care  |  |  |  |

|  |  |  |  |   |  |  |  |
|--|--|--|--|---|--|--|--|
| <b>8)Hygiene</b><br>8.1Meet the basic Hygienic needs .                           |  |  |  | <b>8)Sleep and rest</b><br>8.1Control environment   |  |  |  |
| <b>9)Patient education</b><br>9.1 Educate the client about frequency of voiding. |  |  |  | <b>9) Clothing</b><br>9.1 Provide garments to the client.<br>9.2 Change the linens.   |  |  |  |
|  |  |  |  | <b>10)Hygiene</b><br>.10.1Meet the basic hygienic needs   |  |  |  |
|  |  |  |  | <b>11)Patient education</b><br>11.1 Make the patient to understand their reproductive ability will be lost.<br>11.2 Provide opportunity to discuss about home care.<br>11.3 Educate about activity restrictions<br>11.4 Educate about proper sexual habits(Intercourse should avoid until wound healed.)<br>11.5Heavy lifting should be avoid for 2 month<br>11.6Avoid constrictive clothing for several months.<br>11.7Advice to take medication at correct time.<br>11.8Follow up |  |  |  |
|  |  |  |  | <b>12Discharge planning</b><br>12.1Check the doctors order for discharge<br>12.2Inform to the client about discharge<br>12.3Prepare the discharge summary<br>verify the records<br>12.4verify the bill clearance  |  |  |  |
|  |  |  |  | <b>13)TRANSPORT</b><br>13.1Transfer the patient as transport  |  |  |  |

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|  |  |  |  | confirmed |  |  |  |
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**Scoring Interpretations**

| <b>Percentage</b> | <b>Level</b>        |
|-------------------|---------------------|
| $\geq 76\%$       | Compliant           |
| 51-75%            | Partially compliant |
| $\leq 50\%$       | Non Compliant       |

**APPENDIX XIV**

**BLUE PRINT ON  
RATING SCALE ON SATISFACTION OF NURSING CARE**

| <b>S.No</b> | <b>Content</b>  | <b>Items</b>   | <b>Total Items</b> | <b>Percentage</b> |
|-------------|---|----------------|--------------------|-------------------|
| 1.          | Environment<br>Comfort<br>Activity<br>Rest<br>Position                                      | 1,7,8,9,11     | 5                  | 25%               |
| 2.          | Nutrition<br>Elimination  | 3,4,5,6,17     | 5                  | 25%               |
| 3.          | Personal hygiene<br>Safety  | 2,10,12,13,15  | 5                  | 25%               |
| 4.          | Spiritual need<br>Communication<br>Family involvement<br>Health education<br>Discharge plan | 14,18,19,20,16 | 5                  | 25%               |
|             | <b>Total</b>  | <b>--</b>      | <b>20</b>          | <b>100%</b>       |

## RATING SCALE ON THE SATISFACTION OF NURSING CARE

### Purpose

The rating scale is designed to assess the level of satisfaction of the patients regarding the nursing care. This is assessed by the researcher after implementation of clinical pathway.

### Instruction

There are times given below. Kindly read the items. Responses extend from highly Satisfied to highly dissatisfy. Describe your satisfaction regarding nursing care. Give your responses freely and frankly. The responses will be kept confidential.

| S.No | Items  | Highly Satisfied | Satisfied | Dissatisfied | Highly Dissatisfied |
|------|--|------------------|-----------|--------------|---------------------|
| 1.   | Are you satisfied with the hospital environment & ease in which arrangements were handled for you? |                  |           |              |                     |
| 2.   | Are you comfortable with procedural skill of the nurses?   |                  |           |              |                     |
| 3.   | Are you satisfied with the explanation given before each procedures?                               |                  |           |              |                     |
| 4.   | Are you satisfied with the instruction given about the dietary pattern & nutritional requirements? |                  |           |              |                     |

|     |  |  |  |  |  |
|-----|--|--|--|--|--|
| 5.  | Are you satisfied with the timings of food provided for you?                           |  |  |  |  |
| 6.  | Are you prevented from the complications of constipation?                              |  |  |  |  |
| 7.  | Are you comfortable with the ambulation provided by the nurses?                        |  |  |  |  |
| 8.  | Are you satisfied with the privacy provided by the nurse during you rest and sleep?    |  |  |  |  |
| 9.  | Are you satisfied with the nurses assisting for your daily activities?                 |  |  |  |  |
| 10. | Are you felt satisfied by the explanation given by the nurses before procedures?       |  |  |  |  |
| 11. | Are you comfortably placed when doing procedure?                                       |  |  |  |  |
| 12. | Are you satisfied with the amount of attention paid to your special or personal needs? |  |  |  |  |
| 13. | Are you satisfied with the safety measures provide by the nurse?                       |  |  |  |  |
| 14. | Are you satisfied with the hospitality of the nurses?                                  |  |  |  |  |

|     |   |  |  |  |  |
|-----|---|--|--|--|--|
| 15. | Are you satisfied with the responses of nurse to any of the concerns/complaints made during your stay?                                    |  |  |  |  |
| 16. | Are you satisfied with degree to which nurses addressed your emotional needs?   |  |  |  |  |
| 17. | Are you satisfied with the timely administration of medications with explanation of actions, dose, route, frequency and its side-effects? |  |  |  |  |
| 18. | Are you felt comfortable with the family members support?   |  |  |  |  |
| 19. | Are you satisfied with the instruction given by the nurse about the pattern of activity?  |  |  |  |  |
| 20. | Are you comfortable with the services provided for you and discharge plan?  |  |  |  |  |

**Score key**

| <b>Score</b> | <b>Percentage</b> | <b>Level of satisfaction</b> |
|--------------|-------------------|------------------------------|
| <20          | <25%              | Highly dissatisfied          |
| 21 to 39     | 25-50%            | Dissatisfied                 |
| 40 to 59     | 51-75%            | Satisfied                    |
| 60 to 80     | 76-100%           | Highly satisfied             |

## APPENDIX XV

### CHECKLIST FOR PATIENTS OUTCOME WITH THE CARE PROVIDED ON PATIENTS UNDERGOING HYSTERECTOMY THROUGH CLINICAL PATHWAY

#### Purpose

This checklist provides information regarding patient's outcome after implementation of clinical pathway.

#### Instruction

The researcher collects the following information regarding the patient's outcome by direct observation and from the patient records

| S No | Patients outcome       | Scores  |   |  |
|------|------------------------|---|---|--|
|      |                        | 0   | 1   | 2  |
| 1.   | <b>Nature of wound</b> | <ul style="list-style-type: none"> <li>➤ No bleeding</li> <li>➤ No oozing</li> <li>➤ Wound healed well</li> </ul>   | <ul style="list-style-type: none"> <li>➤ Moderate bleeding</li> <li>➤ Moderate oozing</li> <li>➤ Wound healing is poor</li> </ul> | <ul style="list-style-type: none"> <li>➤ Severe bleeding</li> <li>➤ Oozing</li> <li>➤ Infected wound</li> </ul>                      |
| 2.   | <b>Oxygenation</b>     | <ul style="list-style-type: none"> <li>➤ Oxygen saturation 95-100</li> </ul>  | <ul style="list-style-type: none"> <li>➤ Oxygen saturation &lt;91-94</li> </ul>   | Oxygen saturation less than 90   |
| 3.   | <b>Nutrition</b>       | <ul style="list-style-type: none"> <li>➤ Normal diet</li> </ul>   | <ul style="list-style-type: none"> <li>➤ Semi solid diet with Iv infusion</li> </ul>  | <ul style="list-style-type: none"> <li>➤ Intravenous infusion</li> </ul>   |
| 4.   | <b>Elimination</b>     | <ul style="list-style-type: none"> <li>➤ Normal bladder pattern 36-40 ml/hour</li> <li>➤ No constipation</li> </ul> | <ul style="list-style-type: none"> <li>➤ Void scanty of urine 30 – 35 ml/hour.</li> <li>➤ Altered bowel pattern</li> </ul>        | <ul style="list-style-type: none"> <li>➤ Emptied with catheter</li> <li>➤ Output is &lt;30ML/hour</li> <li>➤ Constipation</li> </ul> |
| 5.   | <b>Rest</b>            | <ul style="list-style-type: none"> <li>➤ Adequate rest and sleep</li> </ul>   | <ul style="list-style-type: none"> <li>➤ Reduced rest and sleep</li> </ul>  | <ul style="list-style-type: none"> <li>➤ Restless</li> <li>➤ Sleep disturbances</li> <li>➤ Irritability</li> <li>➤</li> </ul>        |

