EFFECTIVENESS OF CLINICAL PATHWAY FOR PATIENTS UNDERGOING CHOLECYSTECTOMY UPON THE KNOWLEDGE AND PRACTICE OF NURSES AND PATIENTS' OUTCOME

BY

BRINDHA.M

A DISSERTATION SUBMITTED TO THE TAMILNADU DR.M.G.R.MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

APRIL 2012

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Approved by the Dissertation Committee on : _____

Research Guide : _____

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Apollo Main Hospitals,
Chennai – 600 006.

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APRIL 2012

DECLARATION

I hereby declare that the present dissertation entitled **"Effectiveness of Clinical Pathway for Patients undergoing Cholecystectomy upon the Knowledge and Practice of Nurses and Patients' Outcome"** is the outcome of the original research work undertaken and carried out by me under the guidance of **Dr. Latha Venkatesan,** M.Sc (N)., M.Phil., Ph.D, Principal, Apollo College of Nursing, **Mrs. Lizy Sonia. A**, M.Sc (N), Professor cum Vice Principal, Apollo College of Nursing, Chennai. I also declare that the 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 university.

II Year M.Sc (N)

ACKNOWLEDGEMENT

I thank **God Almighty** for showering his blessings upon me and guidance in the matters at hand and for clearly showing me the way to conduct my work with a spirit of joy and enthusiasm throughout my study.

I dedicate my heartfelt thanks and gratitude to our esteemed leader **Dr. Latha Venkatesan**, M.Sc (N)., M.Phil., Ph.D, Principal, Apollo College of Nursing for her tremendous help, continuous support, valuable suggestions and tireless motivation to carry out my study successfully.

I take this opportunity to express my great pleasure and deep sense of gratitude to my guide **Mrs. Lizy Sonia. A,** M.Sc (N), Vice Principal, Apollo College of Nursing for her constant encouragement and the inspiring guidance throughout my study.

I owe my special thanks to **Prof. K.Vijaya Lakshmi**, Research Coordinator, Apollo College of Nursing for her prolonged patience and continuous guidance in completing my study.

My special gratitude to **Dr. P. Radhakrishna**, Consultant Gastroenterologist., Apollo Main Hospital, Chennai for his valuable suggestions and opinions towards the study.

I profoundly thank **Dr. Radha Rajagopalan**, Director of Medical Education, Apollo Main Hospital for permitting me to conduct my study in their esteemed institution and providing continuous encouragement throughout the study.

I extend my thanks to **Dr. R.S.Rengan.,** M.S., D.N.B., (Surgery) MIAP., Consultant general & Laparoscopic Surgeon., Apollo First Med Hospitals, for his worthful suggestions. I profoundly thank **Ms. Punitha Singh**, Nursing Director, Apollo Main Hospital, Chennai for her valuable clinical guidance.

My genuine gratitude to **Mrs. Nesa Sathya Satchi**, M.Sc (N)., Reader and Course coordinator for her consecutive ideas and enormous concern. I also extend my special thanks to all the **Faculties in the Department of Medical Surgical Nursing** for rendering their valuable guidance in completing my study.

I am immensely grateful to all the **Experts** for validating the tool. I am thankful to all the **Head of the departments**, **Faculties** and my **Colleagues** who helped me directly or indirectly in carrying out my study.

I express my gratitude to the **Librarians** of Apollo College of Nursing and the Tamil Nadu Dr. M.G.R. Medical University, for their timely help throughout the study.

I thank all the **Participants** of my study for their wonderful participation and cooperation without whom I could not have completed my study. My special gratitude to **Mr. Kannan**, Universal computers for his constructive and creative efforts in typing the dissertation.

Also my heartfelt thanks to my Mother **Mrs.K.R.Girija** and Sister **Mrs.M.Suvacini** for their continuous support and encouragement at various stages of the study.

SYNOPSIS

A Quasi Experimental Study To Assess The Effectiveness Of Clinical Pathway For Patients Undergoing Cholecystectomy Upon The Knowledge And Practice Of Nurses And Patients' Outcome At Apollo Main Hospital, Chennai.

The 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 Laparoscopic cholecystectomy.
2. To assess the patients' outcome in control and experimental group of patients undergoing laparoscopic cholecystectomy.
3. To evaluate the effectiveness of clinical pathway by comparing the pre and post test level of knowledge and practice of nurses regarding clinical pathway for patients undergoing laparoscopic cholecystectomy.
4. To compare the patients' outcome in control and experimental group of patients undergoing laparoscopic cholecystectomy.
5. To compare the level of patient satisfaction on nursing care in control and experimental group of patients undergoing laparoscopic cholecystectomy.
6. To determine the association between selected demographic variables of nurses and their pre and post test level of knowledge regarding clinical pathway for patients undergoing laparoscopic cholecystectomy.
7. To determine the association between selected demographic variables of control and experimental group of patients undergoing laparoscopic cholecystectomy and their outcome.

8. To determine the association between selected clinical variables of control and experimental group of patients undergoing laparoscopic cholecystectomy and their outcome.

The conceptual framework for the study was developed on the basis of Wiedenbach's helping art of clinical nursing theory, which was modified for the present study. An intensive review of literature and experts guidance laid the foundation to the development of tools such as demographic variable proforma for nurses and patients, clinical variable proforma for patients, structured knowledge questionnaire for nurses, practice check list, patient satisfaction rating scale and patient outcome check list.

In this study, quasi experimental research design was adopted. Since there were a limited number of nurses, one group pre and post test design was adopted for nurses. The present study was conducted at Apollo Main Hospital, Chennai among nurses and laparoscopic cholecystectomy patients. The sample size for the present study was 30 nurses and 60 patients undergoing laparoscopic cholecystectomy. Among the 60 patients, 30 patients were assigned to control group and 30 patients to experimental group who satisfied the inclusion criteria.

The investigator used the demographic variable proforma of nurses and patients and clinical variable proforma of patients to obtain the baseline data. Structured questionnaire was used to assess the knowledge of nurses, practice checklist was used to identify whether the patients were receiving the appropriate care, rating scale to assess the level of patient satisfaction on nursing care and checklist to assess the patients' outcome. The data collection tools were validated and reliability was established. After

the pilot study, the data collection of the main study was conducted for a period of 4 weeks. The collected data was tabulated and analyzed by using appropriate descriptive and inferential statistics.

The Major Findings of the Study

- Majority of the nurses were in the age group of 21-25 yrs (80%), females (93.3%), having less than 5 years of experience (86.6%), completed diploma nursing (56.6%), studied in private institution (86.6%), working as staff nurses (70%), in private wards (66.6%) and not attended in service education on clinical pathway (70%).
- Most of the patients in control group and experimental group undergoing laparoscopic cholecystectomy were males (66.6%,70%), belongs to age group of above 50 years (43.3%, 40%), married (90%, 86%), graduates (36.3%, 46.6%), employed (53.3%, 46.6%), non vegetarians (70%, 70%), indoor place of work (86.6%, 80%), moderate worker (70%, 56.6%), with monthly income of more than 15,000 (73.3%, 70%), and acquired health information about laparoscopic cholecystectomy from health workers (63.3%,53.3%) respectively.
- Most of the patients in control and experimental group undergoing laparoscopic cholecystectomy were weighing above 70 kgs (46.6%, 50%), had co morbid illness (66.6%,76.6%), on treatment for co morbid illness (50%,76.6%), had no history of trauma (90%, 90%), had no rapid history of weight loss (86.6%, 83.3%), suffering from gall bladder disease for less than 3 months (86.6%, 83.3%), had no history of jaundice (83.3%, 86.6%), and had no history of bad habits (63.3%, 46.6%) respectively.

- In pre test regarding clinical pathway for laparoscopic cholecystectomy, most of the nurses had inadequate knowledge (70%) and had moderately adequate knowledge (30%). In post test, majority of the nurses had adequate knowledge (76.6%) and significant percentage of nurses had moderately adequate knowledge (23.33%).
- Most of the nurses had partially compliant scores on day 1 and day 2 (56.6%, 56.6%) and most of them have non compliant scores on day 3(63.3%) for control group of laparoscopic cholecystectomy patients. Nurses had compliant scores from day 1 to day 3 for experimental group of patients
- Majority of the control group patients had moderate positive outcome (86.6%) and majority of experimental group patients had positive outcome (83.3%).
- Most of patients in control group were satisfied (56.6%) and significant percentage were dissatisfied (43.3%) with nursing care. Majority of patients in experimental group were highly satisfied (80%) on nursing care provided.
- The knowledge of nurses in post test (M=16.5, SD = 1.52) were high in comparison with the pre test (M=9, SD=2.61). The difference was found to be statistically significant at $p<0.001$ level of confidence.
- The mean practice scores for nurses in experimental group of patients were high in comparison with the practice scores in control group of patients. The difference was found to be statistically significant at $p<0.001$ level of confidence.
- The level of satisfaction on nursing care in experimental group of patients (M=33.93, SD=3.677) was high in comparison with the level of satisfaction in control group (M=22.16, SD= 4.099). In the experimental group, the level of

satisfaction was improved after implementation of clinical pathway. The difference was found to be statistically significant at $p<0.001$ level of confidence.

- The patients' outcome in experimental group ($M=20.83$, $SD=2.20$) was high in comparison with the patients outcome in control group ($M=17.13$, $SD = 2.31$). The difference was found to be statistically significant at $p<0.001$ level of confidence.
- There was no significant association between the selected demographic variables namely age, total years of experience, designation, working area, professional qualification and place of study and pre and post test level knowledge of nurses.
- There was no significant association between the selected demographic variables namely age, sex, educational qualification, dietary intake, place of work, nature of work, occupational status, residential area and patients' outcome in control and experimental group of patients.
- There was no significant association between the selected demographic variables namely age, sex, educational qualification, dietary intake, place of work, nature of work occupational status, residential area and level of satisfaction in control group and experimental group of patients.
- There was no significant association between the selected clinical variables namely weight, history of co-morbid illness, treatment of co morbid illness, history of trauma, history of rapid weight loss, history of surgeries, history of bad habits and patients outcome in control and experimental group. But there was a significant association between history of surgery and outcome in control group of patients.

Recommendations

- The similar study could be undertaken on larger scale for more valid generalization.
- This study could be replicated in different settings.
- The study could be conducted to analyze the relationship between the use of clinical pathway and time spent by the nurse.
- Clinical pathways can be established for major disease conditions and other surgeries.

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APPENDIX –I

LETTER SEEKING PERMISSION TO CONDUCT THE 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/0101/11 **15.03.11**

Dr.Radha Rajagopalan
Apollo Main hospital,
No:21,Greams Lane,
Anna salai,Greams Road
Chennai- 600006

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.Brindha .M has selected the following title for her research study.

"An quasi experimental study to assess the effectiveness of clinical pathway for patients undergoing Cholecystectomy 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 THE 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/01282/11 **10.06.11**

To

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

Director-Nursing
Apollo Hospitals
Chennai-600 006.

Dear Ms.Punitha ,

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

"An quasi experimental study to assess the effectiveness of clinical pathway for patients undergoing Cholecystectomy upon the knowledge and practice of nurses and patients outcome at Apollo Hospitals, Chennai"

Kindly do the needful,

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 –III

ETHICAL COMMITTEE CLEARANCE LETTER

Ethics Committee

Apollo HOSPITALS
TOUCHING LIVES

22 June, 2011

To,
Ms. M. Brindha
1st Year M.Sc (Nursing)
Dept. of Medical Surgery
Apollo College of Nursing, Chennai
Tamil Nadu, India

Ref: Effectiveness of clinical pathway for patients undergoing laparoscopic cholecystectomy

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

Dear Ms M. Brindha,

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

- Project Proposal titled "Effectiveness of clinical pathway for patients undergoing laparoscopic cholecystectomy"
- 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

Ethics Committee

Apollo HOSPITALS
TOUCHING LIVES

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,

Radhakrishnan

Date 22/6/11

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

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

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

APPENDIX – IV

LETTER SEEKING PERMISSION FOR CONTENT VALIDITY

From
MS. M.Brindha,
M.Sc., (Nursing) Second Year,
Apollo College of Nursing,
Chennai - 600095.

To

Forwarded through,
Dr. Latha Venkatesan,
Principal,
Apollo College of Nursing.

Respected Madam,

Sub: Requesting for opinions and suggestions of experts for establishing content validity for Research tool

Greetings ! As a part of the curriculum requirement the following research title was selected for the study. "A Quasi Experimental study to assess the effectiveness of clinical pathway for patients undergoing cholecystectomy upon the knowledge and practice of nurses and patients outcome at Apollo Hospitals, Chennai."

I will be highly privileged to have your valuable suggestions with regard to the establishment of content validity for my research tool. So I kindly request you to validate my research tool.

Thanking you,

Date : **Yours sincerely,**

Place: **(M.Brindha)**

APPENDIX –V

LIST OF EXPERTS

1. **Dr. Latha Venkatesan, M.Sc., M.Phil., Ph.D,**
   Principal,
   Apollo College of Nursing,
   Chennai – 600095.

2. **Dr. (Major) R.S.Rengan,M.S.,DNB,**
   Consultant general & laparoscopic surgeon,
   Apollo first med hospital,
   Chennai – 600033.

3. **Dr. P. Radha Krishnan,**
   MBBS., MS (Gen)., M.Ch (Gastro),
   Consultant gastroenterologist,
   Apollo main hospitals,
   Chennai – 600006.

4. **Prof. Mrs. Lizy Sonia, M.Sc (N),**
   Vice Principal,
   Apollo College of Nursing,
   Chennai – 600095.

5. **MS. Jaslina Gnanarani. J, M.Sc (N)**
   Reader in medical surgical nursing
   Apollo college of Nursing,
   Chennai- 600095

6 . **MS. Sasikala, M.Sc (N)**
   Reader in medical surgical nursing
   Apollo college of Nursing,
   Chennai- 600095

7. **MS. Kanchana, M.Sc (N)**
   Reader in medical surgical nursing
   Apollo college of Nursing,
   Chennai- 600095

APPENDIX –VI

CONTENT VALIDITY CERTIFICATE

I hereby certify that I have validated the research tool of Ms.M.Brindha M.Sc., (Nursing) student who is undertaking research study. “A Quasi Experimental Study To Assess The Effectiveness Of Clinical Pathway For Patients Undergoing Cholecystectomy Upon The Knowledge And Practice Of Nurses And Patients’ Outcome At Apollo Hospitals, Chennai.”

Signature of expert

Name & designation

APPENDIX – VII

RESEARCH PARTICIPANT'S CONSENT FORM IN ENGLISH

Dear Participant,

I am M.Brindha, 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 cholecystectomy upon the knowledge and practice of nurses and patients outcome' 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 "A Quasi Experimental study to assess the effectiveness of clinical pathway for patients undergoing cholecystectomy upon the knowledge and practice of nurses and patients outcome at Apollo Hospitals, Chennai." by Ms. M. Brindha, II Year M.Sc(N), Apollo College of Nursing was edited for English language appropriateness by

Signature

K. SANKARARAJI B.Sc,M.A,M.Ed,
M.A, P.B Ed, O S A, C, M T
Teacher in English (HSE)
T.T.D. Sri Venkateswara H.S. School
Vellore - 632001.

APPENDIX – IX

PLAGIARISM ORIGINALITY REPORT

	Plagiarism Detector - Originality Report
	Plagiarism Detector Project: [http://plagiarism-detector.com] Application core verrsion: 557

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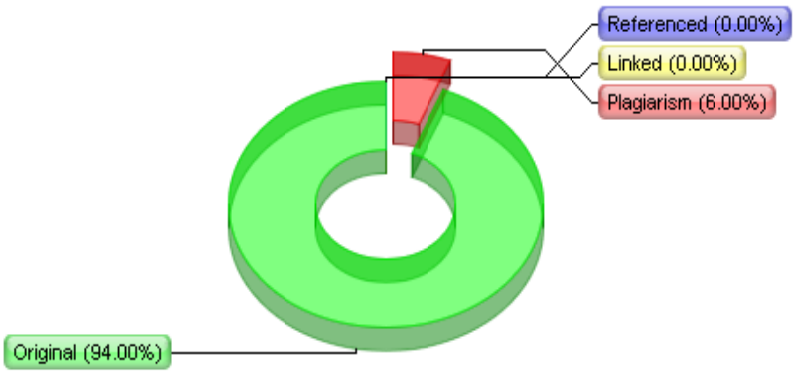

<=""">

Referenced 0% / Linked 0%

Original - 94% / 6% - Plagiarism

APPENDIX – X

DEMOGRAPHIC VARIABLES PROFORMA OF NURSES

Purpose

This proforma is used to measure the demographic variables such as age , sex , total years of experience , professional qualification , designation, working area, place of study.

Instruction

The researchers collect 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.

1. **Sample no:** ☐

2. **Age in years**

   2.1. 20-25 ☐

   2.2. 26-30 ☐

   2.3. 31-35 ☐

   2.4. > 35 ☐

3. **Sex**

   3.1. Male ☐

   3.2. Female ☐

4. **Total years of experience**

4.1. Below 5 years ☐

4.2. 6 -10 years ☐

4.3. 11-15 years ☐

4.4. Above 15 years ☐

5**. Professional qualification**

5.1. GNM ☐

5.2. B.Sc (N) ☐

5.3. P.B.B.Sc (N) ☐

6. **Designation**

6.1. Staff Nurse ☐

6.2. Novice ☐

7. **Previous knowledge on clinical pathway**

7.1. Yes ☐

7.2. No ☐

8. **If yes what was the source of information**

8.1. Professional education ☐

8.2. In-service education ☐

8.3. Mass media ☐

8.4. Others ☐

9. **Working area**

9.1. General ward ☐

9.2. Semi Private ward ☐

9.3. Private ward ☐

10. **Place of study**

10.1 Private ☐

10.2 Government ☐

10.3 Mission ☐

APPENDIX – XI

DEMOGRAPHIC VARIABLE PROFORMA OF PATIENTS UNDERGOING LAPAROSCOPIC CHOLECYSTECTOMY

Purpose

This proforma is used to measure the demographic variables such as age, sex, marital status, educational qualification, dietary pattern, occupational status, place of work, nature of work, income, source of health information and residential area.

Instruction

The researchers collect 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.