|     |                             |  |  |   |
|-----|-----------------------------|--|--|---|
| 6.  | <b>Comfort</b>              | <ul style="list-style-type: none"> <li>➤ No pain</li> <li>➤ Good clothing</li> </ul>   | <ul style="list-style-type: none"> <li>➤ Pain reduced with comfort measures</li> </ul>   | <ul style="list-style-type: none"> <li>➤ Improper clothing</li> <li>➤ Presence with pain</li> <li>➤ Needs pain medication</li> </ul>        |
| 7.  | <b>Regulatory functions</b> | <ul style="list-style-type: none"> <li>➤ vital signs temperature-98.6</li> <li>➤ pulse-72</li> <li>➤ respiration-22</li> </ul> | <ul style="list-style-type: none"> <li>➤ vital signs temperature-99-100</li> <li>➤ pulse-73-80</li> <li>➤ respiration-23-30</li> </ul> | <ul style="list-style-type: none"> <li>➤ vital signs temperature-&gt;100</li> <li>➤ pulse -&gt;80</li> <li>➤ respiration -&gt;30</li> </ul> |
| 8.  | <b>Personal hygiene</b>     | <ul style="list-style-type: none"> <li>➤ Good personal hygiene</li> </ul>  | <ul style="list-style-type: none"> <li>➤ Moderate personal hygiene</li> </ul>  | <ul style="list-style-type: none"> <li>➤ Poor hygiene</li> </ul>  |
| 9.  | <b>Communication</b>        | <ul style="list-style-type: none"> <li>➤ Well communicating</li> </ul>   | <ul style="list-style-type: none"> <li>➤ Poor communicating</li> </ul>   | <ul style="list-style-type: none"> <li>➤ Not well communicating</li> </ul>  |
| 10. | <b>Activity</b>             | <ul style="list-style-type: none"> <li>➤ Good activity</li> <li>➤ Well exercising</li> </ul>                                   | <ul style="list-style-type: none"> <li>➤ Lethargic activity with mild exercises</li> </ul>   | <ul style="list-style-type: none"> <li>➤ No activity and exercises is carried</li> </ul>  |
| 11. | <b>Diversional needs</b>    | <ul style="list-style-type: none"> <li>➤ No need of diversional activity</li> </ul>  | -  | <ul style="list-style-type: none"> <li>➤ Presence with psychological disturbances</li> </ul>  |
| 12. | <b>Health teaching</b>      | <ul style="list-style-type: none"> <li>➤ Exercise Performed.</li> <li>➤ Performing activities</li> </ul>                       | <ul style="list-style-type: none"> <li>➤ Poorly performing activities</li> <li>➤ Poorly performing exercise</li> </ul>                 | <ul style="list-style-type: none"> <li>➤ Not performing exercise.</li> <li>➤ Not performing activities.</li> </ul>                          |
| 13. | <b>Discharge plan</b>       | <ul style="list-style-type: none"> <li>➤ Discharged before expected</li> </ul>   | <ul style="list-style-type: none"> <li>➤ Extended hours of stay</li> </ul>   | <ul style="list-style-type: none"> <li>➤ Extended days of discharge</li> </ul>  |

### INTERPRETATION

| Scores     | Percentage | Level of satisfaction |
|------------|------------|-----------------------|
| 0 to 13    | (>75)      | Positive outcome      |
| 14 to 19.5 | (51 -75)   | Moderately positive   |
| 19.6 to 26 | (≤50)      | Negative outcome      |

**APPENDIX XVI  
CLINICAL PATHWAY FOR HYSTERECTOMY**

| <b>Pre operative period</b>  | <b>Day 0</b>  | <b>Day 1</b>   | <b>Day 2</b>  | <b>Day 3</b>  |
|--|---|--|---|---|
| <p><b>Admission</b></p> <p>1.Orientation</p> <ul style="list-style-type: none"> <li>• Orientation to the staff</li> <li>• Orientation to the ward</li> <li>• Orientation to the ward routines and rules</li> </ul> <p>2.Maintain IPR</p> | <p><b>1.Physical Assessment</b></p> <p>1.1 Check the level of conscious.</p> <p>1.2 Wound assessment should be performed.<br/>( carefully observe for first 8 hours to check the bleeding If it is present check Color of the oozing and inform to the doctor).</p> <p>1.3Perform Pain assessment</p> <p>1.4 Watch for bleeding pv(if any)</p> <p>1.5 Vital signs<br/>(every 15 min upto 2 hours, Check 1/2hourly for 2 hours<br/>Continue second hourly upto 12 hours)</p> | <p><b>1Physical assessment</b></p> <p>1.1Perform the general examination</p> <p>1.2Perform wound dressing assessment<br/><br/>(Check for REEDA score,if Oozing is present observe the colour of the oozing and inform to the doctor)</p> <p>1.3Perform pain assessment</p> <p>1.4Vital signs ( 4 hourly)</p> | <p><b>1Physical assessment</b></p> <p>1.1 Perform the general examination</p> <p>1.2 Dressing should be observed properly frequently<br/><br/>(if Oozing is present observe the colour of the oozing and inform to the doctor)</p> <p>1.3Perform pain assessment</p> <p>1.4 Vital signs ( 4 hourly)</p> | <p><b>1Assessment</b></p> <p>1.1Perform general examination</p> <p>1.2Wound assessment</p> <p>1.3Observe dressing area.</p> <p>1.4Change the dressing</p> <p>1.5Check the REEDA score</p> <p>1.6Check any signs of infection</p> <p>1.7Perform pain assessment</p> <p>1.8 Vital signs ( 4 hourly)</p> |

|  |   |   |  |  |
|--|---|---|--|--|
| <p><b>Assessment</b><br/> <b>2 History collection</b><br/> 2.1 patient profile<br/> 2.2 complaints<br/> 2.3 family history<br/> 2.4 medical and surgical history<br/> 2.5 obstetrical history<br/> 2.6 Marital and sexual history<br/> <b>3 Physical examination</b><br/> 3.1 General examination<br/> 3.2 Vaginal examination<br/> (To note the size of uterus, and to rule out adnexal mass, bleeding)<br/> 3.3 Vital signs( 4 hourly)</p> | <p><b>2 Oxygen</b><br/> 2.1 Check the ABC<br/> 2.2 Check the oxygen saturation<br/> 2.3 Administer oxygen<br/> (for 30 min then check the saturation if it is &lt;94 continue the oxygen administration, using face mask 4 to 5 lit/ml, inform to physician if it is less than normal)</p>    | <p><b>1 Nutrition</b><br/> 2.1 Administer IV fluids as per ordered.<br/> 2.2 Free fluids .<br/> 2.3 Provide clear liquid diet.<br/> 2.4 Maintain intake output chart.</p> | <p><b>2 Nutrition</b><br/> 2.1 Free fluids<br/> 2.2 Intake output chart<br/> 2.3 Provide liquid diet.<br/> 2.4 Maintain intake output chart.</p> | <p><b>2 Nutrition</b><br/> 2.1 free fluids<br/> 2.2 Intake output chart<br/> 2.3 Provide soft diet<br/> 2.4 Maintain intake output chart</p> |
| <p><b>4 Nutrition</b><br/> 4.1 Start IV line<br/> (administered IV fluids as ordered .)<br/> 4.2 Patient must be nil per oral.<br/> 4.3 mouth wash</p>   | <p><b>3 Nutrition</b><br/> 3.1 Administer IV fluids as prescribed(120ml/hour)<br/> 3.2 Keep the client nil per oral up to 6 hours<br/> 3.3 Check bowel movement.<br/> 3.4 Nil per oral up to 6 hours after that sips of fluid should be administer.<br/> 3.5 Maintain intake output chart</p> | <p><b>3 Communication</b><br/> 3.1 Reassure the patient<br/> 3.2 Encourage to ask doubts.<br/> 3.3 Communicating with family members.</p>                                 | <p><b>3 Communication</b><br/> 3.1 Reassure patient<br/> 3.2 Encourage to ask question<br/> 3.3 Communicating with family members</p>            | <p><b>3 Communication</b><br/> 3.1 Reassure patient<br/> 3.2 Encourage to ask question<br/> 3.3 Communicating with family members</p>        |
| <p><b>5 Communication</b><br/> 5.1 Provide Psychological support(clarify the client doubt ,allow the family</p>  | <p><b>4).Communication</b><br/> 4.1 Reassure patient.<br/> 4.2 Encourage to ask doubts.<br/> 4.3 Communicating with family</p>  | <p><b>4)Elimination</b><br/> 4.1 Remove the Indwelling catheter in situ<br/> 4.2 Check the amount of urine</p>  | <p><b>4 Elimination</b><br/> 4.1 Check the amount of urine<br/> 4.2 Check the color of the</p>   | <p><b>4 Elimination</b><br/> 4.1 Check the amount of urine<br/> 4.2 Check the colour of the urine<br/> 4.3 Encourage to void frequently</p>  |