1. **Sample No:** ☐

2. **Age in years**

   2.1. 20-30 ☐

   2.2.31-40 ☐

   2.3.41-50 ☐

   2.4.>50 ☐

3. **Sex**

   3.1.Male ☐

   3.2.Female ☐

4. Marital status

4.1.Married ☐

4.2.Unmarried /single ☐

4.3.Divorced ☐

4.4.Widow/Widower ☐

5. Educational qualification

5.1.Illiterate ☐

5.2.Primary education ☐

5.3.Secondary education ☐

5.4.Higher secondary education ☐

5.5.Graduate &above ☐

6. Dietary intake/Pattern

6.1.Vegetarian ☐

6.2.Non vegetarian ☐

7. Occupational status

7.1.Employed ☐

7.2.Unemployed ☐

7.3.Home maker ☐

7.4.Retired ☐

8. Place of work

8.1.Indoor ☐

8.2.Outdoor ☐

9. Nature of work

9.1.Sedentary worker ☐

9.2.Moderate worker ☐

9.3.Heavy worker ☐

10. Income per month

10.1. 5000-10000 ☐

10.2. 10001-15000 ☐

10.3. >15000 ☐

11. Source of health information

11.1. Health workers ☐

11.2. Relatives ☐

11.3. Friends ☐

11.4. Family members ☐

12. Residential area

12.1 Rural ☐

12.2 Urban ☐

12.3 Semi urban ☐

12.4 Semi rural ☐

APPENDIX – XII

CLINICAL VARIABLE PROFORMA FOR PATIENTS UNDERGOING LAPAROSCOPIC CHOLECYSTECTOMY

Purpose

This proforma is used to assess the clinical variables such as past medical and surgical history, and other health related information.

Instruction

The researchers collect 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.

1. **Height : _____cms**

   1.1.150-155 ☐

   1.2.156-160 ☐

   1.3.161-165 ☐

   1.4. >165 ☐

2. **Weight: _____kgs**

   ☐

   2.1.40-50 ☐

   2.2.51-60 ☐

   2.3.61-70 ☐

   2.4.>70

3. Presence of co-morbid illness

3.1. yes ☐

3.2. No ☐

4. Treatment of co-morbid illness

4.1. Yes (if yes specify) ☐

4.2. No ☐

5. Is there any history of trauma/accident?

5.1. Yes (if yes specify) ☐

5.2. No ☐

6. Is there any history of rapid weight loss?

6.1.Yes (if yes specify) ☐

6.2. No ☐

7. Did you undergo any surgeries in the past?

7.1. Yes (if yes specify) ☐

7.2. No ☐

8. Duration of diagnosis of gall bladder disease.

8.1. 1-3 months ☐

8.2. 4-6 months ☐

8.3. 6month-1 year ☐

8.4. Above 1 year ☐

9. Previous history of jaundice

9.1.Yes (specify the duration) ☐

9.2.No ☐

10. Any treatment taken for jaundice

10.1. Drug therapy ☐

10.2. Home based remedies ☐

10.3. Alternative therapy ☐

10.4. Nil ☐

11. Duration of medical treatment

11.1. < 3months ☐

11.2. 3 months -6 months ☐

11.3. 7 months -1 year ☐

11.4. Nil ☐

12. History of bad habits

12.1. Smoking ☐

12.2. Alcohol ☐

12.3. Smoking and alcohol ☐

12.4. others ☐

12.5. none ☐

BLUE PRINT OF STRUCTURED KNOWLEDGE QUESTIONNAIRE REGARDING CLINICAL PATHWAY FOR LAPAROSCOPIC CHOLECYSTECTOMY

S.no	Content	Items	Total items	Percentage
1	Clinical pathway	1,2, 3,4	4	20
2	Preoperative care	5,6,7,8,9	5	25
3	Postoperative care	10,11,12,13, 14,15,16	7	35
4	Discharge planning	17,18,19,20	4	20
		Total	20	100%

APPENDIX – XIII

STRUCTURED KNOWLEDGE QUESTIONNAIRE FOR NURSES

REGARDING CLINICAL PATHWAY FOR CHOLECYSTECTOMY

Purpose

This structured knowledge questionnaire is used to assess the knowledge of nurses regarding clinical pathway for laparoscopic cholecystectomy.

Instructions

The structured knowledge questionnaire consists of multiple choice questions. Please read the questions and the options given. Place a (✓) 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

Scoring key:

A score of 1 will be given for the right answer.

1) Clinical pathway is

a) Blue print for a plan of care ☐

b) Mandatory treatment plan ☐

c) Standard of care ☐

d) Substitute for physician order ☐

2) Clinical pathways are intended to

a) Reduce variability and cost ☐

b) Increase efficiency ☐

c) Improve patient care ☐

d) All the above ☐

3) The other name for clinical pathway is

a) A protocol ☐

b) A flow chart for events ☐

c) A process map ☐

d) Integrated care pathways ☐

4) The documentation of deviation in clinical pathway is known as

a) Variance ☐

b) Timeline ☐

c) Protocol ☐

d) Outcome ☐

5) The appropriate expected outcome for the client, scheduled to have a laparoscopic cholecystectomy is

a) Decreased pain management ☐

b) Ambulate first day post operative ☐

c) No break in skin integrity ☐

d) Knowledge of postoperative care ☐

6) The duration of NBM before laparoscopic cholecystectomy is

a) 4 hrs ☐

b) 6 hrs ☐

c) 8 hrs ☐

d) 12 hrs ☐

7) The skin preparation for cholecystectomy is

a) Nipple to mid thigh ☐

b) Nipple to lower abdomen ☐

c) Abdomen ☐

d) Chin to toe ☐

8) The important assessment to be done in the preoperative day is

a) Respiratory assessment ☐

b) Genito urinary assessment ☐

c) Musculoskeletal assessment ☐

d) Neurological assessment ☐

9) The most important history to be collected from patient before cholecystectomy is

a) Dietary history ☐

b) Past surgical history ☐

c) Family history ☐

d) Past medical history ☐

8) If the nutritional status is suboptimal, it is maintained by administering

a) IV glucose with protein supplements ☐

b) IV glucose with vitamin B supplements ☐

c) IV glucose with lipid supplements ☐

d) IV glucose with vitamin k supplements ☐

9) The type of diet prescribed after cholecystectomy is

a) Low-fat diet ☐

b) Low protein diet ☐

c) Low calorie diet ☐

d) Normal diet ☐

10) Post operative pneumonia and atelectasis can be avoided by

a) Deep breathing exercises ☐

b) Proper positioning ☐

c) Suctioning ☐

d) Nebulisers ☐

11) The nursing intervention for clients severe right shoulder pain in the immediate post operative period is

a) Apply a heating pad to the abdomen for 15 to 20 mts ☐

b) Administer morphine sulphate IV after diluting with the saline. ☐

c) Contact the surgeon for an order to X-ray the right shoulder. ☐

d) Apply a sling to the right arm that was injured in surgery. ☐

12) The immediate nursing intervention for large amount of red drainage on the dressing is

a) Measure the abdominal girth ☐

b) Palpate the lower abdomen for a mass ☐

c) Turn client on to side to assess for further drainage ☐

d) Remove the dressing to determine the source. ☐

13) Ambulate the patient

a) Immediately ☐

b) After two days ☐

c) After three days ☐

d) After four days ☐

14) The position to be given in immediate postoperative period?

a) Sim's position ☐

b) Prone position ☐

c) Supine position ☐

d) Fowlers position ☐

15) The most common complication of laparoscopic cholecystectomy

a) Common bile duct injury ☐

b) Infection ☐

c) Portal hypertension ☐

d) Serious bleeding disorders ☐

16) The rare but severe complication of laparoscopic cholecystectomy is

a) Infection ☐

b) Biliary leak ☐

c) Bile peritonitis ☐

d) Haemorrhage ☐

17) The number of weeks, the patient is required to be on a low fat diet after surgery is

a) 4 to 6weeks ☐

b) 3 to 5weeks ☐

c) 2 to 4 weeks ☐

d) 5 to 7 weeks. ☐

18) The patient can drive a car after

a) 2 days ☐

b) 4 days ☐

c) 6 days ☐

d) 8 days ☐

19) The patient can resume activities with in

a) one week after surgery ☐

b) two weeks after surgery ☐

c) three weeks after surgery ☐

d) four weeks after surgery ☐

20) The patient should be instructed to avoid heavy lifting for

a) 4 to 6 weeks ☐

b) 8 to 10 weeks ☐

c) 3 to 5 weeks ☐

d) 8 to 12 weeks ☐

KEY:

1) a
2) d
3) d
4) d
5) b
6) a
7) a
8) a
9) a
10) a
11) a
12) c
13) a
14) a
15) a
16) c
17) a
18) b
19) a
20) a

SCORE INTERPRETATION:

≤ 50% - Inadequate knowledge

51-75% - Moderately adequate knowledge

>75% - Adequate knowledge

APPENDIX-XIV

CLINICAL PATHWAY FOR PATIENTS UNDERGOING LAPAROSCOPIC CHOLECYSTECTOMY

NAME OF THE PATIENT:

AGE:

ADDRESS:

IP NO:

CONSULTANT'S NAME:

DATE OF ADMISSION:

DATE OF SURGERY:

EXPECTED LENGTH OF STAY:

DATE OF DISCHARGE:

CLINICAL PATHWAY FOR LAPAROSCOPIC CHOLECYSTECTOMY

S.no	Needs	DAY 1	DAY2	DAY 3
1	Location	Inpatient unit	Pre op holding	Inpatient unit
2.	Consultation	Anaesthetist Surgeon	Anaesthetist Surgeon	As per advice
3.	Assessment	History collection. Physical examination. Respiratory assessment Vital signs. Pain assessment. Pre op check list Check patient identity Consent Billing clearance	Vital signs every 2nd hourly Oxygen saturation. Pain assessment every 2nd hourly. Monitor intake and output Monitor the amount and quality of drainage. Wound assessment	Vital signs every 4th hourly. Pain assessment. Monitor weight. wound assessment Monitor the amount and quality of drainage
4.	Investigations	Investigations as per order	Investigations as per order.	Investigations as per order.
5.	Treatment	Medications as per advice Clipping (nipple to mid thigh) Cleaning the umbilicus	Medications as per order. • Analgesics • Antibiotics	Medications as per order. • Analgesics • Antibiotics

		Mark the surgical site Removal of ornaments	Oxygen administration as per order	Removal of drain catheter out
6.	Nutrition	NBM for 6 hours before surgery. IV fluids as per advice.	Test feeds. Clear liquid diet, Soft solid diet.	Low fat diet as per advice.
7.	Activity	Activity as tolerated	Bed rest Provide sims position	Ambulate the patient.
8.	Hygiene	Oral hygiene Nail care Sterilicept bath	Oral hygiene Sterilicept bath Grooming Back care	Oral hygiene Sponging Back care
9.	Elimination	Maintain I/ O chart	Enema as prescribed Maintain I/O chart	Maintain I/O chart
10.	Psychosocial aspects	Orientation to the ward Maintain IPR Psychological support Explaining the procedures	Reassurance Provide psychological support. Teaching coping strategies	Reassurance Clarification of doubts Referrals if needed.
11.	Patient safety	Provide side rails Explain the usage of call light	Provide side rails Provide cot locks and adequate lighting	Provide side rails. Avoid slippery floor

12.	Patient education	About surgery Post operative exercises Dietary modifications Pain management Infection control	Deep breathing exercises Pain management Diet therapy Medications	Diet therapy [low fat diet for 4 to 6 wks] Medications Physical activity • Resume activities with in one week after surgery • Avoid weight lifting for 4 to 6 weeks • Drive a car after 4 days Follow up care
13.	Spiritual needs	Identify and encourage spiritual habits	Identify and Encourage spiritual habits	Identify & encourage spiritual habits
14.	Discharge planning/ Disposition	Arrange for transfer to OT	Shift to OT Shift to recovery unit	Preparing for discharge

APPENDIX-XV

PRACTICE CHECKLIST FOR NURSES CARING FOR PATIENTS UNDERGOING LAPAROSCOPIC CHOLECYSTECTOMY

Purpose

This checklist is used to assess the practice of nurses in patients undergoing laparoscopic cholecystectomy from admission to discharge including preoperative and post operative care.

Instructions

The checklist will be filled by the researcher by observing the practice of nurses by participatory observation method. According to the level of adherence the researcher will place (✓) mark in the compliant, partially compliant and non compliant column. Then scoring will be done.

- **Compliant (C)** : It refers to an activity that has been completed by the nurse.
- **Partially compliant (PC)**: It indicates that the nurse attempted to perform the activity but not completed.
- **Non compliant (NC)** : It refers to an activity neither attempted nor completed.

Scoring Key:

2 – Compliant

1 - Partially compliant

0 - Non compliant

PRACTICE CHECKLIST FOR NURSES CARING FOR LAPAROSCOPIC CHOLECYSTECTOMY PATIENTS

DAY 1	C	PC	NC	DAY2	C	PC	NC	DAY 3	C	PC	NC
Anaesthetist Surgeon				Anaesthetist Surgeon				As per advice			
History collection. Physical examination. Respiratory assessment Vital signs. Pain assessment. Pre op check list Check patient identity Consent Billing clearance				Vital signs every 2nd hourly Oxygen saturation. Pain assessment every 30 min Monitor intake and output Monitor the amount and quality of drainage. Wound assessment				Vital signs every 4th hourly. Pain assessment. Monitor weight. wound assessment Monitor the amount and quality of drainage			
Investigations as per order				Investigations as per order.				Investigations as per order.			
Medications as per advice Clipping (nipple to mid thigh) Cleaning the umbilicus Mark the surgical				Medications as per order. Oxygen administration as per order				Medications as per order. Removal of drain catheter out			

DAY 1	C	PC	NC	DAY2	C	PC	NC	DAY 3	C	PC	NC
site Removal of ornaments											
NBM for 6 hours before surgery. IV fluids as per advice.				Test feeds. Clear liquid diet , Soft solid diet.				Low fat diet as per advice.			
Activity as tolerated				Bed rest Provide sims position				Ambulate the patient.			
Oral hygiene Nail care Sterilicept bath				Oral hygiene Sterilicept bath Grooming ,back care				Oral hygiene Sponging Back care			
Enema as prescribed				Enema as prescribed Maintain I/O chart				Maintain I/O chart			
Orientation to the ward Maintain IPR Psychological support Explaining the procedures				Reassurance Provide psychological support. Teaching coping strategies				Reassurance Clarification of doubts Referrals if needed.			
Provide side rails Explain the usage of call light				Provide side rails Provide cot locks and adequate lighting				Provide side rails. Avoid slippery floors			

DAY 1	C	PC	NC	DAY2	C	PC	NC	DAY 3	C	PC	NC
About surgery Post operative exercises Dietary modifications Pain management Infection control				Deep breathing exercises Pain management Diet therapy Medications				Diet therapy Medications Physical activity Follow up care			
Identify and encourage spiritual habits				Identify and Encourage spiritual habits				Identify & encourage spiritual habits			
Arrange for transfer to OT				Shift to OT Shift to recovery unit				Preparing for discharges			

Scoring interpretation

≤50 % – Non compliant

51-75 % – Partially compliant

>75 % - Compliant

BLUE PRINT ON

RATING SCALE ON SATISFACTION OF NURSING CARE FOR PATIENTS UNDERGOING LAPAROSCOPIC CHOLECYSTECTOMY

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

APPENDIX – XVI

RATING SCALE ON SATISFACTION OF NURSING CARE FOR PATIENTS UNDERGOING LAPAROSCOPIC CHOLECYSTECTOMY

Purpose

The rating scale is designed to assess the level of satisfaction of the patients on nursing care.

Instructions

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

Scoring key:

Highly satisfied -2

Satisfied - 1

Dissatisfied -0

S.No	Items	Highly Satisfied	Satisfied	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 procedure?			
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 assistance given 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 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 Interpretation

≤50% - Dissatisfied

50-75% - Satisfied

>75% - Highly satisfied

APPENDIX – XVII

CHECKLIST TO ASSESS THE CLINICAL OUTCOME OF PATIENTS UNDERGOING LAPAROSCOPIC CHOLECYSTECTOMY

Purpose

This checklist is used to assess the outcome in patients undergoing laparoscopic cholecystectomy

Instructions

There are items given below. Kindly read the items and record accordingly.

Scoring Key

Score 0 – Major complications

Score1 - Minor complications

Score 2 – No complications

S.NO	Patients outcome	SCORE		
		0	1	2
1	**Nature of wound**	➢ Severe bleeding ➢ Oozing ➢ Infected wound	➢ Moderate bleeding ➢ Moderate oozing ➢ Poor wound healing	➢ No bleeding ➢ No oozing ➢ Normal wound healing
2	**Oxygenation**	➢ Oxygen saturation less than 90%	➢ Oxygen saturation 91%-94%	➢ Oxygen saturation 95%-100%
3	**Nutrition**	➢ Intravenous infusion	➢ Semisolid diet	➢ Normal diet
4	**Elimination**	➢ Needs catheterisation ➢ Needs laxatives	➢ Decreased urine output ➢ Altered bowel pattern	➢ Normal bladder and bowel pattern
5	**Rest**	➢ Insomnia ➢ Restless ➢ Irritability	➢ Altered sleep pattern	➢ Maintains normal sleep pattern

6	**Comfort**	➢ Severe pain ➢ Needs pain medications	Moderate pain Reduced with comfort measures	No pain
7	**Regulatory functions**	Temperature > 100^{o}F Pulse rate > 120 beats/ mt Respiration rate > 40breaths/mt	Temperature : 99-100 ^{o}F Pulse rate: 90-120beats/ mt Respiration: 30-40 breaths/mt	Temperature : 98.4 F- 99^{o} F Pulse rate: < 90 beats /mt Respiration :< 30 breaths/mt.
8	**Personal hygiene**	➢ Poor hygiene	➢ Moderate personal hygiene	➢ Good personal hygiene
`9	**Communication**	➢ Not responding	➢ Poor communication	➢ well communicating
10	**Activity**	➢ Not active	➢ Less active	➢ Normal activity
11	**Health teaching**	➢ No response	➢ Less response	➢ Good response
12	**Discharge**	➢ Extended days of stay	➢ Extended hours of stay	➢ Discharged on the expected day

SCORE INTERPRETATION

≤ 50% - Negative outcome

50-75% -Moderately positive outcome

>75% - Positive outcome

APPENDIX – XVIII
DATA CODE SHEET

Control group	**CG**
Experimental group	**EG**
Age in years	**AG**
20-30 yrs	1
31-40yrs	2
41-50yrs	3
>50 yrs	4
Sex	**SX**
Male	1
Female	2
Marital status	**MS**
Married	1
Single	2
Others	3
Divorced	4
Widow	5
Educational qualification	**EQ**
illiterate	1
primary education	2
Secondary education	3
Higher secondary education	4
Graduate & above	5
Dietary intake	**DI**
Vegetarian	1
Non vegetarian	2
Occupational status	**OS**
Employed	1
Unemployed	2
Homemaker	3
Retired	4
Place of work	**WK**
Indoor	1
Outdoor	2
Nature of work	**NW**
Sedentary worker	1
Moderate worker	2
Heavy worker	3
Designation	**IN**
Staff nurse	1
Novice	2
>15000	3
Source of health information	**SI**
Health workers	1
Relatives	2
Friends	3
Family members	4
Mass media	
Others	
Working area	**WA**
General ward	1
Semi private ward	2
Duration of medical Treatment	**DT**
<3 months	1
3 months-6 months	2
7 months -1 year	3
Nil	4
History of bad habits	**BH**
Smoking	1
Alcohol	2
Smoking and alcohol	3
Others	4
Level of satisfaction	**LO S**
0-20 - dissatisfied	DS
21-30 – satisfied	S
>30 - highly satisfied	H
Patients outcome	**PO**
0-12 – negative outcome	N
13-18 – moderately positive outcome	M
>18 – positive outcome	P
Age in years	**AGE**
20-25	1
26-30	2
>30	3
Years of experience	**YOE**
Below 5 years	1
6-10 years	2
11-15 years	3
Above 15 years	4
Professional qualification	**QUA**
GNM	1
B.Sc(N)	2
P.B.B.Sc (N)	3
Income per month	**DES**
5000-10000	1
10001-15000	2
Any previous knowledge	**PK**
Yes	1
No	2
Programme	**SOI**
Professional education	1
In service education	2
Mass media	3
Others	4

Residential area	
Rural	1
Urban	2
Semi urban	3
Semi rural	4
Height in cms	**HT**
140- 150	1
151-160	2
161-170	3
> 170	4
Weight in kgs	**WT**
40-50	1
51-60	2
61-70	3
>70	4
Presence of co morbid illness	**CO**
Yes	1
No	2
Treatment of comorbid illness	**TR**
Yes	1
No	2
History of trauma	**TR**
Yes	1
No	2
History of rapid weight loss	**WL**
Yes	1
No	2
Past surgery	**PS**
Yes	1
No	2
Duration of diagnosis	**DD**
1-3 months	1
4-6 months	2
6 months-1 year	3
Above 1 year	4
History of jaundice	**HJ**
Yes	1
No	2
Treatment for gall bladder disease	**TG**
Drug therapy	1
Nutritional therapy	2
Supportive therapy	3
Others	4
No treatment	5
Place of study	**POS**
Private	1
Government	2
Mission	3
Level of knowledge	**LOK**
0-10 –inadequate	I
11-16- moderately adequate	M
>16 –adequate	A
Compliance	
Partially compliance	PC
Non compliance	NC
Compliance	C

APPENDIX-XIX

MASTER CODE SHEET

CG	DEMOGRAPHIC VARIABLES OF PATIENTS											CLINICAL VARIABLES OF PATIENTS												LOS		PO	
	AG	SX	MS	EQ	DI	OS	WK	NW	IN	SI	RA	HT	WT	CO	TR	HT	WL	PS	DD	TJ	TG	DT	BH	S	I	S	I
1	1	1	2	3	2	1	2	2	2	1	2	4	1	2	2	1	1	1	1	2	4	4	5	22	S	15	M
2	3	1	1	4	2	1	2	2	3	1	2	3	3	1	1	2	2	1	1	2	4	4	5	24	S	18	M
3	4	2	1	3	2	3	1	2	3	1	2	2	4	1	1	2	2	1	1	2	4	4	5	30	S	17	M
4	4	1	1	5	2	4	1	2	3	1	2	3	3	1	1	2	2	1	2	2	4	4	1	18	D	22	P
5	4	1	1	3	2	4	1	2	2	1	1	4	4	1	1	2	2	1	1	2	4	4	5	20	D	16	M
6	4	1	1	4	2	4	1	2	2	1	1	2	2	2	2	2	2	2	1	2	4	4	5	21	S	23	P
7	3	2	1	3	2	3	1	2	3	1	1	1	1	2	2	2	2	1	1	2	4	4	5	28	S	14	M
8	4	2	1	5	2	3	1	2	3	2	2	2	4	1	1	2	2	1	1	2	4	4	5	22	D	16	M
9	4	1	1	3	2	1	1	2	3	1	1	1	3	1	1	2	1	1	1	1	1	4	1	27	S	16	M
10	3	2	1	3	2	3	1	2	3	1	1	3	3	1	1	2	2	1	1	2	4	1	5	24	S	18	M
11	3	1	1	4	2	1	1	2	3	1	1	4	3	1	1	2	1	1	1	2	4	4	5	19	D	17	M
12	4	2	1	5	2	3	1	1	3	1	2	2	2	1	1	2	2	1	1	2	4	4	5	18	D	17	M
13	3	1	1	4	2	1	1	1	3	2	2	3	4	1	1	1	2	1	1	2	4	4	5	18	D	18	M
14	4	1	1	5	2	1	1	2	3	1	2	4	4	1	1	2	2	1	1	1	4	4	5	20	D	18	M
15	2	1	1	4	2	1	1	2	2	1	1	3	4	2	2	2	2	1	1	1	4	4	5	29	S	21	P
16	4	1	1	4	2	1	1	2	3	1	1	4	4	1	1	2	2	1	2	2	4	1	5	30	S	13	M
17	3	1	1	5	1	1	1	1	2	4	2	4	4	1	1	2	2	1	1	2	1	4	5	24	S	16	M
18	2	1	1	4	2	2	1	2	2	1	1	3	3	2	2	2	2	1	1	2	1	4	5	20	D	17	M
19	4	2	1	4	1	3	1	2	3	2	1	3	3	1	2	2	2	1	1	2	1	4	1	19	D	16	M
20	2	1	2	2	1	1	1	2	3	1	1	4	3	2	2	2	2	1	1	2	1	4	2	28	S	15	M
21	3	1	1	3	2	1	1	2	3	1	1	3	4	1	1	1	2	1	1	2	1	1	1	27	S	17	M
22	4	1	1	4	2	1	1	1	3	2	1	4	4	1	2	2	2	1	1	1	1	1	3	20	D	18	M
23	1	2	1	5	1	3	1	1	3	3	1	2	3	2	2	2	2	1	1	1	1	4	2	22	S	22	M
24	4	1	2	5	1	1	1	2	3	2	4	4	4	1	1	2	1	2	2	2	4	4	3	24	S	14	M
25	2	1	1	4	2	1	1	2	3	1	4	3	4	2	2	2	2	1	1	2	4	4	5	19	D	16	M
26	4	2	1	5	2	3	2	2	3	2	4	2	3	1	2	2	2	1	1	2	1	4	4	21	S	18	M
27	1	1	1	5	1	1	2	1	2	3	3	4	4	2	2	2	2	1	1	2	1	4	5	20	D	18	M
28	3	2	1	3	1	3	1	1	2	2	3	2	3	1	1	2	2	1	1	2	1	4	2	26	S	16	M
29	3	2	1	5	1	3	1	1	3	3	2	3	3	1	1	2	2	1	2	2	4	4	5	30	S	15	M
30	2	1	1	5	1	1	1	1	3	1	2	4	4	2	2	2	2	1	1	2	4	4	1	18	D	17	M

EG	DEMOGRAPHIC VARIABLES OF PATIENTS											CLINICAL VARIABLES OF PATIENTS											LOS		PO	
	AG	SX	MS	EQ	DI	OS	WK	NW	IN	SI	RA	HT	WT	CO	TR	HT	WL	SP	DD	TJ	TG	DT	BH	S	I	S	I
1	3	1	1	4	2	1	1	1	3	1	1	4	4	2	2	2	1	1	1	2	4	4	1	38	H	20	P
2	4	2	1	3	2	3	1	2	2	1	1	3	3	1	1	2	2	1	1	2	4	4	5	34	H	22	P
3	3	2	1	5	2	3	1	2	3	1	2	2	3	1	2	2	2	2	1	2	4	4	5	36	H	23	P
4	2	1	1	5	1	1	1	2	3	4	2	3	3	2	2	2	2	1	1	2	4	4	3	31	H	24	P
5	3	1	1	5	2	1	1	2	3	1	3	4	3	2	2	2	2	1	1	2	4	4	1	32	H	21	P
6	2	1	1	5	1	1	1	2	3	1	2	4	4	2	2	2	2	1	1	2	4	4	5	32	H	24	P
7	4	1	1	5	2	4	1	2	3	4	2	3	3	1	1	2	2	2	1	2	4	4	2	29	S	23	P
8	4	1	1	4	2	1	2	2	2	1	1	4	3	1	1	2	1	1	1	2	4	4	3	33	H	20	P
9	4	1	1	3	1	2	1	1	2	1	1	3	4	1	1	2	2	1	1	2	4	4	2	30	S	19	P
10	2	2	1	5	1	1	1	2	3	2	2	2	3	1	2	2	2	1	1	2	4	4	5	39	H	17	M
11	4	1	1	4	2	4	1	2	2	1	1	4	4	1	1	2	2	1	1	2	4	4	1	38	H	18	M
12	1	2	2	3	1	4	2	2	2	2	2	4	4	1	1	2	2	1	1	2	4	4	1	25	S	22	P
13	1	2	1	5	2	3	1	2	3	1	2	2	2	1	2	2	1	2	1	1	4	4	5	31	H	22	P
14	2	1	1	4	2	4	1	2	3	1	3	3	3	1	1	2	2	1	2	2	4	4	5	38	H	23	P
15	2	1	1	5	2	1	1	3	3	1	1	3	4	2	2	2	1	1	1	2	4	4	4	35	H	24	P
16	4	1	1	4	2	4	1	1	3	2	1	3	4	1	1	1	2	1	1	2	4	4	5	34	H	20	P
17	4	2	1	3	2	4	1	1	3	2	1	4	4	1	1	2	2	1	3	1	1	1	3	33	H	19	P
18	3	1	1	3	2	1	1	2	2	3	4	3	3	1	1	2	2	1	2	2	4	4	5	29	S	20	P
19	2	1	1	4	2	1	2	2	2	1	4	4	3	1	1	2	2	2	1	2	4	4	2	34	H	22	P
20	1	1	1	5	1	3	1	1	3	1	3	3	4	1	1	2	2	1	1	2	4	4	5	38	H	20	P
21	1	1	1	3	2	1	1	1	2	2	3	4	3	1	1	2	2	1	1	2	4	4	1	29	S	19	P
22	4	1	1	3	2	3	1	1	3	3	2	3	4	1	2	1	2	1	1	1	1	1	5	35	H	19	P
23	4	1	1	4	1	3	1	3	3	4	2	3	4	2	1	2	1	1	1	2	4	4	5	38	H	24	P
24	2	2	2	5	1	1	1	2	3	4	4	3	3	1	1	2	2	1	1	2	4	4	2	36	H	21	P
25	3	1	1	3	1	1	1	2	3	3	1	3	4	1	1	2	2	1	1	2	4	4	3	38	H	23	P
26	4	1	1	3	2	1	1	3	3	2	2	4	3	1	1	2	2	2	1	2	4	4	5	37	H	22	P
27	4	1	1	5	2	1	1	1	3	1	3	3	4	1	1	2	2	1	2	1	1	1	4	28	S	23	P
28	3	1	1	5	2	2	2	1	2	1	1	4	4	1	1	2	2	1	1	2	4	4	5	33	H	17	M
29	3	1	1	5	2	3	2	1	3	2	4	2	3	1	1	2	2	1	1	2	4	4	5	36	H	16	M
30	4	2	2	5	2	4	1	2	3	2	3	4	4	1	1	1	2	1	1	2	4	4	3	39	H	18	M

S.NO	DEMOGRAPHIC VARIABLES OF NURSES									LOK			
										Pretest		posttest	
	AGE	SEX	YOE	QUA	DES	PK	SOI	WA	POS	Score	Int	Score	Int
1	2	2	1	2	2	1	1	1	3	9	I	16	A
2	1	2	1	1	1	1	2	2	1	11	M	17	A
3	1	2	1	2	1	2	-	3	1	7	I	16	A
4	2	1	1	2	1	2	-	1	1	9	I	14	M
5	1	2	1	2	1	2	-	2	1	7	I	17	A
6	1	2	2	1	2	2	-	3	1	10	I	19	A
7	1	2	1	1	1	1	2	3	1	10	I	14	M
8	1	2	1	1	1	1	2	2	1	14	M	18	A
9	2	2	2	2	2	1	2	1	3	14	M	14	M
10	1	2	1	1	2	2	-	3	1	9	I	17	A
11	1	2	1	1	1	2	-	2	1	11	M	15	M
12	1	2	1	1	1	2	-	1	1	6	I	17	A
13	1	2	1	2	1	2	-	3	1	9	I	16	A
14	1	2	1	1	1	2	-	1	1	10	I	18	A
15	1	2	1	1	1	2	-	1	1	11	M	16	A
16	1	2	1	2	1	2	-	3	1	11	M	16	A
17	2	2	1	3	1	1	2	2	3	5	I	17	A
18	1	2	1	1	1	2	-	1	1	9	I	19	A
19	1	2	1	2	1	2	-	2	11	10	I	18	A
20	2	2	2	1	2	1	2	2	1	12	M	17	A
21	1	1	1	1	2	2	-	3	1	7	I	18	A
22	1	2	1	1	2	2	-	1	1	12	M	15	M
23	1	2	1	2	1	2	2	2	1	13	M	13	M
24	1	2	1	1	2	1	-	3	1	9	I	15	M
25	1	2	1	1	1	2	-	2	1	6	I	16	A
26	1	2	1	2	1	2	-	1	1	4	I	16	A
27	2	2	2	2	2	1	2	2	3	7	I	18	A
28	1	2	1	1	2	2	-	3	1	5	I	18	A
29	1	2	1	2	1	2	-	1	1	6	I	18	A
30	1	2	1	1	1	2	-	2	1	9	I	16	A

S.NO	PRACTICE SCORES OF NURSES											
	CONTROL GROUP						EXPERIMENTAL GROUP					
	DAY 1		DAY 2		DAY3		DAY1		DAY2		DAY3	
	S	I	S	I	S	I	S	I	S	I	S	I
1	38	PC	32	NC	26	NC	64	C	58	C	40	C
2	36	NC	42	PC	24	NC	68	C	52	C	52	C
3	34	NC	36	PC	30	PC	70	C	64	C	42	C
4	52	PC	26	NC	26	NC	70	C	64	C	44	C
5	42	PC	30	NC	36	PC	72	C	60	C	48	C
6	40	PC	48	PC	24	NC	68	C	58	C	46	C
7	44	PC	46	PC	24	NC	58	C	54	C	442	C
8	32	NC	42	PC	36	PC	62	C	62	C	44	C
9	36	NC	32	NC	24	NC	72	C	62	C	42	C
10	38	PC	42	PC	34	PC	58	C	58	C	50	C
11	46	PC	46	PC	24	NC	64	C	58	C	42	C
12	40	PC	30	NC	38	PC	60	C	62	C	44	C
13	50	PC	36	NC	22	NC	66	C	52	C	52	C
14	44	PC	48	PC	26	NC	64	C	60	C	46	C
15	36	NC	38	PC	36	PC	60	C	50	C	46	C
16	32	NC	30	NC	38	PC	70	C	60	C	40	C
17	34	NC	42	PC	30	PC	64	C	56	C	52	C
18	38	PC	36	NC	32	PC	60	C	54	C	48	C
19	54	PC	38	PC	28	PC	68	C	50	C	48	C
20	36	NC	30	NC	38	PC	66	C	58	C	46	C
21	34	NC	28	NC	28	PC	56	C	60	C	50	C
22	40	PC	28	NC	22	NC	58	C	52	C	44	C
23	32	NC	32	NC	34	PC	68	C	62	C	48	C
24	52	PC	28	NC	30	PC	70	C	50	C	52	C
25	32	NC	36	PC	36	PC	60	C	62	C	44	C
26	46	PC	46	PC	34	PC	72	C	54	C	46	C
27	32	NC	32	NC	32	PC	66	C	56	C	50	C
28	52	PC	44	PC	22	NC	58	C	60	C	42	C
29	28	NC	36	PC	34	PC	60	C	54	C	44	C
30	50	PC	44	PC	30	PC	62	C	52	C	50	C

CHAPTER I

INTRODUCTION

Background of the Study

"For life is only life when blest with health"

- Martial

The intersection between health and lifestyle has achieved increased visibility in both anthropology and biomedical sciences. In the last two decades, changing life styles have been linked worldwide to changes in patterns of morbidity and mortality. Solving the primary physiological causes of illness and disease may be easier than adequately addressing these lifestyle changes.

Gall bladder disease is a common health problem worldwide. It is estimated that 8% to 10% of the adults have gall bladder disease. The actual number is not known because many persons are asymptomatic. The incidence of gall bladder disease is higher in women, multiparous women and persons over 40 years of age. The major types of gall bladder disease include cholelithiasis and cholecystitis.

Gallstone disease represents a national health care problem, resulting in more than 750,000 cholecystectomies per year. The overwhelming majority of operations are for symptomatic gallstone disease, and nearly 90% of cholecystectomies are performed laparoscopically. Alternative forms of treatment are palliative rather than curative.

According to National Institute of Health, the prevalence of cholesterol cholelithiasis in other western cultures is similar to that in the United States, but it appears to be somewhat lower in Asia and Africa. The prevalence of choledocholithiasis

is higher internationally than in the United States, mainly because of the additional problem of primary common bile duct stones caused by parasitic infestation. Women are more likely to develop cholesterol gallstones than men, especially during their reproductive years.

Cholecystectomy is the surgical removal of the gall bladder, indicated in the presence of gallbladder trauma, gallbladder cancer, acute cholecystitis, and other complications of gallstones.The two basic types of this procedure are open cholecystectomy and laparoscopic approach.

Laparoscopic cholecystectomy has now replaced open cholecystectomy as the first choice of treatment for gall stones and inflammation of the gall bladder unless there are contraindications to the laparoscopic approach. Laparoscopic cholecystectomy was popularized in 1989 by Dubbois et al and Reddick and Oslen. Now a decade later, laparoscopic cholecystectomy is one of the most common general operations and has gained acceptance as the surgery of choice for symptomatic gall stone disease.

Health care is an expression of concern for fellow human beings. The Healthcare sector in India is at an inflection point and is poised for rapid growth in the medium term. However, Indian healthcare expenditure is still amongst the lowest globally and there are significant challenges to be addressed both in terms of accessibility of health care service and quality of patient care**.**

Services by health care practitioners vary across countries, groups and individuals, and largely influenced by social and economic conditions as well as the health policies in place. Quality of care is a system approach to health services,

which emphasizes both technical competence as well as interpersonal dimension of health care giving process. Patient's satisfaction is one of the two components of quality of care which includes respect for the patient and understanding the needs of the patient and providing services accordingly.

Nursing services is one of the most important components of hospital services. Nurses form a very important group, which is the largest single technical group of personnel engaged in hospital care next to doctors and consume almost one third of hospital cost. A hospital may be soundly organized, beautifully situated and well equipped, but if the nursing care is not of high quality, the hospital will fail in its responsibility of providing care.

Nursing is not simply a collection of specific skills, and the nurse is not simply a person trained to perform specific tasks whereas nursing is a profession. No one factor absolutely differentiates a job from a profession, but the difference is important in terms of how nurses practice. The practice of professional nursing and nursing knowledge has been developed over time through development of nursing theories and research.

In order to provide a high quality of care, it is necessary that nurses should develop standards of care and appropriate evaluation tools so that professional aspects of assurance and attention will be given to the individual needs and responses to patients. Two categories of standards of care are external and internal standards. Clinical pathway is one kind of internal standard, which can be developed according to institutional policies.

Clinical pathways are standardized plan for the integral care of specific purposes. Clinical pathways are increasingly being used by hospitals to improve efficiency in the care of certain patient populations. However, little prospective data are available to support their use.