|   |  |  |  |   |
|---|--|--|--|---|
| members to communicate)<br>5.2Provide information regarding pre op preparation.   | members.   | output<br>4.3Check the color of the urine<br>4.4Remove the vaginal package (if any)  | urine<br>4.3 Check whether the client voiding urination normally.<br>4.4 Bowel elimination pattern should be monitored   | 4.4Monitor bowel elimination pattern  |
| <b>6Elimination</b><br>6.1Administer enema as per ordered.<br>6.2Pass the urinary catheter based on the type of surgery.<br>6.3Check the colour of the urine<br>6.4Maintain intake and output chart | <b>5)Elimination</b><br>5.1Check the position of indwelling catheter<br>5.2 Check the color of the urine if any variation in the colour inform to the doctor.<br>5.3Output should be greater than 30ml per hour until patient mobile.<br>5.4Perform the catheter care.<br>6.5 Residual level of urine should be <100 ml for removal of catheter. | <b>5)Safety</b><br>5.1Administer medication<br>5.2Perform investigation<br>5.3Put side rails   | <b>5)Safety</b><br>5.1Administer medication as per order and perform the investigation.  | <b>5)Spiritual needs</b><br>5.2 Identify the spiritual habits   |
| <b>7Spiritual needs</b><br>7.1Identify spiritual habits   | <b>6)Safety</b><br><b>6.1</b> Administer medications<br>6.2Arrangement of Emergency drugs and articles<br>6.3 Perform investigation<br>6.4 Put safety first board<br>6.5 Put side rails  | <b>6)Mobility and comfort</b><br>6.1Maintain Comfort position.<br><b>6.2</b> Maintain comfortable devices.<br>6.3Patient assisted to ambulated.<br>6.4Provide back care<br>6.3 Help the client to do active and passive exercise.(leg exercise, breathing and coughing exercise) | <b>6)Mobility and comfort</b><br><b>6.1</b> Patient assisted to mobilize.<br>6.2Provide back care<br>Maintain Comfortable devices<br>6.3Provide comfortable position<br>6.4Help the client to do active and passive exercise.(leg exercise, breathing and coughing exercise) | <b>6)Safety</b><br>6.1 Administer the prescribed medication   |
| <b>8Safety</b><br>8.1 Get consent from patient  | <b>7)Mobility and comfort</b><br>7.1 If the client has undergone spinal anesthesia client should be flattened  | <b>7)Sleep and rest</b><br>7.1Control of environment   | <b>7)Sleep and rest</b><br>7.1Control of environment   | <b>7) Mobility and comfort</b><br>7.1Patient assisted to ambulate.<br>7.2Provide comfortable position |

|  |  |  |   |  |
|--|--|--|---|--|
| <p>8.2 Verify for anaesthetic fitness</p> <p>8.3 Reservation for blood transfusion( if required)</p> <p>8.4 Skin preparation should be performed.</p> <p>8.5 Do the hair clipping</p> <p>8.6Remove the dentures, contact lens, spectacles, jewellery, metal items.</p> <p>8.7Surgical site marking (first bath without surgical site marking, second bath with surgical site marking)</p> <p>8.8 Valuable item should be handed over to the relatives.</p> <p>8.9 Administer medication.</p> | <p>upto 6 hours.</p> <p>7.2 After 6 hours change the position every 2 hours</p> <p>7.3 Perform back care</p> <p>7.5 Demonstrate Leg exercise ,breathing exercise</p> |  |   | 7.3Provide back care   |
| <p><b>9)Clothing</b></p> <p>9.1Provide garments to the client.</p> <p>9.2Change the linens.</p>  | <p><b>8)Sleep and rest</b></p> <p>8.1Sedate if ordered</p> <p>8.2Control environment</p>   | <p><b>8)Hygiene</b></p> <p>8.1Meet the basic Hygienic needs</p>                                | <p><b>8)Hygiene</b></p> <p>8.1Meet the basic Hygienic needs.</p>                            | <p><b>8)Sleep and rest</b></p> <p>8.1Control environment</p>                                       |
| <p><b>10)Hygiene</b></p> <p>10.1 Advice the patient to take bath.(previous night and one hour before surgery</p>   | <p><b>9)Hygiene</b></p> <p>9.1Meet the basic Hygienic needs .</p>  | <p><b>9)Patient education</b></p> <p>9.1Educate about benefits of exercise and ambulation.</p> | <p><b>9)Patient education</b></p> <p>9.1 Educate the client about frequency of voiding.</p> | <p><b>9) Clothing</b></p> <p>9.1 Provide garments to the client.</p> <p>9.2 Change the linens.</p> |
| <p><b>11)Recreation</b></p> <p>11.1Allow the family members</p>  | <p><b>10)Patient education</b></p> <p>10.1Advice the client about nil per oral</p> <p>10.2Advice the client about benefits of early ambulation</p>                   |  |   | <p><b>10)Hygiene</b></p> <p>.10.1Meet the basic hygienic needs</p>                                 |

|  |  |  |  |  |
|--|--|--|--|--|
| <p><b>12)Patient education</b><br/> 12.1 demonstrate post operative exercise<br/> 12.2 Explain surgical procedure</p>  |  |  |  | <p><b>11)Patient education</b><br/> 11.1 Make the patient to understand their reproductive ability will be lost.<br/> 11.2 Provide opportunity to discuss about home care.<br/> 11.3 Educate about activity restrictions</p> <p>11.4 Educate about proper sexual habits(Intercourse should avoid until wound healed.)<br/> 11.5 Heavy lifting should be avoid for 2 month<br/> 11.6 Avoid constrictive clothing for several months.<br/> 11.7 Advice to take medication at correct time.<br/> 11.8 Follow up</p> |
| <p><b>13)Handing over</b><br/> 13.1 Verify pre op checklist<br/> 13.2 Handing over the patient to the OT nurse with investigation, medication and other reports.</p> |  |  |  | <p><b>12)Discharge planning</b><br/> 12.1 Check the doctors order for discharge<br/> 12.2 Inform to the client about discharge<br/> 12.3 Prepare the discharge summary verify the records<br/> 12.4 verify the bill clearance</p>  |
|  |  |  |  | <p><b>13)TRANSPORT</b><br/> 13.1 Transfer the patient as transport confirmed</p>   |

## **APPENDIX XVII**

### **CLINICAL PATHWAY**

#### **DEFINITION**

Multidisciplinary management tool based on evidence-based practice for a specific group of patients with a predictable clinical course, in which the different tasks (interventions) by the professionals involved in the patient care are defined, optimized and sequenced either by hour (ED), day (acute care) or visit (homecare). Outcomes are tied to specific interventions.

#### **BENEFITS**

- Support the introduction of evidence-based medicine and use of clinical guidelines.
- Support clinical effectiveness, risk management and clinical audit.
- Improve multidisciplinary communication, teamwork and care planning
- Can support continuity and co-ordination of care across different clinical disciplines and sectors.
- Provide explicit and well-defined standards for care.
- Help reduce variations in patient care (by promoting standardisation).
- Help improve clinical outcomes;
- Help improve and even reduce patient documentation
- Support training.
- Optimise the management of resources.
- Can help ensure quality of care and provide a means of continuous quality improvement.

- Support the implementation of continuous clinical audit in clinical practice
- Support the use of guidelines in clinical practice.
- Help empower patients.
- Help manage clinical risk.
- Help improve communications between different care sectors.
- Disseminate accepted standards of care.
- Provide a baseline for future initiatives.
- Not prescriptive: don't override clinical judgement.
- Expected to help reduce risk.
- Expected to help reduce costs by shortening hospital stays

### **SELECTION CRITERIA**

The following signals may indicate that it may be useful to commit resources to establish and implement a clinical pathway for a particular condition:

- Prevalent pathology within the care setting
- Pathology with a significant risk for patients
- Pathology with a high cost for the hospital
- Predictable clinical course
- Pathology well defined and that permits a homogeneous care
- Existence of recommendations of good practices or experts opinions
- Unexplained variability of care
- Possibility of obtaining professional agreement
- Multidisciplinary implementation
- Motivation by professionals to work on a specific condition

## **PATHWAY TEAM**

- Care Coordination Manager
- Clinical Pathway Manager
- Ward Nursing Staff
- Allied Health Staff
- Ward Clerks

## **DEVELOPMENT OF NEW CLINICAL PATHWAY**

- Determine the patients
- Patient groups which suit the Clinical Pathway model are those patients
- Who follow a predictable course
- Determine if it is Appropriate
- Speak with your Unit Manager / Department Manager
- Contact Care Coordination Manager
- Follow the RCH Clinical Path Development / Review Plan
- This will provide you with a list of all the steps involved, with provision for setting dates, which can be very important to stay on track. There is also a guide for the review of histories in the development of paths.
- The plan must be discussed with the Care Coordination Manager before any work commences.
- Once a new or reviewed pathway has been implemented, the team needs to make sure that it is being used, and that the content is up to date. This can be done by observing staff practice, and reminding them to use and complete pathways. The team should be constantly assessing the literature for new evidence, and the internet for new guidelines and policies.