The nursing care for laparoscopic cholecystectomy patients includes physical and broadened psychosocial care. Specific standards are needed to provide efficient pre and post operative nursing care to patients undergoing laparoscopic cholecystectomy. Laparoscopic cholecystectomy is a suitable process with which to initiate systematization of clinical pathways. Hence there is an increased need for development of clinical pathway for laparoscopic cholecystectomy.

Need for the Study

According to National Institute of Health (2009), gallstone disease remains one of the most common medical problems leading to surgical intervention. Cholelithiasis affects approximately 10% of adult population in each country. It has been well demonstrated that the presence of gallstones increases with age.

A National population-based survey was performed to determine the age, sex, and ethnic distribution of gall bladder disease in the United States. It was found that 20 million persons have gallbladder disease in the United States. Ethnic differences in gall bladder disease prevalence differed according to sex and were only partly explained by known risk factors.

Virendra et al. (2001) conducted the study to predict the epidemiology of gallstone disease and concluded that cholelithiasis is frequent in India and is a common

cause for abdominal surgery. Gallstone is more frequent in Northern India; apparently this variation is related to dietary and geographical factors.

An estimated 20% of adults over 40 years of age and 30% of those over 70 years of age have biliary calculi (National institute of health, 2009). Today, laparoscopic cholecystectomy and laparoscopic bile duct exploration plays a major role in treating gall stones. Laparoscopic cholecystectomy is also used in the treatment of acute cholecystitis.

Laparoscopic cholecystectomy is more likely to be successful when performed within 3 days of the onset of symptoms. It is important to remember that laparoscopic cholecystectomy can lead to a variety of other complications. Every year, approximately 500,000 cholecystectomies are performed throughout India. In Apollo hospitals, approximately 60 laparoscopic cholecystectomies are performed every month.

Clinical pathways map out the sequence, timing and expected outcomes of care for patients with a similar diagnosis or who are undergoing a similar procedure. Clinical Pathways standardises the care so that all patients are provided with the same high quality care, that is timely and cost-effective and enable the documentation of changes in care, as a result of the patient's health status. The implementation of clinical pathway prevents the occurrence of complications and reduces the length of hospital stay.

Clinical Pathways are suitable for approximately 70% of the population undergoing a particular procedure or treatment. Clinical pathway promotes patient focussed care because patients can participate in what is planned and can give feedback on whether outcomes have been achieved. It also provides patient education and the

provision of information regarding care provided and facilitates collaboration within the multidisciplinary team in the continuum of care.

Studies have been conducted worldwide to determine the effectiveness of clinical pathway for patients undergoing laparoscopic cholecystectomy. The implementation of clinical pathway significantly shortens hospital stay. Soria et al. (2002) found that laparoscopic cholecystectomy is a suitable process with which to initiate systematization of clinical pathways. The results showed that length of hospital stay has been significantly reduced without increasing morbidity and also improved the patient satisfaction.

In short, the implementation of clinical pathway, effectively improves the quality of care. Through continuous improvement in practice, clinical pathways will be more scientific and rationale and more fully reflect the ultimate goal of quality management to improve patient satisfaction to gain better social and economic benefits. Since the clinical pathway has more significant effect upon laparoscopic cholecystectomy patients, the researcher decided to conduct this study.

Statement of the Problem

A Quasi Experimental Study To Assess The Effectiveness Of Clinical Pathway For Patients Undergoing Cholecystectomy Upon The Knowledge And Practice Of Nurses And Patients Outcome At Apollo Main 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 Laparoscopic cholecystectomy.
2. To assess the patients' outcome in control and experimental group of patients undergoing laparoscopic cholecystectomy.
3. To evaluate the effectiveness of clinical pathway by comparing the pre and post test level of knowledge and practice of nurses regarding clinical pathway for patients undergoing laparoscopic cholecystectomy.
4. To compare the patients' outcome in control and experimental group of patients undergoing laparoscopic cholecystectomy.
5. To compare the level of patient satisfaction on nursing care in control and experimental group of patients undergoing laparoscopic cholecystectomy.
6. To determine the association between selected demographic variables of nurses and their pre and post test level of knowledge regarding clinical pathway for patients undergoing laparoscopic cholecystectomy.
7. To determine the association between selected demographic variables of control and experimental group of patients undergoing laparoscopic cholecystectomy and their outcome.
8. To determine the association between selected clinical variables of control and experimental groups of patients undergoing laparoscopic cholecystectomy and their outcome.

Operational Definitions

Clinical pathway

Clinical pathways are structured care plan designed to support the implementation of nursing care guidelines and protocols. They provide detailed guidelines for each stage in the management of a patient from admission till discharge with specific disease conditions over a given period of time period and include the patient's progress and outcomes details.

Cholecystectomy

In this study, cholecystectomy refers to the removal of gall bladder by using laparoscope which requires three days of hospitalization.

Clinical pathway for laparoscopic cholecystectomy

In this study, it refers to the guidelines for nursing care of patients undergoing laparoscopic cholecystectomy for 3 days from admission to discharge including one day of pre operative care and 2 days of post operative care that is formulated by the researcher based on the Henderson's 14 basic needs theory of nursing. The aspects were admission, consultation, assessment, investigations, treatment, nutrition, activity, hygiene, elimination, psychosocial aspects, patient safety, patient education, spiritual needs and discharge planning. Nursing interventions are listed under each aspect and based on this, the nurses will be giving care to the patient undergoing laparoscopic cholecystectomy.

Effectiveness

In this study effectiveness refers to the difference between the pre and post test level of knowledge and practice score of nurses regarding clinical pathway for cholecystectomy patients.

The effectiveness is also measured by comparing the outcome of control and experimental group of laparoscopic cholecystectomy patients in terms of their length of stay, prevention of complication and patients' satisfaction on nursing care.

Patient

In this study it refers to a male or female who is undergoing laparoscopic cholecystectomy.

Nurse

In this study, it refers to a person who is a registered nurse qualified with general nursing and midwifery or bachelor of nursing degree working in surgical wards and provides care to the patients undergoing laparoscopic cholecystectomy.

Knowledge

In this study it refers to the level of understanding and awareness of nurses regarding clinical pathway for cholecystectomy and is measured in terms of structured questionnaire.

Practice

In this study it refers to nursing care provided by the nurses for cholecystectomy patients' and is measured in terms of compliance with clinical pathway.

Outcome

In this study it refers to length of stay in the hospital, prevention of complications and the satisfaction of patients regarding nursing care.

Assumptions

The study assumes that:

- Any surgical intervention requires hospitalisation and nursing care.
- Nursing care requires models and standards.
- Standards ensure quality of care.
- Nurse's knowledge about clinical pathway is limited.
- Clinical pathway will provide guiding tools.
- Clinical pathway provides explicit and well defined standard of care.

Null Hypotheses

Ho_1: There will be no significant difference between the pre and post test level of knowledge and practice of nurses regarding clinical pathway for laparoscopic cholecystectomy patients.

Ho_2: There will be no significant difference in the patients' outcome between the control and experimental group after implementation of clinical pathway for patients undergoing laparoscopic cholecystectomy.

Ho_3: There will be no significant association between the selected demographic variables of nurses and their pre and post test level of knowledge regarding clinical pathway for laparoscopic cholecystectomy

Ho_4: There will be no significant association between the selected demographic variables of control and experimental group of laparoscopic cholecystectomy patients and their outcome.

Ho_5: There will be no significant association between the selected clinical variables of control and experimental group of laparoscopic cholecystectomy patients and their outcome.

Delimitations

The study was limited to the nurses who were

- working at Apollo hospitals, Chennai.
- willing to participate in the study.
- able to understand Tamil and English

The study was limited to the patients who

- were admitted in Apollo hospitals
- underwent laparoscopic cholecystectomy
- were able to understand Tamil and English.

Conceptual Framework for the Study

The conceptual framework deals with the interrelated concepts that are assessable together in some rational schemes by virtue of their relevance to a common theme (Polit and Beck, 2010).

The conceptual framework of present study is based on Wiedenbach's Helping Art of Clinical Nursing Theory (1964)**.** Ernestine Wiedenbach proposed a prescriptive theory for nursing, which was described as conceiving of a desired situation and the ways to attain it. This theory views nursing as an art based on a goal. It consists of three factors- central purpose, prescription and realities.

The conceptualization of nursing practice according to this theory consists of three steps.

Step 1- Identify the need for help

Step 2- Ministering the needed help

Step 3- Validating that the need for help was met

Identify the need for help

The investigator identified the need as a clinical pathway for laparoscopic cholecystectomy which has many benefits like reducing length of stay, preventing complications, improving patient satisfaction on nursing care and improving the overall outcome. The investigator also assessed the knowledge of nurses regarding clinical pathway for Laparoscopic cholecystectomy.

Ministering the needed help

Ministration is providing the needed help. In ministering, the nurse may give comfort measures, health teaching or carry out a therapeutic procedure. It has the following two components:

- Prescription
- Realities.

Prescription

Prescription refers to the nurse's plan of patient care. A prescription may indicate the broad general action appropriate to the implementation of the basic concept as well as suggest the kind of behaviour needed to carry out these actions in accordance with the central purpose.

This include devised clinical pathway for laparoscopic cholecystectomy prepared by the investigator from day of admission till discharge of the patient.

Realities

Realities are the situation that influences the fulfilment of central purpose. Wiedenbach defined five realities as:

- **Agent**

The agent, the practicing nurse or her delegate is characterized by the personal attributes, capacities, and competencies in nursing. In this study, the investigator was the agent.

- **Recipient**

The recipients, the patient is characterised by the personal attributes, problems and inability to cope with the concerns or problems being experienced. Patients undergoing laparoscopic cholecystectomy were the recipients in this study.

- **Goal**

The goal is the desired outcome the nurse wishes to achieve. The goal is the end result to be attained by the nursing action. Goal in this study is to improve the knowledge and practice of nurses regarding clinical pathway for laparoscopic cholecystectomy and also the outcome of patients undergoing laparoscopic cholecystectomy in terms of length of stay in hospital, prevention of complications and satisfaction of patients regarding nursing care.

- **Means and activity**

It comprises of the activities and devices through which the practitioner is enabled to attain her goal. It includes skills, techniques, procedures and devices that may be used to facilitate nursing practice.

In this study, means and activity refers to implementation of clinical pathway to experimental group from admission to discharge.

- **Frame work**

Framework consists of human, environmental, professional and organizational facilities that not only make up the context with in which nursing is practiced but also constitute its currently existing limits. Framework for this study is Apollo main hospitals, Chennai.

Validating the met needs:

It refers to the collection of evidence that showed laparoscopic cholecystectomy patients' needs had been met as a direct result of the investigator's action. It includes the practice check list of nurses, outcome check list and rating scale was used to assess the patient satisfaction. Validation was done by analyzing the attainment of central purpose. The long term goal is providing high quality nursing care to patients undergoing laparoscopic cholecystectomy.

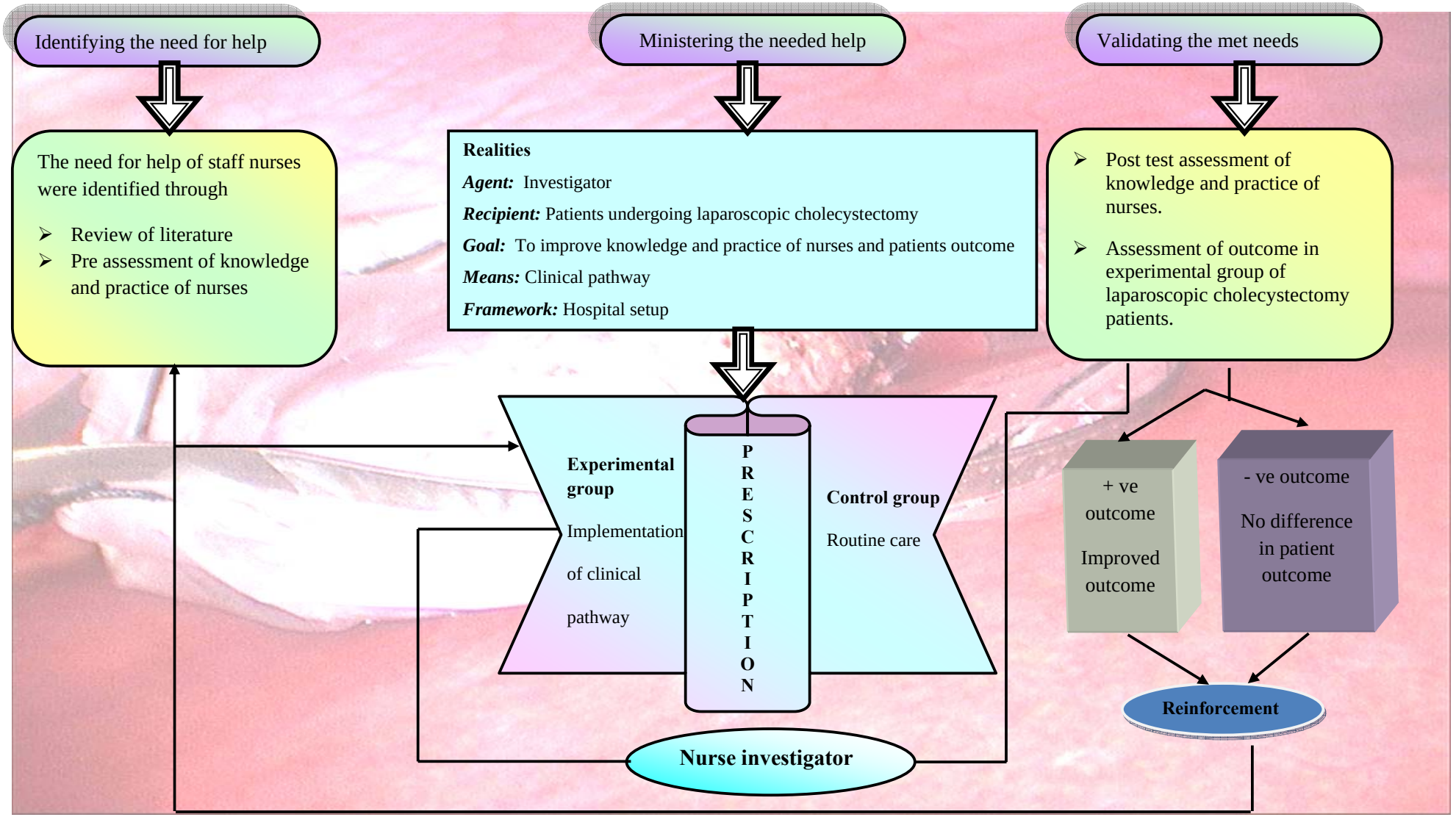

Fig.1 Conceptual Framework on Clinical Pathway for Laparoscopic Cholecystectomy based on Wiedenbach's Helping Art Theory

Projected Outcome

The expected outcome will be increase in knowledge and practice of nurses regarding clinical pathway for laparoscopic cholecystectomy and increase in patients' level of satisfaction on nursing care and prevention of complications.

Summary

This chapter deals with the background of the study, need of the study, statement of the problem, objectives, operational definition, hypothesis, assumption, delimitation and conceptual framework.

Organization of the Report

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

CHAPTER – II : Review of literature

CHAPTER – III : Research methodology includes research approach, research 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.

CHAPTER – IV : Analysis and interpretation of data

CHAPTER – V : Discussion

CHAPTER – VI : Summary, conclusion, implications and recommendations.

CHAPTER II

REVIEW OF LITERATURE

A review of literature involves the systematic identification, location, scrutiny and summary and written material that contain information on the research problem. (Polit and Beck, 2010).

In this chapter an attempt has been made to bring out the available literature which helps in projecting the widened perspectives of this study. This chapter deals with a review of published and unpublished research studies and from related material for the present study. The review helped the investigator to develop an insight in to the problem area. This helped the investigator in building the foundations of the study. The review of literature for the study is presented under the following heading:

- Literature related to Laparoscopic Cholecystectomy
- Literature related to Clinical Pathways
- Literature related to Clinical Pathway And Laparoscopic Cholecystectomy

Literature related to Laparoscopic Cholecystectomy

Cholecystectomy is a very successful surgical procedure which provides total or near-total relief of preoperative symptoms in 75% -90% of patients. The most common cause of persistent post cholecystectomy symptoms is an overlooked symptomatic non biliary disorder which includes reflux esophagitis, peptic ulceration, pancreatitis and most often irritable bowel syndrome. In a small percentage of patients, however a

disorder of the extra hepatic bile ducts may result in persistent symptomatology. (Sasmal, 2010).

Among 102 patients, Tamhankar et al. (2010) conducted a study on symptomatic recovery of patients following laparoscopic cholecystectomy in Sweden. Consecutive patients undergoing uncomplicated laparoscopic cholecystectomy were followed up by a weekly telephone questionnaire survey for 6 weeks. Postoperatively, patients had postoperative nausea and vomiting lasting greater than or equal to 2 days (2.9%), pain (11.7%), and wound related symptoms (70.5%). Less than 4% of patients believed that they would benefit from a surgeon's review after the 6 weeks of surgery. The study results concluded that wound related symptoms are common after laparoscopic cholecystectomy which requires appropriate follow up care.

A laparoscopic approach is feasible in most patients. The incidence of conversion to an open procedure is between 2-5%, depending on the patient population. Nearly 95% of all patients undergoing cholecystectomy experience relief of biliary pain. The remaining 5% have something other than gallstones as the cause of their pain (National Institute of Health, 2009).

The majority of patients undergoing elective laparoscopic cholecystectomy can usually be discharged on the same or next day. High risk patients and those undergoing emergency operations or open cholecystectomies typically require longer hospital stays. Hospitalization may be prolonged in patients requiring placement of abdominal drains, exploration of the bile duct, or those with complicated biliary tract disease.

A study was conducted by Peters et al. (2009) to evaluate the safety and efficacy of laparoscopic cholecystectomies among 100 consecutive patients in Scotland. Many components such as mean hospital stay, postoperative narcotic requirements, dietary tolerance and activity level were assessed. The analysis of the hospital costs of these 100 cases demonstrated a modest cost advantage over standard open cholecystectomy. This study also concluded that laparoscopic cholecystectomy is a safe and effective procedure that can be performed with minimal risk. Also there are many beneficial aspects to the practical application of laparoscopic cholecystectomy, in terms of significant reduction in post operative pain, discomfort, medication and length of stay, and an early return to normal activity, which is of economical benefit to the patient, the employer, the community and the health care system.

Complications of laparoscopic cholecystectomy were evaluated by a survey of department chairpersons at 4,292 US hospitals. Bile duct injuries were recognized postoperatively in half of the cases and most frequently required anastomotic repair. Bowel and vascular injuries, which occurred in 0.14% and 0.25% of cases, respectively were the lethal complications. Postoperative bile leak was recognized in 0.3% of patients. These data demonstrated that laparoscopic cholecystectomy is associated with low rates of morbidity and mortality but a significant rate of bile duct injury (Roger, 2008).