## **ISSUES-POTENTIAL PROBLEMS AND BARRIERS TO THE INTRODUCTION OF ICPS**

- May appear to discourage personalized care.
- Risk increasing litigation.
- Don't respond well to unexpected changes in a patient's condition.
- Suit standard conditions better than unusual or unpredictable ones.
- Require commitment from staff and establishment of an adequate organizational structure.
- Problems of introduction of new technology.
- May take time to be accepted in the workplace.
- Need to ensure variance and outcomes are properly recorded, audited and acted upon.

**APPENDIX XVIII  
DATA CODE SHEET**

**S.No - Sample no:**

**AGE - Age in years:**

1.1 22 to 26 yrs

1.2 27 to 31yrs

1.3 32 to 36 yrs

**EDU - Educational status**

2.1 ANM

2.2 Diploma in nursing

2.3 B.sc nursing

**MAR - Marital status.**

3.1 Married

3.2 Unmarried

**EXP - Years of experience**

5.1 0-2

5.2 3-5

5.3 6-7

**REL - Religion**

5.1 Hindu

5.2 Muslim

5.3 Christian

5.4 Others

**INF - Previous information acquired regarding  
clinical pathway**

6.1 Yes

6.2 No

**AGE - Age in years**

20 to 30 yrs

31 to 40 yrs

41 to 50 yrs

51 yrs

**EDU - Education**

2.1 Non literate

2.2 Primary education

2.3 high school education

2.4 higher secondary education

2.5 Graduate

2.6 Post-graduate

**OCCU - Occupation**

3.1 Employed

3.2 House wife

**WORK - Type of Work**

4.1 Heavy worker

4.2 moderate worker

4.3 sedentary worker

**MARIT - Marital status.**

5.1 Married

5.2 Unmarried

**A.MAR - Age at marriage in years**

6.1 <17

6.2 18 to 23

6.3 24 to 29

6.4 30yrs and >30

**MOD - Mode of previous delivery**

- 7.1 Vaginal delivery
- 7.2 forceps delivery
- 7.3 Vacuum delivery
- 7.4 lower segmental Cesarean delivery
- 7.5 Nil

**CHILD - No of children**

- 8.1 One
- 8.2 Two
- 8.3 More than three
- 8.4 none

**REL - Religion**

- 9.1 Hindu
- 9.2 Muslim
- 9.3 Christian
- 9.4 Others

**T.FAM - Type of the family**

- 10.1 Nuclear
- 10.2 Joint

**CO.MO - Co-morbidity**

- 11.1 Present
- 11.2 Absent

**CON - History of usage of contraceptives**

- 12.1 Yes
- 12.2 No

**HT - Height\_\_\_\_\_cm**

- 141 to 150
- 151 to 155
- 156 to 160
- 1.4 161 to 165
- 1.5 >165

**WT - Weight\_\_\_\_\_kg**

- 2.1 40 to 50
- 2.2 51 to 60
- 2.3 60 to 70
- 2.4.>70

**BMI - Body mass index**

- 3.1 19-24.9kg/m
- 3.2 25-29.9kg/m
- 3.3 30\_34.9kg/m
- 3.4 35-39.9kg/m
- 3.5 40kg/m

**COM - Presents of comorbid illness**

- 4.1.yes
- 4.2 No

**T.O.C - Treatment of comorbid illness**

- 6.1 yes (if specify)
- 6.2 No

**F.UT - Family history of uterine disorder**

- 7.1 yes
- 7.2 No

**H.FIB - History of fibroid uterus**

8.1 yes

8.2 No

**H.UT.T - History Of uterine tumour**

9.1 yes

9.2 No

**H.CO - History of contraceptives usage**

10.1 yes

10.2 No

**DUB - History of dysfunctional uterine bleeding**

12.1 yes

12.2No

**DYS - History of dysmenorrhea**

13.1 yes

13.2 No

**ME.P - Pattern of menstrual cycle**

14.1 Regular

14.2 Irregular

SCO - Score

**PRE OP - Pre operative**

M - Moderate

A - Adequate

I – Inadequate

**APPENDIX XIX**  
**MASTER CODING SHEET FOR CONTROL GROUP**

| S NO | KNOWLEDGE QUESTIONNAIRE |     |           |     | DEMOGRAPHIC VARIABLES OF NURSES |     |     |     |     |     |     | DEMOGRAPHIC VARIABLES OF PATIENTS |      |      |       |       |     |       |     |       |       |      |  |
|------|-------------------------|-----|-----------|-----|---------------------------------|-----|-----|-----|-----|-----|-----|-----------------------------------|------|------|-------|-------|-----|-------|-----|-------|-------|------|--|
|      | PRE-TEST                |     | POST-TEST |     | AGE                             | EDU | MAR | EXP | REL | INF | AGE | EDU                               | OCCU | WORK | MARIT | A.MAR | MOD | CHILD | REL | T.FAM | CO.MO | CON  |  |
|      | SCO                     | LEV | SCO       | LEV |                                 |     |     |     |     |     |     |                                   |      |      |       |       |     |       |     |       |       |      |  |
| 1    | 17                      | M   | 28        | A   | 1.1                             | 2.3 | 3.2 | 4.1 | 5.1 | 6.2 | 1.2 | 2.2                               | 3.2  | 4.3  | 5.1   | 6.2   | 7.1 | 8.2   | 9.1 | 10.1  | 11.1  | 12.1 |  |
| 2    | 10                      | I   | 27        | A   | 1.1                             | 2.3 | 3.2 | 4.1 | 5.1 | 6.2 | 1.2 | 2.3                               | 3.2  | 4.3  | 5.1   | 6.2   | 7.1 | 8.2   | 9.1 | 10.1  | 11.2  | 12.1 |  |
| 3    | 15                      | M   | 27        | A   | 1.1                             | 2.3 | 3.2 | 4.1 | 5.1 | 6.1 | 1.2 | 2.3                               | 3.2  | 4.2  | 5.1   | 6.2   | 7.1 | 8.1   | 9.1 | 10.1  | 11.1  | 12.1 |  |
| 4    | 10                      | I   | 26        | A   | 1.2                             | 2.3 | 3.2 | 4.1 | 5.1 | 6.1 | 1.3 | 2.5                               | 3.1  | 4.2  | 5.1   | 6.3   | 7.1 | 8.2   | 9.1 | 10.1  | 11.1  | 12.1 |  |
| 5    | 11                      | I   | 24        | A   | 1.1                             | 2.2 | 3.2 | 4.1 | 5.3 | 6.2 | 1.3 | 2.5                               | 3.2  | 4.2  | 5.1   | 6.2   | 7.1 | 8.2   | 9.1 | 10.1  | 11.2  | 12.1 |  |
| 6    | 12                      | I   | 26        | A   | 1.1                             | 2.2 | 3.2 | 4.1 | 5.3 | 6.2 | 1.2 | 2.2                               | 3.5  | 4.2  | 5.1   | 6.2   | 7.1 | 8.2   | 9.1 | 10.1  | 11.1  | 12.1 |  |
| 7    | 14                      | I   | 28        | A   | 1.1                             | 2.3 | 3.2 | 4.1 | 5.3 | 6.2 | 1.2 | 2.5                               | 3.2  | 4.2  | 5.1   | 6.2   | 7.1 | 8.1   | 9.1 | 10.1  | 11.1  | 12.1 |  |
| 8    | 18                      | M   | 27        | A   | 1.1                             | 2.3 | 3.1 | 4.1 | 5.3 | 6.2 | 1.3 | 2.2                               | 3.2  | 4.2  | 5.1   | 6.2   | 7.1 | 8.2   | 9.1 | 10.1  | 11.2  | 12.2 |  |
| 9    | 17                      | M   | 26        | A   | 1.1                             | 2.3 | 3.2 | 4.1 | 5.2 | 6.1 | 1.3 | 2.6                               | 3.1  | 4.3  | 5.1   | 6.3   | 7.1 | 8.2   | 9.1 | 10.2  | 11.1  | 12.2 |  |
| 10   | 10                      | I   | 27        | A   | 1.2                             | 2.3 | 3.2 | 4.1 | 5.1 | 6.1 | 1.1 | 2.1                               | 3.2  | 4.3  | 5.2   | 6.5   | 7.5 | 8.4   | 9.1 | 10.1  | 11.1  | 12.2 |  |
| 11   | 10                      | I   | 26        | A   | 1.2                             | 2.3 | 3.2 | 4.1 | 5.3 | 6.2 | 1.2 | 2.5                               | 3.2  | 4.2  | 5.1   | 6.1   | 7.4 | 8.1   | 9.1 | 10.2  | 11.1  | 12.1 |  |
| 12   | 20                      | M   | 22        | M   | 1.1                             | 2.3 | 3.2 | 4.1 | 5.3 | 6.2 | 1.3 | 2.4                               | 3.2  | 4.2  | 5.1   | 6.3   | 7.1 | 8.2   | 9.4 | 10.2  | 11.1  | 12.1 |  |
| 13   | 14                      | I   | 28        | A   | 1.4                             | 2.2 | 3.2 | 4.1 | 5.3 | 6.2 | 1.4 | 2.4                               | 3.2  | 4.2  | 5.1   | 6.2   | 7.1 | 8.2   | 9.1 | 10.1  | 11.2  | 12.1 |  |
| 14   | 16                      | M   | 27        | A   | 1.1                             | 2.3 | 3.2 | 4.1 | 5.3 | 6.2 | 1.3 | 2.2                               | 3.2  | 4.2  | 5.1   | 6.2   | 7.1 | 8.2   | 9.1 | 10.1  | 11.1  | 12.1 |  |
| 15   | 20                      | M   | 28        | A   | 1.2                             | 2.2 | 3.2 | 4.2 | 5.1 | 6.2 | 1.4 | 2.1                               | 3.2  | 4.2  | 5.1   | 6.2   | 7.5 | 8.4   | 9.1 | 10.1  | 11.2  | 12.2 |  |
| 16   | 17                      | M   | 28        | A   | 1.1                             | 2.3 | 3.2 | 4.1 | 5.3 | 6.2 | 1.2 | 2.4                               | 3.2  | 4.2  | 5.1   | 6.3   | 7.5 | 8.4   | 9.1 | 10.1  | 11.1  | 12.2 |  |
| 17   | 20                      | M   | 28        | A   | 1.2                             | 2.2 | 3.2 | 4.2 | 5.1 | 6.2 | 1.3 | 2.5                               | 3.1  | 4.2  | 5.1   | 6.3   | 7.1 | 8.3   | 9.1 | 10.2  | 11.1  | 12.1 |  |
| 18   | 22                      | M   | 30        | A   | 1.1                             | 2.3 | 3.1 | 4.2 | 5.3 | 6.2 | 1.2 | 2.5                               | 3.2  | 4.3  | 5.1   | 6.2   | 7.4 | 8.2   | 9.1 | 10.1  | 11.1  | 12.2 |  |
| 19   | 14                      | I   | 27        | A   | 1.1                             | 2.4 | 3.2 | 4.1 | 5.1 | 6.2 | 1.3 | 2.5                               | 3.1  | 4.2  | 5.1   | 6.2   | 7.1 | 8.2   | 9.1 | 10.1  | 11.1  | 12.1 |  |
| 20   | 14                      | I   | 28        | A   | 1.1                             | 2.3 | 3.2 | 4.1 | 5.3 | 6.2 | 1.3 | 2.5                               | 3.1  | 4.3  | 5.1   | 6.2   | 7.1 | 8.1   | 9.1 | 10.1  | 11.1  | 12.1 |  |
| 21   | 17                      | M   | 29        | A   | 1.1                             | 2.3 | 3.2 | 4.1 | 5.3 | 6.2 | 1.4 | 2.5                               | 3.1  | 4.2  | 5.1   | 6.3   | 7.1 | 8.2   | 9.1 | 10.1  | 11.1  | 12.1 |  |
| 22   | 16                      | M   | 22        | M   | 1.1                             | 2.2 | 3.2 | 4.1 | 5.3 | 6.2 | 1.3 | 2.5                               | 3.2  | 4.2  | 5.1   | 6.2   | 7.2 | 8.1   | 9.1 | 10.1  | 11.1  | 12.2 |  |
| 23   | 17                      | M   | 26        | A   | 1.1                             | 2.3 | 3.2 | 4.1 | 5.1 | 6.2 | 1.2 | 2.4                               | 3.2  | 4.2  | 5.1   | 6.2   | 7.1 | 8.2   | 9.1 | 10.1  | 11.1  | 12.1 |  |
| 24   | 18                      | M   | 26        | A   | 1.1                             | 2.3 | 3.2 | 4.1 | 5.1 | 6.2 | 1.3 | 2.6                               | 3.1  | 4.2  | 5.1   | 6.3   | 7.1 | 8.2   | 9.1 | 10.1  | 11.1  | 12.1 |  |

|    |    |   |    |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |      |      |
|----|----|---|----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| 25 | 15 | M | 29 | A | 1.1 | 2.3 | 3.2 | 4.1 | 5.3 | 6.2 | 1.3 | 2.5 | 3.1 | 4.2 | 5.1 | 6.2 | 7.1 | 8.2 | 9.1 | 10.1 | 11.1 | 12.1 |
| 26 | 10 | I | 29 | A | 1.2 | 2.2 | 3.1 | 4.1 | 5.1 | 6.2 | 1.2 | 2.1 | 3.2 | 4.2 | 5.1 | 6.2 | 7.1 | 8.1 | 9.1 | 10.1 | 11.1 | 12.1 |
| 27 | 17 | M | 24 | A | 1.1 | 2.3 | 3.2 | 4.1 | 5.1 | 6.2 | 1.3 | 2.2 | 3.2 | 4.2 | 5.1 | 6.3 | 7.1 | 8.3 | 9.1 | 10.1 | 11.1 | 12.1 |
| 28 | 13 | I | 27 | A | 1.1 | 2.3 | 3.2 | 4.1 | 5.1 | 6.2 | 1.3 | 2.5 | 3.1 | 4.2 | 5.1 | 6.2 | 7.1 | 8.2 | 9.1 | 10.2 | 11.1 | 12.2 |
| 29 | 15 | M | 27 | A | 1.1 | 2.2 | 3.2 | 4.1 | 5.3 | 6.2 | 1.2 | 2.4 | 3.2 | 4.2 | 5.1 | 6.2 | 7.1 | 8.3 | 9.1 | 10.1 | 11.1 | 12.1 |
| 30 | 20 | M | 29 | A | 1.1 | 2.2 | 3.2 | 4.2 | 5.1 | 6.2 | 1.3 | 2.6 | 3.1 | 4.2 | 5.1 | 6.3 | 7.1 | 8.4 | 9.1 | 10.1 | 11.2 | 12.1 |

| SNO | CLINICAL VARIABLES |     |     |     |       |      |       |        |      |      |      |      |     | SATISFACTION | OUTCOME | CLINICAL PATHWAY |       |       |       |  |
|-----|--------------------|-----|-----|-----|-------|------|-------|--------|------|------|------|------|-----|--------------|---------|------------------|-------|-------|-------|--|
|     | HT                 | wt  | BMI | COM | T.O.C | F.UT | H.FIB | H.UT.T | H.CO | DUB  | DYS  | ME.P | SCO | SCO          | pre op  | day o            | day 1 | day 2 | day 3 |  |
| 1   | 1.3                | 2.2 | 3.1 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.1 | 14.1 | 58  | 0            | 70      | 61               | 41    | 35    | 73    |  |
| 2   | 1.3                | 2.2 | 3.1 | 4.2 | -     | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.1 | 14.1 | 60  | 0            | 69      | 63               | 47    | 39    | 70    |  |
| 3   | 1.3                | 2.3 | 3.2 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.1 | 12.2 | 13.1 | 14.2 | 75  | 0            | 68      | 62               | 41    | 34    | 69    |  |
| 4   | 1.3                | 2.1 | 3.1 | 4.1 | 6.2   | 7.2  | 8.1   | 9.2    | 10.1 | 12.2 | 13.1 | 14.1 | 80  | 2            | 62      | 60               | 40    | 35    | 64    |  |
| 5   | 1.5                | 2.3 | 3.1 | 4.2 | -     | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.1 | 14.2 | 52  | 4            | 55      | 59               | 43    | 33    | 55    |  |
| 6   | 1.3                | 2.2 | 3.1 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.1 | 12.2 | 13.1 | 14.1 | 69  | 0            | 57      | 60               | 43    | 34    | 55    |  |
| 7   | 1.3                | 2.2 | 3.1 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.2 | 12.2 | 13.1 | 14.1 | 59  | 0            | 69      | 60               | 43    | 40    | 64    |  |
| 8   | 1.3                | 2.1 | 3.1 | 4.2 | -     | 7.2  | 8.1   | 9.2    | 10.1 | 12.2 | 13.1 | 14.1 | 73  | 6            | 68      | 60               | 42    | 39    | 64    |  |
| 9   | 1.3                | 2.2 | 3.1 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.2 | 12.1 | 13.1 | 14.1 | 72  | 10           | 54      | 59               | 41    | 34    | 60    |  |
| 10  | 1.3                | 2.2 | 3.1 | 4.1 | 6.2   | 7.2  | 8.2   | 9.2    | 10.2 | 12.2 | 13.1 | 14.2 | 59  | 0            | 65      | 61               | 43    | 36    | 59    |  |
| 11  | 1.3                | 2.1 | 3.1 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.2 | 12.2 | 13.1 | 14.2 | 75  | 0            | 56      | 59               | 42    | 34    | 54    |  |
| 12  | 1.2                | 2.1 | 3.1 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.2 | 12.1 | 13.1 | 14.1 | 58  | 0            | 71      | 68               | 49    | 42    | 70    |  |
| 13  | 1.1                | 2.2 | 3.3 | 4.2 | -     | 7.2  | 8.1   | 9.2    | 10.1 | 12.2 | 13.2 | 14.1 | 60  | 4            | 65      | 59               | 39    | 32    | 55    |  |
| 14  | 1.3                | 2.2 | 3.1 | 4.1 | 6.1   | 7.2  | 8.2   | 9.2    | 10.2 | 12.2 | 13.1 | 14.1 | 72  | 9            | 65      | 62               | 42    | 35    | 60    |  |
| 15  | 1.3                | 2.3 | 3.1 | 4.2 | -     | -    | 8.2   | 9.2    | 10.2 | 12.2 | 13.1 | 14.1 | 80  | 0            | 54      | 61               | 41    | 34    | 53    |  |
| 16  | 1.3                | 2.2 | 3.1 | 4.1 | 6.1   | 7.1  | 8.1   | 9.2    | 10.1 | 12.2 | 13.1 | 14.1 | 50  | 6            | 68      | 61               | 43    | 40    | 58    |  |
| 17  | 1.4                | 2.2 | 3.1 | 4.1 | 6.1   | 7.2  | 8.2   | 9.2    | 10.2 | 12.1 | 13.1 | 14.1 | 69  | 0            | 55      | 60               | 42    | 32    | 70    |  |