Aljaberi et al. (2002) conducted a prospective evaluation among 250 patients undergoing laparoscopic cholecystectomy at Dallah hospital, Riyadh. In all these patients, six parameters of liver function such as direct bilirubin, indirect bilirubin, alanine aminotransferase, aspartate aminotransferase, alkaline phosphatase and gamma

glutamyltransferase were assessed before and 24 hours after surgery. The study results showed that most of the patients (67.1%) showed more than a 100% increase in at least one parameter of liver function. Female patients showed a significant higher incidence of liver function changes. The study findings concluded that changes in liver function parameters after laparoscopic cholecystectomy are common and assessment of liver function test is sufficient for the routine evaluation of these patients postoperatively.

Uchiyama et al. (2001) conducted a study on effectiveness of the clinical pathway to decrease the length of stay and cost for laparoscopic surgeries in Japan. The main aim of this study was to investigate the effect of clinical pathways for laparoscopic surgeries, such as laparoscopic cholecystectomy among 210 patients, laparoscopically assisted distal gastrectomy with Billroth-I reconstruction among 33 patients, and laparoscopically assisted colectomy among 34 patients. Total length of hospital stay and the economic efficiency before and after pathway implementation were compared at Wakayama medical university Hospital. The study findings highlighted that the implementation of clinical pathways in the field of laparoscopic surgeries produced significant decrease in length of hospital stay and cost while maintaining the quality of patient outcomes.

A retrospective review of the 1300 laparoscopic cholecystectomies was performed at the videoscopic surgery center at Pennsylvania hospital by Ahmad et al. (2000). The purpose of this study was to compare the rate of complications following laparoscopic cholecystectomy. Complications were classified as those related to certain of the initial pneumoperitoneum and those related to cholecystectomy. The study findings were conversion rate to open cholecystectomy (3%) was noted due to the

presence of dense adhesions, gangrenous cholecystitis, or difficult anatomic relationships. There were 18 complications related to creation of the initial pneumoperitoneum (1.4%), 14 complications related to cholecystectomy (1.1%). There were no perioperative deaths related to laparoscopic cholecystectomy and the overall morbidity was 2.4%.

Literature related to Clinical Pathways

Clinical pathways are otherwise known as integrated care pathways, multidisciplinary pathways of care, pathways of care, care maps, 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.

They 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.

Clinical pathways have four components which includes timeline, the categories of care or activities and their interventions, intermediate and long term outcome criteria, and the variance record. Clinical pathways differ from practice guidelines, protocols and algorithms as they are utilised by a multidisciplinary team and focus on the quality and co-ordination of care.

The clinical pathway is a tool employed by various medical care professionals including physicians and nurses to efficiently carry out medical treatments and care for patients while maintaining good communication. During the past 15 years, the clinical pathway was originated in the United States and was implemented at medical institutions together with the Diagnosis-Related groups/prospective payment system (DRGs /PPS), a measure for checking medical expenses.

Clinical pathway is developed to improve the efficiency and minimize the cost of health care service. However current application of clinical pathways can hardly adapt to the dynamic and complex clinical processes which involve the coordination of social agents in hospital. The main advantages of clinical pathway includes improvement in the medical quality by medical standardisation and efficiency, the promotion of team treatment, substantiality of the risk management and improvement in the patient satisfaction by the patient focused care, the shortening of hospitalization, reduction of the cost, increase in the hospital profits.

The implementation of clinical pathways to manage resources and provide high quality, cost-effective care has become a challenge for many hospital administrators and surgeons during the past decade. Numerous studies have demonstrated that a well-designed clinical pathway is an effective means of sustaining quality while controlling costs for several surgical procedures.

Among 330 patients, Ishiquoro et al. (2010) evaluated the effectiveness of clinical pathway after laparoscopic surgery for colorectal cancer in Norway. They retrospectively reviewed patients with colorectal carcinoma who underwent

laparoscopic surgery. The patients were divided in to 2 groups, no clinical pathway patients named as group A and those managed with clinical pathway as group B. In group B, the rate of patients who started solid food within postoperative day 3 were significantly higher than in group A for both colon and rectal carcinoma. The rates of patients discharged within postoperative day 8 were significantly higher in group B than in group A. Thus the implementation of clinical pathway has led to the standardization of patient care and considerable decrease in length of stay after laparoscopic surgery for colorectal carcinoma.

Beaupre et al. (2006) undertook a study in Tokyo among 678 patients to determine how an evidenced based clinical pathway for treatment of elderly patients with hip fracture affected morbidity, in-hospital mortality and health service utilization. A pre-post study design using two population based inception cohorts of hip fracture patients aged above 65 years was used. Chart reviews were completed during study time frames to determine complications, mortality, and health service utilization. Only 24% of patients in the experimental group experienced postoperative complications compared with 61% of patients in the control group. The study findings concluded that an evidenced based clinical pathway reduced postoperative morbidity and did not affect in-hospital mortality or overall costs of inpatient care.

In New Zealand a retrospective study was performed by Thomas et al. on patients' undergoing total knee replacement over a 5 year period after implementation of clinical pathway in 2006. There was a significant reduction in duration of hospital stay with 62.8% of patients staying less than 8 post operative days and reduction in the number of patients with thrombo embolic complications or readmission rate.

In the year 2005, Scanlon conducted a study in US on development of a same day discectomy program by developing a 6 month research project on clinical pathway to study outcomes of patients undergoing discectomy who were discharged after 4 to 6 hours of postoperative care in the post anaesthetic care unit. Guidelines were established to define the candidates for enrolment in the same day discectomy program and concluded that clinical pathway had a significant effect in same day discectomy program.

In California, Webster et al. (2005) conducted a study on clinical pathway for laparoscopic pyeloplasty. 39 patients were managed according to the clinical pathway developed for the laparoscopic pyeloplasty procedure. The length of stay was measured in days and patient satisfaction was assessed with a standardized questionnaire. Readmissions or emergency room visits were also documented. The study findings were the mean length of stay was 1.10 days, majority of them were discharged home on postoperative day 1 (94%), level of satisfaction among patients was also very high. There were no readmissions or emergency room consultations.

A study on evidence based clinical pathway for acute appendicitis was conducted by Warner et al. (2004). This study was conducted among 122 appendicitis patients in University of Cincinnati College of medicine by using prospective evaluation method. Pathway patients with non perforated appendicitis were more often discharged from the hospital within 24 hrs with lower hospital costs. This shows that an evidence based appendicitis pathway decreased duration of hospitalization and cost without adversely affecting diagnosis or therapy.

Impact of clinical pathways in surgery was evaluated by Conney et al. (2001) in Newzealand. Data among 171 consecutive patients undergoing cholecystectomy, open herniorraphy, and laparoscopic gastric bypass was collected. This study demonstrates clinically and economically relevant benefits for the utilization of clinical pathways with a reduction in use of all resource types, without any negative impact on the rate of complications or re-hospitalization.

Langchang et al. (2000) conducted a study on the effects of implementation of clinical pathways on costs and quality of care among patients undergoing urological surgery in Canada. The outcomes in terms of length of hospital stay and admission charges of patients after implementation of clinical pathway were compared with those of patients treated before clinical pathways were implemented. The study findings conclude that implementation of multiple clinical pathways resulted in reduction of length of stay, admission charges and rate of surgical complications and also improved the quality of care.

Literature related to Clinical Pathway and Laparoscopic Cholecystectomy

The study was conducted by Topal et al. (2007) on clinical pathway upon outpatient laparoscopic cholecystectomy among 320 patients in USA. The effect of implementing a clinical pathway was assessed in terms of outcome for patients scheduled to undergo laparoscopic cholecystectomy. Clinical outcome and hospital stay were analyzed for consecutive patients scheduled to undergo laparoscopic cholecystectomy before and after implementation of a clinical pathway among 338 patients. The implementation of a clinical pathway preserves the clinical outcome for

patients undergoing outpatient laparoscopic cholecystectomy. It creates a significant increase in the number of patients treated in an outpatient setting and confers a significant benefit in terms of hospital costs and available bed capacity.

In the year 2002, Soria et al. conducted a study among 160 patients to evaluate the effectiveness of clinical pathway for laparoscopic cholecystectomy in Japan. All patients included in the clinical pathway since its introduction was studied. Evaluation criteria included compliance, indicators of the effectiveness of clinical care, economic impact and indicators of satisfaction based on a survey. The results were compared with those in a series of patients who underwent surgery in the year before the introduction of the clinical pathway. This study concluded that laparoscopic cholecystectomy is a suitable process with which to initiate systematization of clinical pathways and also showed that length of hospital stay has been significantly reduced without increasing morbidity and also improved the patient satisfaction.

The impact of clinical pathway in medical economy and patient satisfaction among laparoscopic cholecystectomy patients was assessed at Pittsburgh Medical Univeristy by Sharma et al. in 2002 among 280 patients. In that study, hospital stay, total hospitalization cost, post-operative hospitalization cost, patient satisfaction questionnaire were compared between control and experimental group. The results suggested that implementation of clinical pathway leads to improved medical economic efficiency and patient satisfaction.

Calland et al. (2001) conducted a study on patient outcomes for laparoscopic cholecystectomy among 270 patients after implementation of clinical pathway in

California and found that implementation of clinical pathway was successful, safe and satisfying for patients. Converting laparoscopic cholecystectomy to an outpatient procedure resulted in a significant reduction in medical resource use, including a decreased length of stay and total cost of care.

Summary

This chapter has dealt with the review of literature related to the problem stated. The literatures presented here were extracted from 18 primary and 7 secondary sources. It has helped the researcher to understand the prevalence and impact of the problem under study. It has also enabled the investigator to design the study, develop the tool, and plan the data collection procedure and to analyze the data.

CHAPTER III

RESEARCH METHODOLOGY

The methodology of the research study is defined as the ways the data are gathered in order to answer the questions to analyze the research problem. It enables the researcher to project a blue print for the research undertaken. The research methodology involves a systematic procedure by which the researcher had a start from the initial identification of the problem to its final conclusion.

The chapter deals with a brief description of different steps undertaken by the researcher for the study. It involves research approach, research design, setting, population, sample and sampling technique, sampling criteria, selection and development of the instruments, validity and reliability of the instruments, pilot study, data collection procedure and plan for data analysis. The present study is conducted to assess the effectiveness of clinical pathway upon patients undergoing laparoscopic cholecystectomy.

Research Approach

The appropriate choice of the research approach depends on the purpose of the research study which is undertaken. According to Polit and Beck (2010), research is an extremely applied form that involves finding out how well a programme, the practice or policy is working. Its goal is to evaluate the success of the programme or practice.

An experimental research is generally applied where the primary objective is to determine the extent to which a given treatment meets the desired results. To

accomplish the objectives of this study, an experimental research design was considered most appropriate.

Research Design

According to Polit and Beck (2010), a research design is the overall plan for addressing a research question, including specifications for enhancing the study's integrity.

A Quasi-experimental research design was adopted for this study. Since there were a limited number of nurses, one group pre and post design was adopted for nurses. It fulfils the criteria such as manipulation and control but no randomization.

The research design of nurses is represented diagrammatically as follows:

01 X 02

01 --- Pre test to assess the knowledge and practice of nurses regarding clinical pathway for laparoscopic cholecystectomy patients.

X --- Teaching on clinical pathway for laparoscopic cholecystectomy.

02 --- Post test to assess the gained knowledge and practice of nurses regarding clinical pathway for laparoscopic cholecystectomy patients.

The research design of patients is represented diagrammatically as follows:

- 01

X 01

X --- Clinical pathway implementation.

01 --- Assessment of patients' outcome and patients' satisfaction on nursing care.

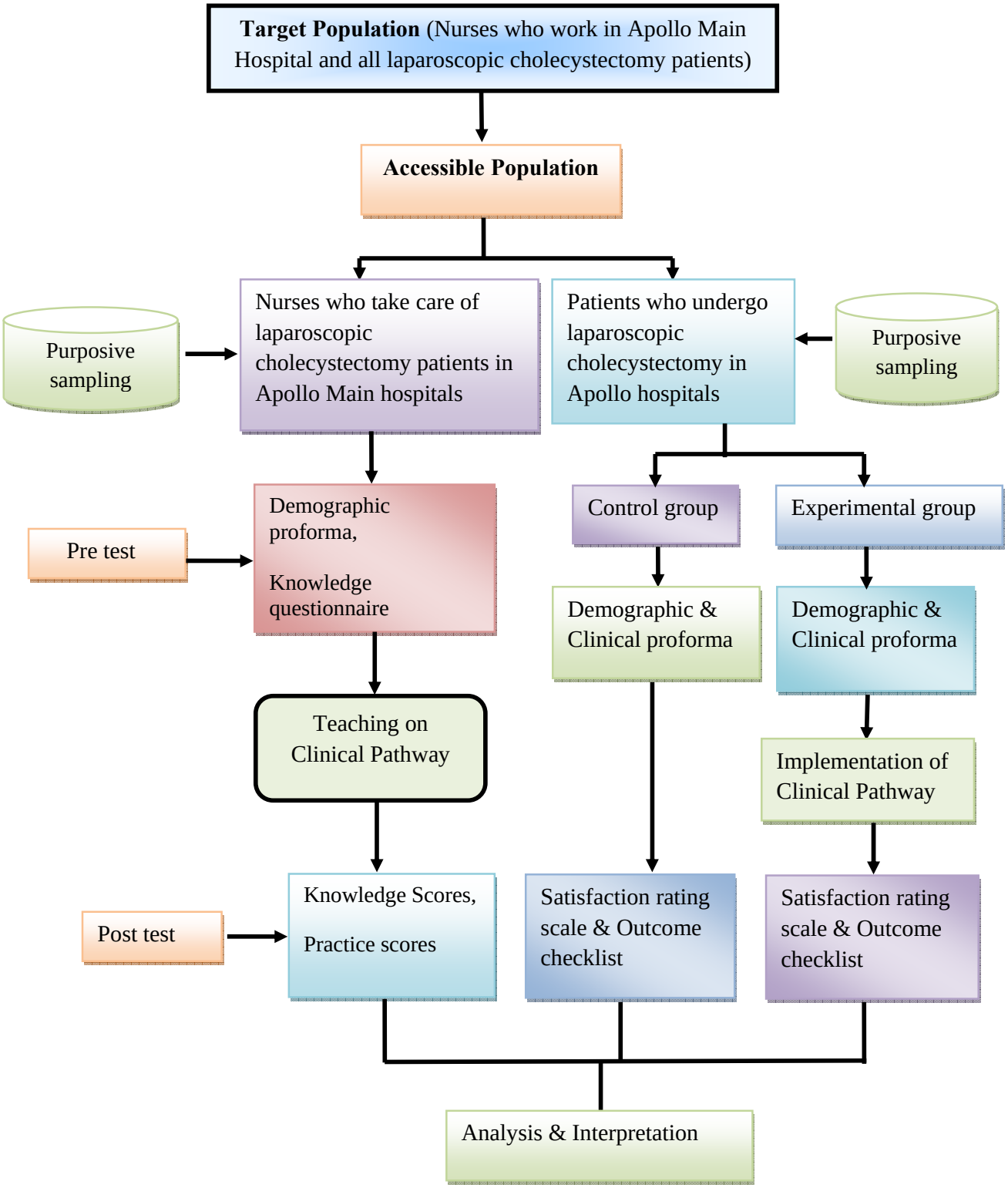

Fig.2 Schematic Representation of Research Design

Variables

Independent variable

The variable that is believed to cause or influence the dependent variable is the independent variable (Polit and Beck, 2008). In this study, the independent variable was clinical pathway designed for patients undergoing laparoscopic cholecystectomy from admission till discharge.

Dependent variable

The variable hypothesized to depend on or be caused by another variable is the dependent variable. In this study the knowledge and practice of nurses and patients outcome were considered as dependent variables.

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 patients undergoing laparoscopic cholecystectomy and also the clinical variable proforma of patients.

Research Setting

According to Polit and Beck (2008), setting is the physical location and condition in which data collection takes place in a study.

The present study was conducted in Apollo hospitals, Chennai. The hospital is a Joint commission international accredited and it specializes in cutting edge medicine and surgical procedures. It has 60 departments spearhead by internationally trained doctors. This hospital is a multi speciality hospital where many major and minor surgeries are done. Approximately 2 to 5 laparoscopic cholecystectomies are performed every day. The study was conducted in general, semiprivate, private wards. Setting was chosen on feasibility in terms of availability of adequate subjects.

Population

Population is an aggregate of all subjects that possess a set of specification (Polit and Beck, 2006).

The targeted population is the group of population that the researcher aims to study and to whom the study findings will be generalized. In this study target population comprises of all nurses working in Apollo Main Hospital and laparoscopic cholecystectomy patients.

The accessible population is the list of population that the researcher finds in the particular area. The accessible population of nurses in this study was nurses who were working in surgical wards and taking care of laparoscopic cholecystectomy patients. The accessible population of patients was patients undergoing laparoscopic cholecystectomy at Apollo main Hospital, Chennai.

Sample

According to Polit and Beck, 2006, sample is a subset of the units that comprises the population. A total number of 60 patients and 30 nurses were taken for the study. Among 60 patients, 30 patients were assigned to control group and 30 patients to experimental group.

Sampling Technique

According to Polit and Beck, sampling is the process of selecting a portion of the population to represent the entire population. Purposive sampling technique was used in this study. Participants who were willing to participate in the study and fulfilled the selection criteria were chosen.

Sampling Criteria

Inclusion criteria

The study included were

- Patients undergoing laparoscopic cholecystectomy.
- Nurses and patients who are willing to participate in the study.
- Nurses who take care of patients with cholecystectomy.
- Patients who could speak and understand English and Tamil

Exclusion criteria

The study excluded

- Patients who are critically ill.
- Patients who are not willing to participate in the study.

Selection and Development of the Study Instruments

The study aimed at evaluating the knowledge and practice of nurses regarding clinical pathway and effectiveness of clinical pathway for laparoscopic cholecystectomy patients. The data collection instruments were developed through an extensive review of literature in consultation with the opinion of experts and guidance from faculty members. The instruments used in this study are demographic variable proforma, clinical variable proforma, structured knowledge questionnaire, practice checklist, rating scale for patients satisfaction and check list for patients outcome.

Demographic variable proforma of nurses

Demographic variables consisted of the information such as nurse's age, sex, total years of experience, professional qualification, designation, working area, place of study.

Demographic variable proforma of patients undergoing laparoscopic cholecystectomy

Demographic variables proforma consisted of the information such as patient's age, sex, marital status, educational qualification, dietary pattern, occupational status, place of work, nature of work, income, source of health information.

Clinical variable proforma of patients undergoing laparoscopic cholecystectomy

Clinical variables consisted of the information such as past medical history, past surgical history, and other health related information.

Clinical pathway for laparoscopic cholecystectomy

The researcher developed the clinical pathway for patients undergoing laparoscopic cholecystectomy by extensive review of literature, participatory observation of nursing care and getting suggestions from health care team members including gastroenterologist, nursing officers, staff nurses, physiotherapist and dietician. Henderson's 14 basic needs theory of nursing was the basis for the pathway.

Henderson's 14 basic needs are

1. Breathe normally
2. Eat &drink adequately
3. Eliminate body wastes
4. Move and maintain position
5. Sleep and rest.
6. Suitable clothing
7. Maintain body temperature
8. Keep body clean &well groomed
9. Avoid dangers in environment
10. Communication
11. Worship according to one's faith
12. Work Accomplishment
13. Recreation
14. Learn discover or satisfy curiosity

The clinical pathway for laparoscopic cholecystectomy contains eligibility criteria and activities were tabulated on 14 aspects for three days. The aspects included were admission, consultation, assessment, investigation, treatment, nutrition, elimination, activity, hygiene, psychosocial aspects, spiritual needs, patient safety, education and discharge planning. The prescribed length of stay was three days including 1 day before surgery and 2 days after surgery. The clinical pathway form was attached with the patient's file and the nurse caring for the patient should provide care accordingly. If any variances are observed, it should be noted in the pathway.

Structured knowledge questionnaire for nurses regarding clinical pathway for laparoscopic cholecystectomy

The structured knowledge questionnaire was formed very carefully considering language and sequence of item. The questions were formulated and options were given below for each question. It consisted of 20 multiple choice questions regarding clinical pathway for laparoscopic cholecystectomy. Each question has four options which included one right answer. Every correct answer was assigned a score of (1) and no negative score for wrong answers .The total score of structured questionnaire was 20. The knowledge scores are classified into 3 levels.

Score	**Percentage**	**Level of knowledge**
0 - 10	≤50	Inadequate
11 – 15	51 - 75	Moderately adequate
16 - 20	>75	Adequate

Rating scale on patient's satisfaction of nursing care for patients undergoing laparoscopic cholecystectomy

The patient's satisfaction on nursing care was assessed by using rating scale. It consisted of 20 statements regarding satisfaction of nursing care. The responses extend from highly satisfied (score= 2), satisfied (score= 1), dissatisfied (score=0).

Score	Percentage	Level of satisfaction
0 - 20	≤50	Dissatisfied
21 - 30	51 - 75	Satisfied
31-40	>75	Highly satisfied

Checklist to assess the outcome of patients undergoing laparoscopic cholecystectomy

The tool mainly meant to assess the patient's outcome on 12 areas such as nature of wound, oxygenation, nutrition, elimination, rest, comfort, regulatory functions, personal hygiene, communication, activity, health teaching and discharge with ranging from no to major complications.

Score	Percentage	Level of Outcome
0 - 12	≤50	Negative
13-18	51 - 75	Moderately positive
19-24	>75	Positive

Practice checklist for nurses caring for patients undergoing laparoscopic cholecystectomy

The Nursing care for laparoscopic cholecystectomy patients was observed by using compliant checklist. It consisted of list of nursing activities to be done from admission to discharge. The scoring was given according to the compliance to each nursing activity. [0- non compliant, 1-partially compliant, 2-compliant.

Scoring key:

Day1

Score	Percentage	Level of Compliance
0 - 36	≤50	Non compliant
37-54	51 - 75	Partially compliant
55-72	>75	Compliant

Day 2

Score	Percentage	Level of Compliance
0 – 32	≤50	Non compliant
33-48	51 - 75	Partially compliant
48-64	>75	Compliant

Day3

Score	Percentage	Level of Compliance
0 – 26	≤50	Non compliant
26-39	51 - 75	Partially compliant
40-52	>75	Compliant

Psychometric Properties of the Instruments

Validity

Content validity is the degree to which the item in an instrument adequately represents the universe of the content (Polit and Beck, 2010). The content validity of the tools was obtained by getting opinion from seven experts. Based on the expert's suggestions the investigator finalized the tools for the original study.

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 = 0.72)
Practice check list for nurses	–	Inter rater technique (r = 0.86)
Rating scale for patient satisfaction	–	Split half method (r = 0.74)
Rating scale for patients outcome	–	Split half method (r = 0.76)

Pilot Study

According to Polit and Hungler (2009), a pilot study is a miniature or some part of the actual study, in which the instruments are administered to the subjects drawn from the population. It is a small scale version or trial run, done in preparation for the

major study. The purpose is to find out the feasibility and practicability of the study design.

Pilot study was conducted in Apollo First Med Hospitals, Chennai for a period of one week. With a set of small sample of 10 patients who underwent laparoscopic cholecystectomy. Pilot study revealed that it was feasible and practicable. So investigator proceeded for the main study.

Protection of Human Rights

- The study was conducted after obtaining clearance from Ethical committee, Apollo hospitals, Chennai and permission from the Research and Medical guide.
- Consent was obtained from all the participants before the data collection.
- Confidentiality was maintained 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 conduct 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 7a.m-12 noon and 12.30 p.m-5.30 p.m. The data collection period was from June 17th to July 17th 2011.

A group of 30 nurses were selected from surgical wards by purposive sampling method and obtained verbal consent for the study. The nurses were gathered in the

nurses' station during the shift changing time between 2-3 p.m and collected the baseline data by using demographic variable proforma. Their pretest knowledge was assessed by using structured knowledge questionnaire on clinical pathway for laparoscopic cholecystectomy.

The control group of 30 patients undergoing laparoscopic cholecystectomy was 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 these patients was assessed by using practice check list through participatory observation method. Outcome of these patients was monitored by using outcome checklist. At the time of their discharge rating scale on satisfaction of nursing care was distributed and their level of satisfaction on nursing care was assessed.

The same group of nurses were then educated for one hour regarding clinical pathway for laparoscopic cholecystectomy by using pathway tool and the doubts of nurses were clarified. The nurses were instructed to use the clinical pathway from the time of admission till discharge of the laparoscopic cholecystectomy patients. After a period of one week, the investigator assessed the post test knowledge level of same group of nurses.

Patients admitted for laparoscopic cholecystectomy were selected for experimental group by purposive sampling method. Baseline data from the patients was collected by using demographic and clinical variable proforma. Nursing care of these patients was assessed by using practice check list by participatory observation method. Outcome of these patients was monitored by using outcome checklist. At the time of

their discharge, rating scale on satisfaction of nursing care was distributed and their level of satisfaction on nursing care was assessed.

Problems Faced during the Process of Data Collection

The problems faced during the data collection were,

- Lack of time for nurses to participate in the study.
- Few patients were not interested to provide information.
- Follow up is difficult.

Plan for Data Analysis

Data analysis is the systematic organization, synthesis of research data and testing of null hypothesis by using the obtained data. (Polit & Beck, 2010). Analysis and interpretation of 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, chi square test was used to analyze the data.

Summary

This chapter has dealt with research approach design, setting, population and samples, sampling technique, inclusion criteria, exclusion criteria, selection and development of study instruments, validity and reliability of the instruments, pilot study, data collection procedure and plan for data analysis.

CHAPTER IV

ANALYSIS AND INTERPRETATION

This chapter includes both descriptive and inferential statistics. Statistics is a field of study concerned with techniques or methods of collection of data, classification, summarizing, interpretation, drawing inferences, testing of hypothesis, making recommendations. (Mahajan, 2004)

The data was collected from 60 laparoscopic cholecystectomy patients and 30 nurses in the Inpatient department at Apollo hospitals, Chennai. The data were analyzed according to the objectives and hypotheses of the study. Analysis of study was compiled after all the data was transferred to the master coding sheet. The investigator used descriptive and inferential statistics for analysis. The data were analysed, tabulated and interpreted using descriptive and inferential statistics.

Organisation of Findings

The findings of the study were organized and presented under the following headings:

- Frequency and percentage distribution of demographic variables of nurses.
- Frequency and percentage distribution of demographic variables in control and experimental group of laparoscopic cholecystectomy patients.
- Frequency and percentage distribution of clinical variables in control and experimental group of laparoscopic cholecystectomy patients.

- Frequency and percentage distribution of pre and post test knowledge of nurses regarding clinical pathway for laparoscopic cholecystectomy.
- Frequency and percentage distribution of practice of nurses for control and experimental group of laparoscopic cholecystectomy patients.
- Frequency and percentage distribution of outcome in control and experimental group of laparoscopic cholecystectomy patients.
- Frequency and percentage distribution of level of satisfaction on nursing care in control and experimental group of laparoscopic cholecystectomy patients.
- Comparison of mean and standard deviation of pre and post test knowledge of nurses regarding clinical pathway for laparoscopic cholecystectomy.
- Comparison of mean and standard deviation of pre and post test knowledge of nurses in various dimensions regarding clinical pathway for laparoscopic cholecystectomy.
- Comparison of mean and standard deviation of practice of nurses for control and experimental group of laparoscopic cholecystectomy patients.
- Comparison of mean and standard deviation of satisfaction on nursing care in control and experimental group of laparoscopic cholecystectomy patients.
- Comparison of mean and standard deviation of satisfaction on various dimensions of nursing care in control and experimental group of laparoscopic cholecystectomy patients.
- Comparison of mean and standard deviation of patient's outcome in control and experimental group of laparoscopic cholecystectomy patients.

- Association between selected demographic variables of nurses and their pre and post test knowledge regarding clinical pathway for laparoscopic cholecystectomy.
- Association between selected demographic variables and level of satisfaction on nursing care in control and experimental group of laparoscopic cholecystectomy patients.
- Association between selected demographic variables and the outcome in control and experimental group of laparoscopic cholecystectomy patients.
- Association between selected clinical variables and the outcome in control and experimental group of laparoscopic cholecystectomy patients.

Table.1

Frequency and Percentage Distribution of Demographic Variables of Nurses. (Age, Sex, Total Years of Experience, Professional Qualification, Designation, In-service education, Working area, Place of study)

(n=30)

Demographic variables	n	p
Age in years		
21-25	24	80%
26-30	6	20%
31-35	-	-
Sex		
Male	2	6.6%
Female	28	93.3%
Total years of exp		
Below 5 yrs	26	86.6%
6-10 yrs	4	13.3%
11-15 yrs	-	-
Above 15 yrs	-	-
Designation		
Staff nurse	21	70%
Novice	9	30%
In service education on clinical pathway		
Yes	9	30%
No	21	70%
Working area		
General ward	10	33.3%
Private ward	20	66.6%
Place of study		
Private	26	86.6%
Government	-	-
Mission	4	13.3%

The data presented in Table. 1 shows that majority of nurses were in the age group of 21-25 yrs (80%), females (93.3%), having less than 5 years of experience (86.6%), studied in private institution (86.6%), and working as staff nurses (70%), in private wards (66.6%) and not attended in service education on clinical pathway(70%).

Fig.5 shows that Most of them have completed diploma nursing (56.6%) and significant percentage of them have completed B.Sc. (N) (40%).

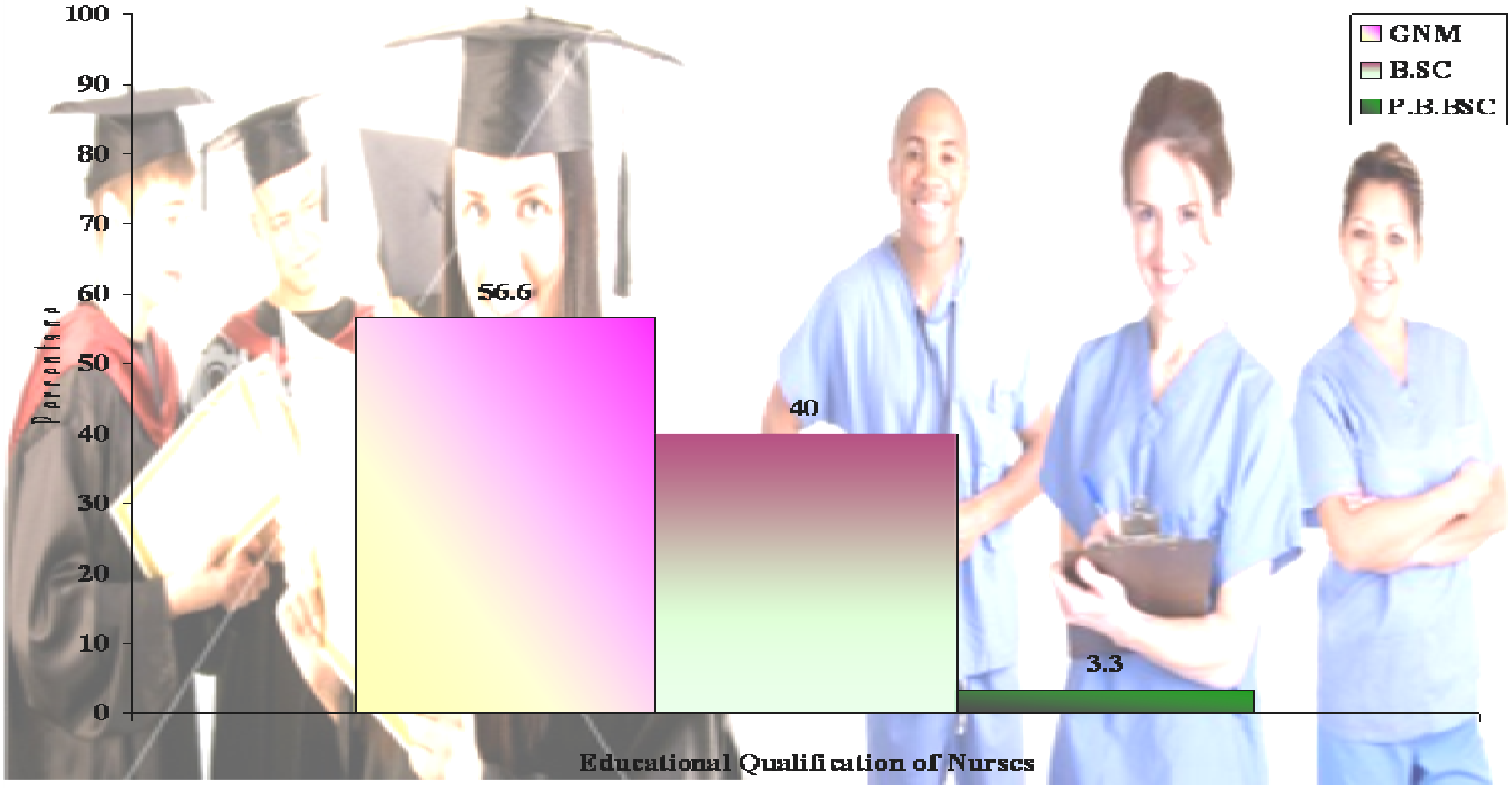

Fig.3. Percentage Distribution of Educational Qualification of Nurses

Table. 2

Frequency and Percentage Distribution of Demographic Variables in Control and Experimental Group of Laparoscopic Cholecystectomy Patients (age ,sex, marital status, educational qualification, dietary intake, occupational status, place of work, nature of work, income, source of health information, residential area).

Demographic variables	Control group(n=30)		Experimental group(n=30)	
	n	p	n	p
Sex				
Male	20	66.6%	21	70%
Female	10	33.3%	9	30%
Marital status				
Married	27	90%	26	86%
Unmarried	3	10%	4	13.3%
Divorced	-	-	-	-
Widow/widower	-	-	-	-
Educational qualification				
Illiterate	-	-	-	-
Primary education	1	3.3%	-	-
Secondary education	8	26.6%	9	30%
Higher secondary	10	33.3%	7	23.3%
Graduate & above	11	36.6%	14	46.6%
Dietary intake				
Vegetarian	9	30%	9	30%
Non vegetarian	21	70%	21	70%
Place of work				
Indoor	26	86.6%	24	80%
Outdoor	4	13.3%	6	20%
Nature of work				
Sedentary worker	9	30%	10	33.3%
Moderate worker	21	70%	17	56.6%
Heavy worker	-	-	3	10%

Income per month				
5000-10000	-	-	-	-
10001-15000	8	36.3%	9	30%
>15000	22	73.3%	21	70%
Source of health information				
Health workers	19	63.3%	16	53.3%
Relatives	6	20%	7	23.3%
Friends	4	13.3%	3	10%
Family members	1	3.3%	4	13.3%
Residential area				
Rural	14	46.6%	10	33.3%
Urban	11	36.6%	9	30%
Semi urban	2	6.6%	7	23.3%
Semi rural	3	10%	4	13.3%

The data in Table.2 shows that most of the patients in control group and experimental group undergoing laparoscopic cholecystectomy were males (66.6%,70%) married (90%, 86%), graduates(36.3%, 46.6%),non vegetarians (70%,70%),indoor place of work (86.6%,80%), moderate worker(70%, 56.6%), with monthly income of above 15,000 (73.3%, 70%), and had source of health information about laparoscopic cholecystectomy from health workers (63.3%,53.3%) respectively.

Fig.4 shows that in the control group and experimental group, a significant percentage of the patients belongs to the age group of above 50yrs (43.3%, 40%) respectively.

Fig 5 depicts that in the control group and experimental group, most of the patients were employed (53.3%, 46.6%) respectively.

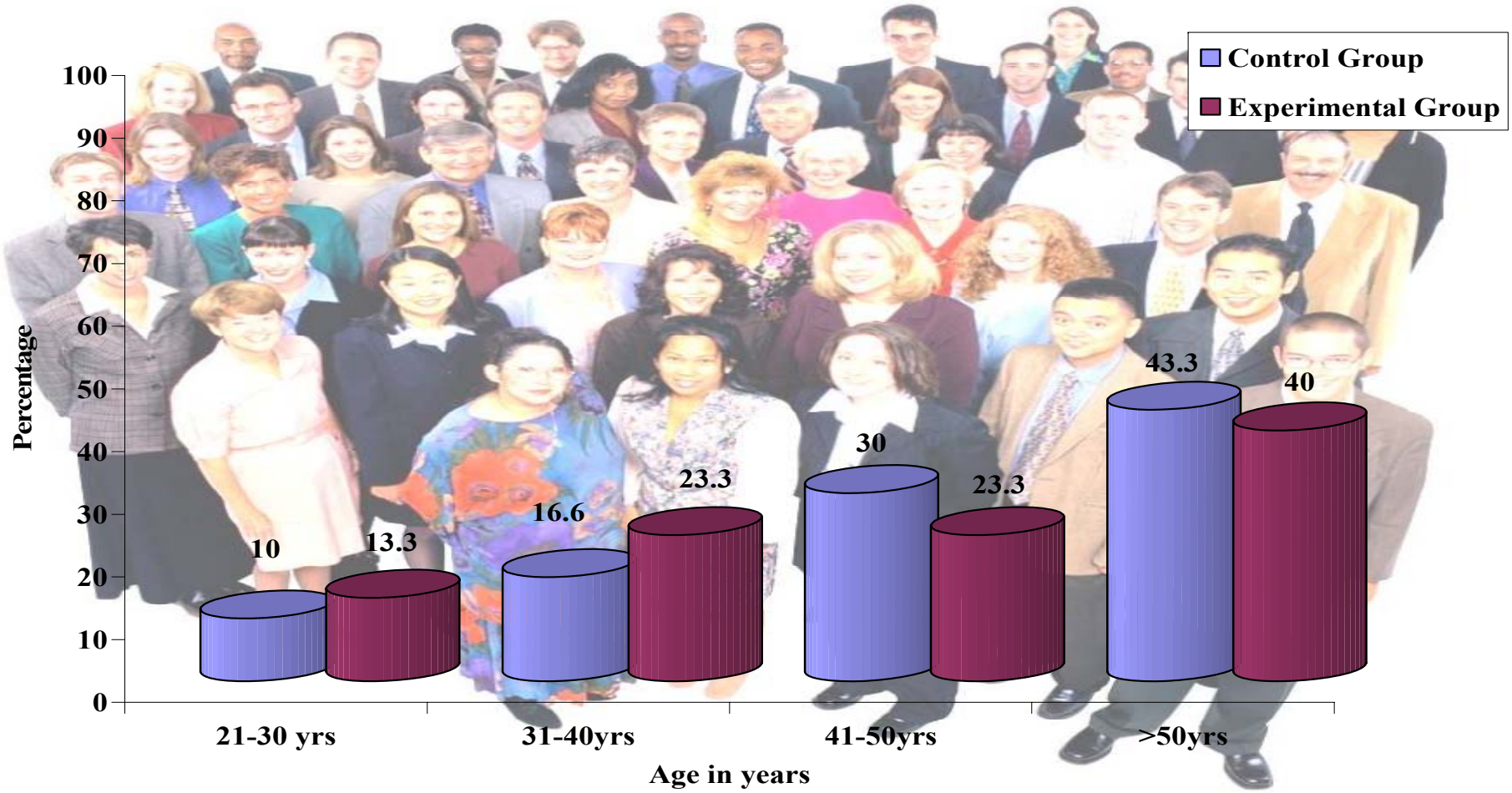

Fig:4 Percentage Distribution of Age distribution in Control and Experimental group of Laparoscopic Cholecystectomy Patients

Fig.5 Percentage Distribution of Occupation in Control and Experimental Group of Laparoscopic Cholecystectomy Patients

Table. 3

Frequency and Percentage Distribution of Clinical Variables in Control and Experimental group of Laparoscopic Cholecystectomy patients (height, weight, co morbid illness, treatment of co morbid illness, history of trauma, history of weight loss, history of surgeries, duration of diagnosis, history of jaundice, treatment for jaundice, duration of treatment and history of bad habits).