|    |     |     |     |     |     |     |     |     |      |      |      |      |    |    |    |    |    |    |    |
|----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|----|----|----|----|----|----|----|
| 18 | 1.3 | 2.3 | 3.1 | 4.1 | 6.1 | 7.2 | 8.2 | 9.2 | 10.2 | 12.1 | 13.1 | 14.1 | 56 | 8  | 63 | 61 | 48 | 38 | 73 |
| 19 | 1.2 | 2.3 | 3.1 | 4.2 | -   | 7.2 | 8.1 | 9.2 | 10.1 | 12.1 | 13.1 | 14.2 | 68 | 4  | 56 | 61 | 41 | 34 | 59 |
| 20 | 1.3 | 2.2 | 3.1 | 4.2 | -   | 7.2 | 8.1 | 9.2 | 10.1 | 12.1 | 13.1 | 14.1 | 75 | 0  | 61 | 63 | 42 | 39 | 71 |
| 21 | 1.2 | 2.4 | 3.1 | 4.2 | -   | 7.2 | 8.2 | 9.2 | 10.2 | 12.2 | 13.1 | 14.1 | 60 | 2  | 62 | 64 | 47 | 42 | 75 |
| 22 | 1.1 | 2.4 | 3.1 | 4.1 | 6.1 | 7.2 | 8.1 | 9.2 | 10.1 | 12.2 | 13.1 | 14.1 | 55 | 9  | 59 | 65 | 42 | 35 | 68 |
| 23 | 1.2 | 2.3 | 3.1 | 4.1 | 6.1 | 7.1 | 8.1 | 9.2 | 10.1 | 12.2 | 13.2 | 14.1 | 59 | 0  | 68 | 61 | 41 | 34 | 64 |
| 24 | 1.4 | 2.3 | 3.1 | 4.1 | 6.1 | 7.2 | 8.1 | 9.2 | 10.1 | 12.2 | 13.1 | 14.1 | 68 | 4  | 58 | 59 | 43 | 37 | 61 |
| 25 | 1.5 | 2.3 | 3.1 | 4.2 | -   | 7.2 | 8.1 | 9.2 | 10.1 | 12.1 | 13.1 | 14.1 | 69 | 11 | 70 | 65 | 47 | 40 | 64 |
| 26 | 1.4 | 2.2 | 3.1 | 4.2 | -   | 7.2 | 8.2 | 9.2 | 10.1 | 12.2 | 13.1 | 14.1 | 52 | 0  | 64 | 60 | 44 | 33 | 67 |
| 27 | 1.3 | 2.3 | 3.1 | 4.1 | 6.1 | 7.1 | 8.2 | 9.2 | 10.2 | 12.2 | 13.2 | 14.1 | 55 | 6  | 66 | 61 | 44 | 34 | 69 |
| 28 | 1.2 | 2.4 | 3.1 | 4.1 | 6.2 | 7.1 | 8.2 | 9.2 | 10.1 | 12.1 | 13.1 | 14.1 | 47 | 0  | 63 | 60 | 43 | 34 | 65 |
| 29 | 1.3 | 2.3 | 3.1 | 4.2 | -   | 7.2 | 8.1 | 9.2 | 10.1 | 12.2 | 13.1 | 14.1 | 50 | 4  | 63 | 60 | 43 | 36 | 64 |
| 30 | 1.2 | 2.1 | 3.1 | 4.2 | -   | 7.2 | 8.2 | 9.2 | 10.1 | 12.2 | -    | 14.1 | 55 | 0  | 62 | 60 | 43 | 33 | 58 |