Demographic variables	Control group (n=30)		Experimental group (n=30)	
	n	p	n	p
Height in cms				
140-150	3	10%	-	-
151-160	7	23.3%	4	13.3%
161-170	9	30%	14	46.6%
>170	11	36.6%	12	40%
Weight in kgs				
40-50	1	3.3%	-	-
51-60	2	6.66%	1	3.3%
61-70	13	43.3%	14	46.6%
> 70	14	46.6%	15	50%
Presence of comorbid illness				
Yes	20	66.6%	23	76.6%
No	10	33.3%	7	23.3%
Treatment of comorbid illness				
Yes	15	50%	23	76.6%
No	15	50%	7	23.3%
Any h/o of trauma				
Yes	3	10%	3	10%
No	27	90%	27	90%
H/o rapid weight loss				
Yes	4	13.3%	5	16.6%
No	26	86.6%	25	83.3%
H/o surgeries				
Yes	27	90%	25	83.3%
No	3	10%	5	16.6%
Duration of diagnosis of GBD				
1-3 months	26	86.6%	25	83.3%
4-6months	4	13.3%	3	10%
6months-1year	-	-	1	3.3%
Above 1 year	-	-	1	3.3%
H/o jaundice				
Yes	5	16.6%	4	13.3%
No	25	83.3%	26	86.6%

Treatment for jaundice				
Drug therapy	4	13.3%	3	10%
Home based remedies	-	-	-	-
Alternative therapies	-	-	-	-
None	26	86.6%	27	90%
Duration of medical treatment				
<3 months	4	13.3%	3	10%
3months-6months	-	-	-	-
7months-1 year	-	-	-	-
None	26	86.6%	27	90%
History of bad habits				
Smoking	5	16.6%	5	16.6%
Alcohol	3	10%	4	13.3%
Smoking and alcohol	2	6.6%	5	16.6%
Others	1	3.33%	2	6.6%
None	19	63.3%	14	46.6%

The Table 3 reveals that most of the patients in control and experimental group undergoing laparoscopic cholecystectomy were above 70 kgs (46.6%,50%), had co morbid illness (66.6%, 76.6%), on treatment for co morbid illness (50%,76.6%), had no history of trauma (90%, 90%), had no rapid history of weight loss (86.6%, 83.3%), suffering from gall bladder disease for less than 3 months (86.6%, 83.3%), had no history of jaundice (83.3%, 86.6%), and had no history of bad habits (63.3%, 46.6%) respectively.

Fig 6 depicts that in pre test, most of the nurses had inadequate knowledge (70%) and had moderately adequate knowledge (30%). In post test, majority of the nurses had adequate knowledge (76.6%) and significant percentage of nurses had moderately adequate knowledge (23.33%).

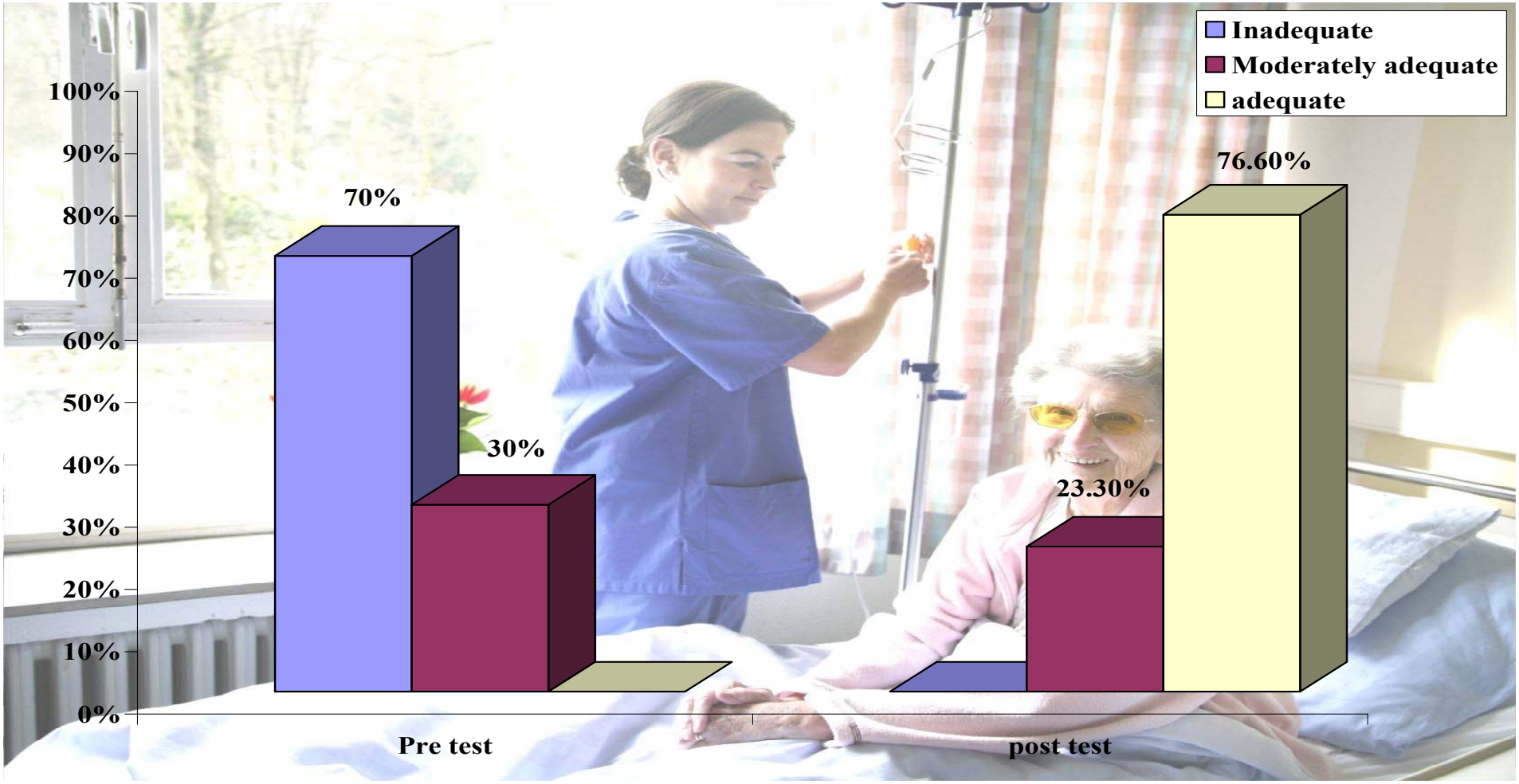

Fig.6 Percentage Distribution of Pre and Post test knowledge of Nurses regarding Clinical Pathway for Laparoscopic Cholecystectomy

Table. 4

Frequency and Percentage Distribution of Practice of Nurses for Control and Experimental group of Laparoscopic Cholecystectomy patients.

(n=30)

Practice scores	Day1		Day 2		Day 3	
	n	p	n	p	n	p
Control group						
Compliant	-	-	-	-	-	-
Partially compliant	17	56.6%	17	56.6%	11	36.6%
Non compliant	13	43.3%	13	43.3%	19	63.3%
Experimental group						
Compliant	30	100%	30	100%	30	100%
Partially compliant	-	-	-	-	-	-
Non compliant	-	-	-	-	-	-

It was observed from the Table 4 that most of the nurses had partially compliant scores on day 1 and day 2 (56.6%, 56.6%) and most of them have non compliant scores on day 3(63.3%) for control group of laparoscopic cholecystectomy patients. It also depicts that (100%) of nurses had compliant scores from day 1 to day 3 for experimental group of patients.

Fig.7 shows that majority of the control group patients had moderate positive outcome (86.6%) and majority of experimental group patients had positive outcome (83.3%).

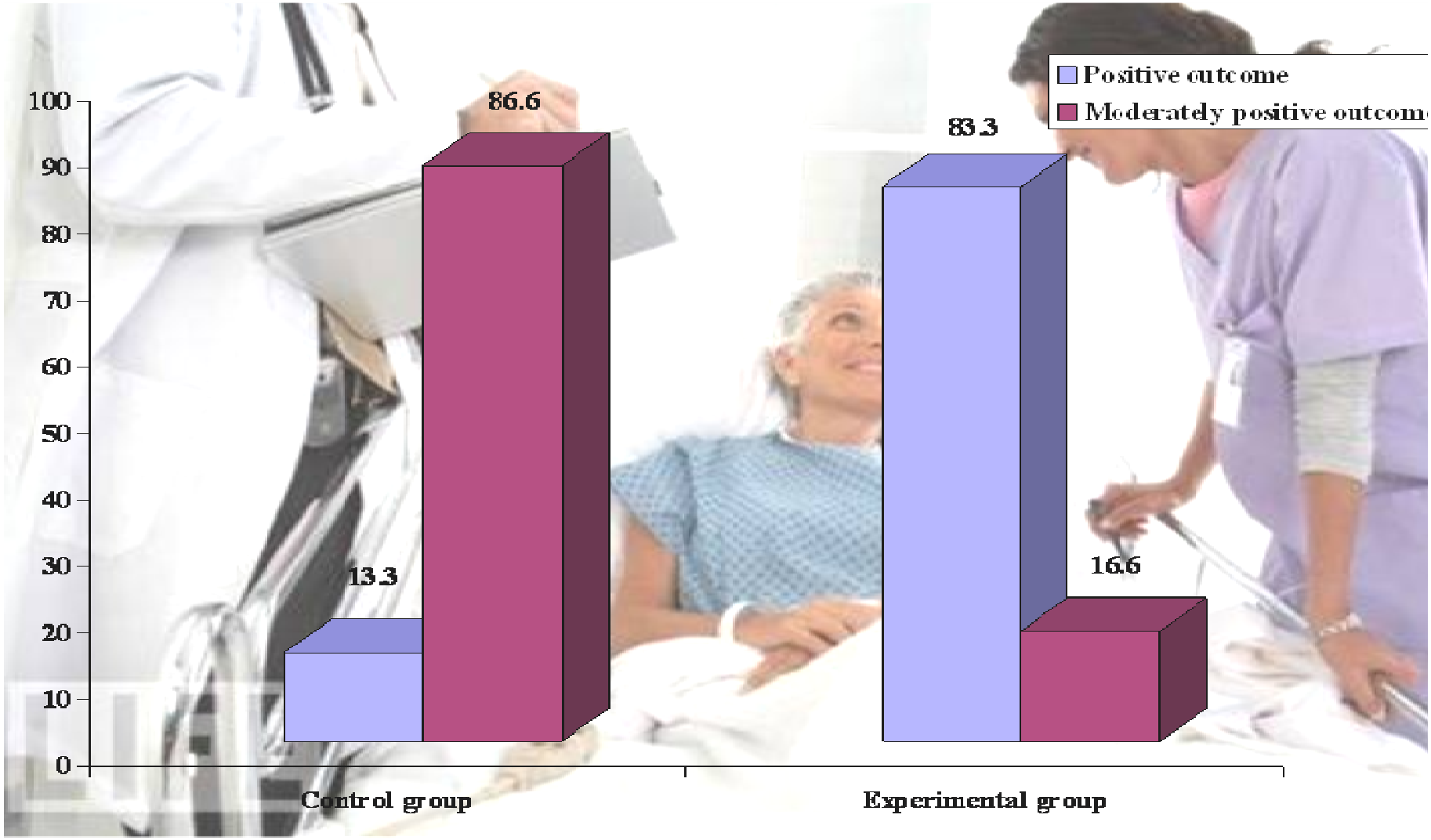

Fig 7. Percentage Distribution of Outcome in Control and Experimental group of Laparoscopic Cholecystectomy Patients.

Table. 5

Frequency and Percentage Distribution of Level of Satisfaction on Nursing Care in control and Experimental Group of Laparoscopic Cholecystectomy Patients.

Patient satisfaction	Control group (n=30)		Experimental group (n=30)	
	n	p	n	p
Highly satisfied	-	-	24	80%
Satisfied	17	56.6%	6	20%
Dissatisfied	13	43.3%	-	-

The data from Table 5 shows that most of the patients in control group were satisfied (56.6%) and significant percentage were dissatisfied (43.3%) with nursing care. Majority of patients in experimental group were highly satisfied (80%) with nursing care provided.

Table. 6

Comparison of Mean and Standard Deviation of Pre and Post test Knowledge of Nurses regarding Clinical Pathway for Laparoscopic Cholecystectomy.

	Level of Knowledge			
Category	**n**	**Mean**	**Std deviation**	**'t' value**
Pre test	30	9	2.61	11.84***
Post test	30	16.5	1.52	

*** p<0.001

Table 6 depicts that the knowledge scores in post test [M=16.5, SD = 1.52] were high in comparison with the pre test [M=9, SD=2.61] . The difference was found to be statistically significant at p<0.001 level of confidence and since the't' value is higher than the table value, teaching was effective in improving the knowledge of nurses. Hence the null hypothesis Ho_1 was rejected.

Table. 7

Comparison of Mean and Standard Deviation of Pre test and Post test Knowledge of Nurses in Various Dimensions regarding Clinical Pathway for Laparoscopic Cholecystectomy.

Knowledge dimensions	Pre test		Post test		't' value
	Mean	SD	Mean	SD	
Clinical Pathway	1.16	0.77	3.16	0.68	11.11***
Pre Operative Care	2.86	0.87	4.2	0.70	6.3***
Post Operative Care	3	1.43	5.7	0.81	7.8***
Discharge Planning	2	0.70	3.36	0.69	6.84***

*** $p<0.001$

Table 7 depicts that the knowledge of nurses in post test was high in comparison with the pre test knowledge in all dimensions regarding clinical pathway for laparoscopic cholecystectomy. The difference was found to be statistically significant at $p<0.001$ level of confidence and since the't' value is higher than the table value, teaching was effective in improving the knowledge of nurses. Hence the null hypothesis Ho_1 was rejected.

Table. 8

Comparison of Mean and Standard Deviation of Practice of Nurses for Control and Experimental Group of Laparoscopic Cholecystectomy Patients.

Category	Practice scores of nurses				't' value
	Control group (n=30)		Experimental group (n=30)		
	Mean	Std. deviation	Mean	Std. Deviation	
Day 1	40	7.266	64.46	4.834	15.38***
Day2	36.8	6.705	57.13	4.309	14***
Day3	29.93	5.278	46.13	3.64	13.89***
Mean	35.54	3.13	54.07	2.90	23.81***

*** $p<0.001$

Table 8 depicts that the mean practice scores for three days in experimental group were high in comparison with the practice scores in control group. The difference was found to be statistically significant at $p<0.001$ level of confidence and since the't' value is higher than the table value, clinical pathway is effective in improving the practice scores.

Table. 9

Comparison of Mean and Standard Deviation of Satisfaction on Nursing Care in Control and Experimental Group of Laparoscopic Cholecystectomy Patients.

Category	Level of satisfaction			
	n	Mean	Std deviation	't' value
Control group	30	22.16	4.099	11.72***
Experimental group	30	33.93	3.677	

*** p<0.001

Table 9 shows that the level of satisfaction in experimental group (M=33.93, SD=3.677) was high in comparison with the level of satisfaction in control group (M=22.16, SD= 4.099). The difference was found to be statistically significant at p<0.001 level of confidence and since the't' value is higher than the table value, clinical pathway is effective in improving the level of satisfaction. Hence the null hypothesis Ho2 was rejected.

Table. 10

Comparison of Mean and Standard Deviation of Satisfaction on Various Dimensions of Nursing Care in Control and Experimental Group of Laparoscopic Cholecystectomy Patients.

Aspects of patients satisfaction	Control group (n= 30)		Experimental group (n=30)		't' value
	Mean	SD	Mean	SD	
Environment, Comfort, Rest, Activity, Position	6.4	0.87	8.8	1.04	10***
Nutrition, Elimination	6.2	0.90	8.7	1.1	10***
Personal hygiene, Safety	5.1	1.42	9.16	2.23	8.63***
Spiritual, Communication, family involvement, health education, discharge plan	5.06	1.29	8.13	0.7	12.28***

*** $p<0.001$

The data from the Table 10 shows that the level of satisfaction in experimental group in all dimensions was high in comparison with the level of satisfaction in control group. The difference was found to be statistically significant at $p<0.001$ level of confidence and since the't' value is higher than the table value, clinical pathway is effective in improving the patients level of satisfaction on nursing care. Hence the null hypothesis Ho_2 was rejected.

Table. 11

Comparison of Mean and Standard Deviation of Patients Outcome in Control and Experimental Group of Laparoscopic Cholecystectomy Patients.

	Patients outcome			
Category	**n**	**Mean**	**Std deviation**	**'t' value**
Control	30	17.13	2.31	11.72***
Experimental group	30	20.83	2.20	

*** p<0.001

Table 11 depicts that the patients' outcome in experimental group (M=20.83, SD=2.20) was high in comparison with the patients' outcome in control group (M=17.13, SD = 2.31). The difference was found to be statistically significant at p<0.001 patients outcome level of confidence and since the't' value is higher than the table value; clinical pathway is effective in improving the patients outcome. Hence the null hypothesis Ho_2 was rejected.