### MASTER CODING SHEET FOR EXPERIMENTAL GROUP

| S<br>NO | KNOWLEDGE QUESTIONNAIRE |     |           |     | DEMOGRAPHIC VARIABLES OF PATIENTS |     |      |      |       |       |     |       |     |       |       |      |
|---------|-------------------------|-----|-----------|-----|-----------------------------------|-----|------|------|-------|-------|-----|-------|-----|-------|-------|------|
|         | PRE-TEST                |     | POST-TEST |     |                                   |     |      |      |       |       |     |       |     |       |       |      |
|         | SCO                     | LEV | SCO       | LEV | AGE                               | EDU | OCCU | WORK | MARIT | A.MAR | MOD | CHILD | REL | T.FAM | CO.MO | CON  |
| 1       | 17                      | M   | 28        | A   | 1.3                               | 2.6 | 3.1  | 4.3  | 5.1   | 6.3   | 7.1 | 8.2   | 9.1 | 10.2  | 11.1  | 12.2 |
| 2       | 10                      | I   | 27        | A   | 1.1                               | 2.1 | 3.2  | 4.3  | 5.2   | -     | 7.5 | 8.4   | 9.1 | 10.1  | 11.1  | 12.2 |
| 3       | 15                      | M   | 27        | A   | 1.2                               | 2.5 | 3.2  | 4.2  | 5.1   | 6.1   | 7.4 | 8.1   | 9.1 | 10.2  | 11.2  | 12.1 |
| 4       | 10                      | I   | 26        | A   | 1.3                               | 2.4 | 3.2  | 4.2  | 5.1   | 6.3   | 7.1 | 8.2   | 9.4 | 10.2  | 11.1  | 12.1 |
| 5       | 11                      | I   | 24        | A   | 1.3                               | 2.4 | 3.2  | 4.3  | 5.1   | 6.2   | 7.1 | 8.3   | 9.1 | 10.1  | 11.1  | 12.1 |
| 6       | 12                      | I   | 26        | A   | 1.2                               | 2.5 | 3.1  | 4.2  | 5.1   | 6.2   | 7.1 | 8.1   | 9.1 | 10.2  | 11.1  | 12.2 |
| 7       | 14                      | I   | 28        | A   | 1.3                               | 2.5 | 3.1  | 4.2  | 5.1   | 6.3   | 7.2 | 8.1   | 9.1 | 10.2  | 11.2  | 12.1 |
| 8       | 18                      | M   | 27        | A   | 1.3                               | 2.5 | 3.2  | 4.1  | 5.2   | -     | 7.5 | 8.4   | 9.1 | 10.1  | 11.2  | 12.2 |
| 9       | 17                      | M   | 26        | A   | 1.2                               | 2.5 | 3.1  | 4.2  | 5.1   | 6.2   | 7.1 | 8.2   | 9.1 | 10.2  | 11.2  | 12.2 |
| 10      | 10                      | I   | 27        | A   | 1.3                               | 2.5 | 3.1  | 4.2  | 5.1   | 6.3   | 7.1 | 8.3   | 9.1 | 10.2  | 11.1  | 12.1 |
| 11      | 10                      | I   | 26        | A   | 1.2                               | 2.5 | 3.2  | 4.3  | 5.1   | 6.2   | 7.4 | 8.2   | 9.1 | 10.1  | 11.1  | 12.2 |
| 12      | 20                      | M   | 22        | M   | 1.3                               | 2.5 | 3.1  | 4.2  | 5.1   | 6.2   | 7.1 | 8.2   | 9.1 | 10.2  | 11.2  | 12.2 |
| 13      | 14                      | I   | 28        | A   | 1.3                               | 2.5 | 3.1  | 4.3  | 5.1   | 6.2   | 7.1 | 8.1   | 9.1 | 10.1  | 11.2  | 12.1 |
| 14      | 16                      | M   | 27        | A   | 1.3                               | 2.5 | 3.1  | 4.2  | 5.1   | 6.2   | 7.1 | 8.2   | 9.1 | 10.1  | 11.2  | 12.1 |
| 15      | 20                      | M   | 28        | A   | 1.4                               | 2.5 | 3.2  | 4.2  | 5.1   | 6.2   | 7.4 | 8.2   | 9.1 | 10.1  | 11.1  | 12.1 |
| 16      | 17                      | M   | 28        | A   | 1.2                               | 2.2 | 3.5  | 4.2  | 5.1   | 6.2   | 7.1 | 8.2   | 9.1 | 10.2  | 11.1  | 12.1 |
| 17      | 20                      | M   | 28        | A   | 1.3                               | 2.5 | 3.2  | 4.2  | 5.1   | 6.2   | 7.4 | 8.2   | 9.1 | 10.1  | 11.2  | 12.1 |
| 18      | 22                      | M   | 30        | A   | 1.3                               | 2.2 | 3.2  | 4.3  | 5.1   | 6.2   | 7.5 | 8.4   | 9.1 | 10.1  | 11.1  | 12.1 |
| 19      | 14                      | I   | 27        | A   | 1.3                               | 2.6 | 3.1  | 4.3  | 5.1   | 6.2   | 7.1 | 8.1   | 9.1 | 10.1  | 11.1  | 12.1 |
| 20      | 14                      | I   | 28        | A   | 1.1                               | 2.1 | 3.2  | 4.2  | 5.1   | 6.2   | 7.4 | 8.1   | 9.1 | 10.1  | 11.2  | 12.2 |
| 21      | 17                      | M   | 29        | A   | 1.2                               | 2.5 | 3.2  | 4.2  | 5.1   | 6.2   | 7.1 | 8.1   | 9.1 | 10.1  | 11.1  | 12.1 |
| 22      | 16                      | M   | 22        | M   | 1.3                               | 2.4 | 3.2  | 4.2  | 5.1   | 6.2   | 7.2 | 8.1   | 9.1 | 10.1  | 11.1  | 12.1 |
| 23      | 17                      | M   | 26        | A   | 1.4                               | 2.4 | 3.2  | 4.2  | 5.1   | 6.2   | 7.1 | 8.1   | 9.1 | 10.1  | 11.1  | 12.1 |
| 24      | 18                      | M   | 26        | A   | 1.3                               | 2.2 | 3.2  | 4.2  | 5.1   | 6.2   | 7.1 | 8.1   | 9.1 | 10.1  | 11.1  | 12.1 |
| 25      | 15                      | M   | 29        | A   | 1.4                               | 2.1 | 3.2  | 4.2  | 5.1   | 6.2   | 7.1 | 8.1   | 9.4 | 10.1  | 11.2  | 12.1 |
| 26      | 10                      | I   | 29        | A   | 1.2                               | 2.4 | 3.2  | 4.2  | 5.1   | 6.2   | 7.1 | 8.2   | 9.4 | 10.1  | 11.1  | 12.1 |
| 27      | 17                      | M   | 24        | A   | 1.3                               | 2.5 | 3.1  | 4.3  | 5.1   | 6.2   | 7.1 | 8.3   | 9.4 | 10.1  | 11.2  | 12.1 |
| 28      | 13                      | I   | 27        | A   | 1.2                               | 2.5 | 3.2  | 4.2  | 5.1   | 6.2   | 7.1 | 8.1   | 9.1 | 10.1  | 11.1  | 12.1 |
| 29      | 15                      | M   | 27        | A   | 1.3                               | 2.5 | 3.1  | 4.3  | 5.1   | 6.2   | 7.1 | 8.1   | 9.1 | 10.1  | 11.1  | 12.1 |
| 30      | 20                      | M   | 29        | A   | 1.3                               | 2.5 | 3.1  | 4.2  | 5.1   | 6.2   | 7.4 | 8.1   | 9.1 | 10.1  | 11.1  | 12.2 |
| 31      |                         |     |           |     | 1.4                               | 2.5 | 3.1  | 4.2  | 5.1   | 6.2   | 7.5 | 8.4   | 9.4 | 10.1  | 11.2  | 12.2 |
| 32      |                         |     |           |     | 1.3                               | 2.5 | 3.2  | 4.2  | 5.1   | 6.2   | 7.1 | 8.2   | 9.1 | 10.1  | 11.2  | 12.1 |

|    |  |  |  |  |     |     |     |     |     |     |     |     |     |      |      |      |
|----|--|--|--|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| 33 |  |  |  |  | 1.2 | 2.4 | 3.2 | 4.2 | 5.1 | 6.3 | 7.1 | 8.2 | 9.1 | 10.1 | 11.2 | 12.1 |
| 34 |  |  |  |  | 1.3 | 2.6 | 3.1 | 4.2 | 5.1 | 6.2 | 7.1 | 8.2 | 9.1 | 10.1 | 11.1 | 12.2 |
| 35 |  |  |  |  | 1.3 | 2.5 | 3.1 | 4.2 | 5.1 | 6.2 | 7.1 | 8.2 | 9.1 | 10.2 | 11.1 | 12.1 |
| 36 |  |  |  |  | 1.2 | 2.1 | 3.2 | 4.2 | 5.1 | 6.2 | 7.1 | 8.1 | 9.2 | 10.1 | 11.1 | 12.2 |
| 37 |  |  |  |  | 1.3 | 2.2 | 3.2 | 4.2 | 5.1 | 6.2 | 7.1 | 8.1 | 9.1 | 10.1 | 11.2 | 12.1 |
| 38 |  |  |  |  | 1.3 | 2.5 | 3.1 | 4.2 | 5.1 | 6.2 | 7.1 | 8.1 | 9.1 | 10.1 | 11.2 | 12.1 |
| 39 |  |  |  |  | 1.2 | 2.4 | 3.2 | 4.2 | 5.1 | 6.2 | 7.1 | 8.1 | 9.1 | 10.1 | 11.1 | 12.1 |
| 40 |  |  |  |  | 1.3 | 2.6 | 3.1 | 4.2 | 5.1 | 6.2 | 7.1 | 8.2 | 9.1 | 10.1 | 11.1 | 12.1 |

| S<br>NO | CLINICAL VARIABLES PROFORMA FOR PATIENTS |     |     |     |       |      |       |        |      |      |      |      | SATISFACTION |     | OUTCOME |        | CLINICAL PATHWAY |       |       |       |  |
|---------|--|-----|-----|-----|-------|------|-------|--------|------|------|------|------|--------------|-----|---------|--------|------------------|-------|-------|-------|--|
|         | HT                                       | WT  | BMI | COM | T.O.C | F.UT | H.FIB | H.UT.T | H.CO | DUB  | DYS  | ME.P | S.NO         | SCO | SCO     | pre op | day 0            | day 1 | day 2 | day 3 |  |
| 1       | 1.3                                      | 2.2 | 3.1 | 4.1 | 6.2   | 7.2  | 8.2   | 9.2    | 10.2 | 12.2 | 13.1 | 14.2 | 1            | 74  | 0       | 78     | 68               | 51    | 40    | 80    |  |
| 2       | 1.2                                      | 2.1 | 3.1 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.2 | 12.1 | 13.1 | 14.1 | 2            | 72  | 0       | 79     | 69               | 49    | 44    | 79    |  |
| 3       | 1.2                                      | 2.2 | 3.1 | 4.2 | -     | 7.2  | 8.2   | 9.2    | 10.1 | 12.2 | 13.1 | 14.1 | 3            | 80  | 0       | 78     | 69               | 47    | 45    | 80    |  |
| 4       | 1.2                                      | 2.2 | 3.1 | 4.1 | 6.2   | 7.1  | 8.2   | 9.2    | 10.1 | 12.2 | 13.2 | 14.2 | 4            | 80  | 0       | 79     | 69               | 52    | 43    | 79    |  |
| 5       | 1.1                                      | 2.4 | 3.1 | 4.1 | 6.1   | 7.1  | 8.2   | 9.2    | 10.1 | 12.2 | 13.1 | 14.1 | 5            | 73  | 0       | 79     | 68               | 49    | 42    | 78    |  |
| 6       | 1.3                                      | 2.4 | 3.1 | 4.1 | 6.1   | 7.2  | 8.2   | 9.2    | 10.2 | 12.2 | 13.1 | 14.1 | 6            | 80  | 0       | 78     | 68               | 50    | 44    | 80    |  |
| 7       | 1.1                                      | 2.2 | 3.1 | 4.2 | -     | 7.2  | 8.1   | 9.2    | 10.1 | 12.2 | 13.1 | 14.1 | 7            | 80  | 2       | 78     | 69               | 51    | 43    | 78    |  |
| 8       | 1.3                                      | 2.4 | 3.1 | 4.2 | -     | 7.2  | 8.2   | 9.2    | 10.2 | 12.2 | 13.1 | 14.2 | 8            | 75  | 0       | 79     | 69               | 51    | 45    | 81    |  |
| 9       | 1.4                                      | 2.4 | 3.1 | 4.2 | -     | 7.2  | 8.2   | 9.2    | 10.2 | 12.1 | 13.1 | 14.2 | 9            | 73  | 0       | 79     | 69               | 50    | 45    | 80    |  |
| 10      | 1.4                                      | 2.2 | 3.1 | 4.1 | 6.1   | 7.2  | 8.2   | 9.2    | 10.1 | 12.1 | 13.1 | 14.1 | 10           | 69  | 0       | 80     | 69               | 52    | 45    | 79    |  |
| 11      | 1.3                                      | 2.3 | 3.1 | 4.1 | 6.1   | 7.2  | 8.2   | 9.2    | 10.2 | 12.1 | 13.1 | 14.1 | 11           | 80  | 0       | 80     | 70               | 49    | 43    | 79    |  |
| 12      | 1.2                                      | 2.3 | 3.1 | 4.2 | -     | 7.2  | 8.1   | 9.2    | 10.2 | 12.1 | 13.1 | 14.2 | 12           | 77  | 0       | 79     | 70               | 51    | 46    | 81    |  |
| 13      | 1.3                                      | 2.2 | 3.1 | 4.2 | -     | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.1 | 14.1 | 13           | 68  | 0       | 79     | 69               | 52    | 45    | 82    |  |
| 14      | 1.3                                      | 2.2 | 3.1 | 4.2 | -     | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.1 | 14.1 | 14           | 80  | 0       | 78     | 69               | 51    | 46    | 80    |  |
| 15      | 1.3                                      | 2.2 | 3.1 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.1 | 12.2 | 13.1 | 14.2 | 15           | 74  | 4       | 79     | 69               | 52    | 45    | 81    |  |
| 16      | 1.3                                      | 2.3 | 3.2 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.1 | 14.1 | 16           | 73  | 0       | 76     | 69               | 50    | 46    | 78    |  |
| 17      | 1.3                                      | 2.1 | 3.1 | 4.2 | -     | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.1 | 14.1 | 17           | 75  | 0       | 80     | 69               | 52    | 45    | 81    |  |
| 18      | 1.5                                      | 2.3 | 3.1 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.1 | 14.1 | 18           | 77  | 0       | 80     | 70               | 52    | 46    | 81    |  |
| 19      | 1.3                                      | 2.2 | 3.1 | 4.1 | 6.1   | 7.1  | 8.1   | 9.2    | 10.1 | 12.1 | 13.2 | 14.1 | 19           | 78  | 0       | 80     | 69               | 50    | 44    | 77    |  |
| 20      | 1.3                                      | 2.2 | 3.1 | 4.2 | -     | 7.1  | 8.1   | 9.2    | 10.2 | 12.1 | 13.1 | 14.1 | 20           | 74  | 0       | 79     | 69               | 51    | 45    | 81    |  |
| 21      | 1.3                                      | 2.1 | 3.1 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.2 | 14.2 | 21           | 76  | 0       | 79     | 70               | 51    | 45    | 81    |  |
| 22      | 1.3                                      | 2.2 | 3.1 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.1 | 14.1 | 22           | 72  | 4       | 78     | 68               | 50    | 44    | 80    |  |
| 23      | 1.3                                      | 2.2 | 3.1 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.1 | 14.2 | 23           | 76  | 0       | 77     | 62               | 47    | 39    | 75    |  |
| 24      | 1.3                                      | 2.1 | 3.1 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.1 | 14.2 | 24           | 77  | 0       | 80     | 68               | 50    | 45    | 80    |  |
| 25      | 1.2                                      | 2.1 | 3.1 | 4.2 | -     | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.1 | 14.2 | 25           | 76  | 0       | 79     | 69               | 51    | 45    | 81    |  |
| 26      | 1.3                                      | 2.2 | 3.3 | 4.1 | 6.1   | 7.1  | 8.1   | 9.2    | 10.1 | 12.2 | 13.1 | 14.1 | 26           | 75  | 0       | 80     | 70               | 50    | 44    | 82    |  |
| 27      | 1.3                                      | 2.2 | 3.1 | 4.2 | -     | 7.2  | 8.2   | 9.2    | 10.1 | 12.1 | 13.2 | 14.1 | 27           | 78  | 0       | 78     | 67               | 50    | 45    | 80    |  |
| 28      | 3  | 2.3 | 3.1 | 4.1 | 6.1   | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.2 | 14.1 | 28           | 80  | 3       | 78     | 68               | 52    | 44    | 80    |  |
| 29      | 3  | 2.2 | 3.1 | 4.1 | 6.1   | 7.1  | 8.1   | 9.2    | 10.1 | 12.1 | 13.1 | 14.1 | 29           | 80  | 0       | 79     | 68               | 50    | 44    | 79    |  |
| 30      | 4  | 2.2 | 3.1 | 4.1 | 6.1   | 7.1  | 8.1   | 9.2    | 10.2 | 12.1 | 13.2 | 14.1 | 30           | 80  | 0       | 77     | 70               | 49    | 45    | 78    |  |
| 31      | 3  | 2.3 | 3.1 | 4.2 | -     | 7.1  | 8.1   | 9.2    | 10.2 | 12.2 | 13.1 | 14.1 | 31           | 76  | 0       | 80     | 69               | 50    | 43    | 80    |  |
| 32      | 2  | 2.3 | 3.1 | 4.2 | -     | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.1 | 14.1 | 32           | 75  | 0       | 80     | 70               | 52    | 46    | 79    |  |
| 33      | 3  | 2.2 | 3.1 | 4.2 | -     | 7.2  | 8.1   | 9.2    | 10.1 | 12.1 | 13.1 | 14.1 | 33           | 78  | 5       | 80     | 70               | 50    | 43    | 78    |  |

|    |   |     |     |     |     |     |     |     |      |      |      |      |    |    |   |    |    |    |    |    |
|----|---|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|----|----|---|----|----|----|----|----|
| 34 | 2 | 2.4 | 3.1 | 4.1 | 6.1 | 7.2 | 8.1 | 9.2 | 10.2 | 12.1 | 13.1 | 14.2 | 34 | 73 | 0 | 80 | 70 | 52 | 46 | 79 |
| 35 | 1 | 2.4 | 3.1 | 4.1 | 6.1 | 7.2 | 8.2 | 9.2 | 10.1 | 12.1 | 13.1 | 14.2 | 35 | 77 | 0 | 79 | 69 | 50 | 44 | 81 |
| 36 | 2 | 2.3 | 3.1 | 4.1 | 6.1 | 7.2 | 8.1 | 9.2 | 10.2 | 12.2 | 13.1 | 14.1 | 36 | 74 | 0 | 80 | 68 | 51 | 45 | 80 |
| 37 | 4 | 2.3 | 3.1 | 4.2 | -   | 7.2 | 8.1 | 9.2 | 10.1 | 12.1 | 13.1 | 14.1 | 37 | 70 | 3 | 80 | 70 | 52 | 45 | 78 |
| 38 | 5 | 2.3 | 3.1 | 4.2 | -   | 7.2 | 8.1 | 9.2 | 10.1 | 12.1 | 13.1 | 14.1 | 38 | 65 | 0 | 80 | 70 | 51 | 43 | 79 |
| 39 | 4 | 2.2 | 3.1 | 4.1 | 6.1 | 7.2 | 8.2 | 9.2 | 10.1 | 12.2 | 13.1 | 14.1 | 39 | 80 | 0 | 80 | 70 | 52 | 46 | 79 |
| 40 | 3 | 2.3 | 3.1 | 4.1 | 6.1 | 7.2 | 8.1 | 9.2 | 10.1 | 12.2 | 13.1 | 14.1 | 40 | 68 | 0 | 76 | 69 | 50 | 46 | 78 |