Table. 12

Association between Selected Demographic Variables of Nurses and their Pre and Post test Knowledge regarding Clinical pathway for laparoscopic cholecystectomy.

[n=30]

Variables	Pre test			Post test		
	Inadequate (≤ 50%) n	Moderately adequate (51-75%) n	χ^2	Moderately adequate (51-75%) n	Adequate (>75%) n	χ^2
Age in years						
21-25	17	7	0.038	5	19	0.483
26-30	4	2	(df=1)	2	4	(df=1)
31-35	-	-		-	-	
Total years of experience						
< 5 years	18	8	0.617	20	6	4.04
6-10 years	2	2	(df=1)	1	3	(df=1)
Educational qualification						
GNM	12	5	0.4718	4	13	0.32
B.SC (N)	8	4	(df=2)	3	9	(df=2)
P.B.B.Sc (N)	1	-		-	1	
Designation						
Staff nurse	15	5	1.3	3	16	0.28
Novice	6	4	(df=1)	5	6	(df=1)
Working area						
General ward	8	8	1.55	3	7	0.82
Private ward	6	8	(df=1)	11	9	(df=1)
Place of study						
Private	19	8		6	20	0.351
Government	-	-	0.015	-	-	(df=1)
Mission	2	1	(df=1)	1	3	

*p<0.05

It could be inferred from Table 12 that there was no significant association between the selected demographic variables namely age, total years of experience, designation, working area, professional qualification and place of study and pre and post test level knowledge of nurses. Hence the null hypothesis Ho_3 was retained

Table. 13

Association between Selected Demographic Variables and Level of Satisfaction on Nursing Care in Control and Experimental Group of Laparoscopic Cholecystectomy patients.

Demographic variables	Level of satisfaction of patients					
	Control Group (n=30)			Experimental group (n=30)		
	Dissatisfied	Satisfied	χ^2	Satisfied	Highly Satisfied	χ^2
	n	n		n	n	
Age in years						
21-30	1	2		2	2	
31-40	2	3	2.523	0	7	7.07
41-50	2	7	(df=3)	0	7	(df=3)
> 50	7	6		4	8	
Sex						
Male	10	10	1.27	5	16	1.06
Female	3	7	(df=1)	1	8	(df=1)
Educational qualification						
Illiterate	-	-		-	-	
Primary	-	1		-	-	
Secondary	1	7	5.50	3	6	2.763
Higher secondary	6	4	(df=3)	-	7	(df=3)
Graduate & above	6	5		3	11	
Dietary intake						
Vegetarian	8	1	0.46	10	1	0.68
Non vegetarian	18	3	(df=1)	16	3	(df=1)
Place of work						
Indoor	10	2	0.58	10	2	0.38
Out door	15	3	(df=1)	15	3	(df=1)
Nature of work						
Sedentary worker	6	3	1.08	6	4	0.48
Moderate worker	10	11	(df=1	15	5	(df=1)

Occupational status						
Employed	9	7		2	12	
Unemployed	0	1	2.99	1	1	5.415
Homemaker	3	7	(df=3)	0	7	(df=3)
Retired	2	1		3	4	
Residential area						
Rural	8	8	1.99	8	9	0.34
Urban	6	8	(df=1)	9	4	(df=1)

*$p<0.05$

It could be inferred from Table 13 that there was no significant association between the selected demographic variables namely age, sex, educational qualification, dietary intake, place of work, nature of work occupational status, residential area and level of satisfaction in control and experimental group of patients. Hence the null hypothesis Ho_4 was retained.

Table. 14

Association between Selected Demographic Variables and the Outcome in Control and Experimental Group of Laparoscopic Cholecystectomy Patients.

Demographic variables	Outcome of patients					
	Control Group (n=30)			Experimental group (n=30)		
	Moderately Positive n	Positive n	χ^2	Moderately positive n	Positive n	χ^2
Age in years						
21-30	2	1		-	4	
31-40	4	1	2.523	1	6	2.80
41-50	9	-	(df=3)	2	5	(df=3)
> 50	10	3		2	10	
Sex						
Male	17	3	0.55	5	16	1.06
Female	9	1	(df=1)	1	8	(df=1)
Educational qualification						
Illiterate	-	-		-	-	
Primary education	1	-		-	-	
Secondary education	8	-	1.95	3	6	2.763
Higher secondary	8	2	(df=3)	-	7	(df=4)
Graduate & above	9	2		3	11	
Dietary intake						
Vegetarian	8	1	0.46	8	3	0.32
Non vegetarian	18	3	(df=1)	16	3	(df=1)
Place of work						
Indoor	22	4	2.04	20	5	1.60
Out door	4	-	(df=1)	4	1	(df=1)
Nature of work						
Sedentary worker	8	1	0.461	9	1	0.58
Moderate worker	18	3	(df=1)	16	1	(df=1)
Heavy Worker	-	-		2	1	

Occupational status						
Employed	15	1		-	14	
Unemployed	1	-	8.23	2	-	13.816
Homemaker	9	1	(df=3)	1	6	(df=3)
Retired	1	2		2	5	
Residential area						
Rural	13	4	0.16	12	5	0.15
Urban	10	3	(df=1)	9	3	(df=1)

*p<0.05

It could be inferred from Table 14 that there was no significant association between the selected demographic variables namely age, sex, educational qualification, dietary intake, place of work, nature of work, occupational status, residential area and patients' outcome in control and experimental group. Hence the null hypothesis Ho_4 was retained.

Table. 15

Association between Selected Clinical Variables and the Outcome in Control and Experimental Group of Laparoscopic Cholecystectomy Patients.

Clinical variables	Clinical variables and the outcome of patients					
	Control group (n=30)			Experimental group (n=30)		
	Moderately positive n	Positive outcome n	χ^2	Moderately positive n	Positive outcome n	χ^2
Weight in kgs						
40-50	1	-		-	-	
51-60	2	1	3.094	-	1	0.359
61-70	10	2	(df=3)	2	12	(df=3)
> 70	13	1		3	12	
Presence of comorbid illness						
Yes	18	2	0.147	3	20	0.91
No	8	2	(df=1)	2	5	(df=1)
Treatment of co morbid illness						
Yes	7	8	0.3	15	8	0.7
No	8	7	(df=1)	3	4	(df=1)
History of trauma						
Yes	2	1	0.2	2	2	1.2
No	15	12	(df=1)	15	11	(df=1)
History of rapid weight loss						
Yes	2	2	0.5	3	2	1.5
No	24	2	(df=1)	22	3	(df=1)

H/o surgeries						
Yes	25	2	5.98	5	20	1.2
No	1	2	(df=1)	0	5	(df=1)
History of bad habits						
Smoking	5	-		1	4	
Alcohol	2	1	2.69	0	4	1.462
Smoking and alcohol	2	-	(df=4)	1	4	(df=4)
Others	1	-		0	2	
None	17	2		3	11	

**p<0.05

Table 15 shows that there was no significant association between the selected clinical variables namely weight, history of co-morbid illness, treatment of co morbid illness, history of trauma, history of rapid weight loss, history of surgeries, history of bad habits and patients outcome in control and experimental group. But there was a significant association between history of surgery and outcome in control group of patients. Hence the null hypothesis Ho_5 was rejected with history of surgery and retained with other clinical variables.

Summary

This chapter has dealt with analysis and interpretation of the data obtained by the researcher. The analyses showed that post test knowledge of nurses regarding clinical pathway for laparoscopic cholecystectomy was improved. The patient satisfaction on nursing care, patients' outcome and practice of nurses were higher in experimental group after implementation of the clinical pathway.

CHAPTER V

DISCUSSION

A Quasi Experimental Study To Assess The Effectiveness Of Clinical Pathway For Patients Undergoing Cholecystectomy Upon The Knowledge And Practice Of Nurses And Patients' Outcome At Apollo Main Hospital, 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 Laparoscopic cholecystectomy.
2. To assess the patients' outcome in control and experimental group of patients undergoing laparoscopic cholecystectomy.
3. To evaluate the effectiveness of clinical pathway by comparing the pre and post test level of knowledge and practice of nurses regarding clinical pathway for patients undergoing laparoscopic cholecystectomy.
4. To compare the patients' outcome in control and experimental group of patients undergoing laparoscopic cholecystectomy.
5. To compare the level of patient satisfaction on nursing care in control and experimental group of patients undergoing laparoscopic cholecystectomy.
6. To determine the association between selected demographic variables of nurses and their pre and post test level of knowledge regarding clinical pathway for patients undergoing laparoscopic cholecystectomy.

7. To determine the association between selected demographic variables of control and experimental group of patients undergoing laparoscopic cholecystectomy and their outcome.
8. To determine the association between selected clinical variables of control and experimental groups of patients undergoing laparoscopic cholecystectomy and their outcome.

The study was carried upon 60 laparoscopic cholecystectomy patients (30 for control group and 30 for experimental) and 30 nurses at Apollo hospitals, Chennai. The knowledge and practice of nurses regarding clinical pathway was assessed and patients' outcome and satisfaction was assessed after implementation of clinical pathway.

The discussion is presented as follows

- Frequency and percentage distribution of demographic variables of nurses.
- Frequency and percentage distribution of demographic variables of patients undergoing laparoscopic cholecystectomy.
- Frequency and percentage distribution of clinical variables of patients undergoing laparoscopic cholecystectomy.
- Comparison of mean and standard deviation of pre and post test knowledge of nurses regarding clinical pathway for laparoscopic cholecystectomy.
- Comparison of mean and standard deviation of practice of nurses for control and experimental group of laparoscopic cholecystectomy patients.

- Comparison of mean and standard deviation of patient satisfaction on nursing care in control and experimental group of laparoscopic cholecystectomy patients.
- Comparison of mean and standard deviation of patient outcome in control and experimental group of laparoscopic cholecystectomy patients.
- Association between the selected demographic variables and pre and post test level of knowledge of nurses regarding clinical pathway for laparoscopic cholecystectomy.
- Association between the selected demographic variables and level of satisfaction on nursing care in control and experimental group of laparoscopic cholecystectomy patients.
- Association between the selected demographic variables and outcome in control and experimental group of laparoscopic cholecystectomy patients.
- Association between the selected clinical variables and the outcome in control and experimental group of laparoscopic cholecystectomy patients

Frequency and percentage distribution of demographic variables of nurses

In this present study, majority of nurses were in the age group of 21-25 yrs (80%), females (93.3%), having less than 5 years of experience (86.6%), completed diploma nursing (56.6%), studied in private institution (86.6%), working as staff nurses (70%), in private wards (66.6%), and not attended in service education on clinical pathway (70%).

Nowadays the turnover of nurses in hospitals is very high due to migration in search of better pay and professional development. This may be the reason that most of the nurses in this study were in the age group of 21-25 years with less experience. This study was conducted in wards so majority of the nurses were females and completed diploma nursing. Clinical pathway for nursing care is a new concept and only few classes have been conducted on clinical pathway, most of the nurses had not attended the in service education on clinical pathway.

Frequency and percentage distribution of demographic variables of patients undergoing laparoscopic cholecystectomy.

Most of the patients in control group and experimental group undergoing laparoscopic cholecystectomy were males (66.6%, 70%), belongs to age group of above 50 years (43.3%, 40%), married (90%, 86%), graduates (36.3%, 46.6%), employed (53.3%, 46.6%), non vegetarians (70%, 70%), indoor place of work (86.6%, 80%), moderate workers (70%, 56.6%), with monthly income of more than 15,000 (73.3%, 70%), and acquired health information about laparoscopic cholecystectomy from health workers (63.3%, 53.3%) respectively.

Age is one of the critical factors affecting the morbidity rates after laparoscopic cholecystectomy. In this present study, a significant percentage of the patients belong to the age group of above 50yrs in control and experimental group. This shows that incidence of gall stone disease increases with age. Gallstones are strongly related to high fat diet and reduced physical activity. Most of the patients in this study are non

vegetarians and moderate workers, so these two may be the contributory factors for development of gallstones among these patients.

Frequency and percentage distribution of clinical variables of patients undergoing laparoscopic cholecystectomy

Most of the patients in control and experimental group undergoing laparoscopic cholecystectomy were weighing above 70 kgs (46.6%, 50%), had co morbid illness (66.6%, 76.6%), on treatment for co morbid illness (50%, 76.6%), had no history of trauma (90%, 90%), had no rapid history of weight loss (86.6%, 83.3%), suffering from gall bladder disease for less than 3 months (86.6%, 83.3%), had no history of jaundice (83.3%, 86.6%), and had no history of bad habits (63.3%, 46.6%) respectively.

Obesity is the important risk factor of cholelithiasis and cholecystitis. In this study, a significant percentage of patients in control and experimental group were above 70 kgs. Ageing patients with symptomatic cholelithiasis frequently have associated medical disorders. They may be at higher risk of postoperative complications, so it is necessary to identify their co morbid illness and provide treatment appropriately. It is the responsibility of the nurse to collect the history of co morbid illness and its treatment once after the admission.

In this present study, most of them had a co morbid illness in both control and experimental group, so patients are at high risk of postoperative complications. Gallstone disease is often asymptomatic and diagnosed in the later stages, in this present study also, majority of the patients had no specific symptoms such as history of jaundice

and rapid weight loss. So health education regarding risk factors and signs of gall stone disease helps to make an early diagnosis and prevention of complications.

Comparison of mean and standard deviation of pre and post test knowledge of nurses regarding clinical pathway for laparoscopic cholecystectomy

In pre test regarding clinical pathway for laparoscopic cholecystectomy, most of the nurses had inadequate knowledge (70%) and had moderately adequate knowledge (30%). In post test, majority of the nurses had adequate knowledge (76.6%) and significant percentage of nurses had moderately adequate knowledge (23.33%). The knowledge scores of nurses in post test (M=16.5, SD = 1.52) were high in comparison with the pre test (M=9, SD=2.61). The difference was found to be statistically significant at $p<0.001$level of confidence.

Carol et al (2008) conducted a study on intensive care nurses knowledge of pressure ulcers and effect of an educational program. It was found that knowledge levels of nurses were improved with an educational program. Similar findings were obtained by the investigator in the present study. This shows that knowledge levels of nurses were improved a lot with an educational program.

Nurse's power depends on gaining and applying professional knowledge and skills. Basic nursing care is central to the concept of principles of nursing. If hospital nursing services has to provide the highest possible quality of nursing care in terms of total patient needs, then the basic nursing care has to be strengthened.

Assessing the knowledge and skills in basic nursing care, thus identifying the deficient areas, can help nursing administrators, or trainers in developing appropriate curriculum and suitable training strategies. This will go a long way in enhancing patient's satisfaction and in the overall quality of services rendered by a hospital.

Our nursing students should be made aware of the clinical pathway, as it greatly influences the patient's outcome. Nurse educators should take initiatives to publish articles in journals related to clinical pathway for cholecystectomy and its advantages. All the clinical nurses should attend short term courses and update their knowledge with practice of clinical pathway which would thereby help in providing quality and efficient care to the patients.

Comparison of mean and standard deviation of practice of nurses for control and experimental group of laparoscopic cholecystectomy patients.

Most of the nurses had partially compliant scores on day 1 and day 2 (56.6%, 56.6%) and most of them have non compliant scores on day 3 (63.3%) for control group of laparoscopic cholecystectomy patients. Nurses had compliant scores from day 1 to day 3 for experimental group of patients. The mean practice scores for nurses in experimental group of patients were high in comparison with the practice scores in control group of patients.

Clinical pathways are document based tools that provide a link between the best available evidence and clinical practice. It has been developed to facilitate the management and delivery of quality clinical care in a time constrained environment. In this study, practice scores of nurses were improved after the implementation of clinical

pathway. This shows that clinical pathway helps in providing holistic nursing care which includes physiological, psychosocial and spiritual aspects. It is the responsibility of the nurse in charge to ensure that the staffs are up to date in the clinical pathway and its application. This can be achieved by one to one education as well as group sessions. It is necessary to review the clinical pathway at least every 2 years to ensure that the content still represents best practice.

Comparison of mean and standard deviation of patient satisfaction on nursing care in control and experimental group of laparoscopic cholecystectomy patients.

Most of patients in control group were satisfied (56.6%) and significant percentage were dissatisfied (43.3%) with nursing care. Majority of patients in experimental group were highly satisfied (80%) on nursing care provided.

The level of satisfaction on nursing care in experimental group of patients (M=33.93, SD=3.677) was high in comparison with the level of satisfaction in control group (M=22.16, SD= 4.099). In the experimental group, the level of satisfaction was improved after implementation of clinical pathway. The difference was found to be statistically significant at $p<0.001$ level of confidence.

The health care system is basically a service based industry and patient satisfaction is very important as in other service oriented sectors. Nursing care is a key determinant of overall patient satisfaction. So the nurses need to know what factors influences patient satisfaction and can improve their nursing care accordingly. The study findings showed that clinical pathway for laparoscopic cholecystectomy had a significant role in improving the patient satisfaction by providing care in all dimensions

especially spiritual, communication, health education and discharge planning. Thus the clinical pathway helps the nurse to provide holistic nursing care which in turn improves their satisfaction. It is the responsibility of each nurse to acquire knowledge regarding clinical pathway and apply it in practice. And it can also be developed for various other surgeries and acute disease conditions.

The study findings were supported by a similar study conducted by Jinghua et al. (2010), a hidden impact on clinical pathway for laparoscopic cholecystectomy on patient satisfaction. The study results showed that clinical pathway has very high impact in improving the patient satisfaction.

Comparison of mean and standard deviation of patient outcome in control and experimental group of laparoscopic cholecystectomy patients.

Majority of the control group patients had moderate positive outcome (86.6%) and majority of experimental group patients had positive outcome (83.3%). The patients' outcome in experimental group (M=20.83, SD=2.20) was high in comparison with the patients outcome in control group (M=17.13, SD = 2.31). The difference was found to be statistically significant at $p<0.001$level of confidence.

This study results showed that clinical pathway was effective in improving the clinical outcome of the laparoscopic cholecystectomy. By using the clinical pathway nurses can appropriate care to the laparoscopic cholecystectomy patients both preoperatively and postoperatively in all aspects, thereby we can prevent the major complications and minimise the minor complications. The study findings were supported by the study conducted by Mueling et al. (2008). They evaluated an

optimized patient care program for patients undergoing lung resections in a prospective randomized study. The results showed that the use of fast track clinical pathway reduced the rate of pulmonary complications.

Association between selected demographic variables and their pre and post test level of knowledge of nurses regarding clinical pathway for laparoscopic cholecystectomy

There was no significant association between the selected demographic variables namely age, total years of experience, designation, working area, professional qualification and place of study and pre and post test level knowledge of nurses.

Since clinical pathway is a new concept and not included in the curriculum, the nurse's level of knowledge remains almost same in all age groups and grades, so it is the responsibility of nurse educator to educate all the nurses regarding clinical pathway irrespective of their age, professional qualification, designation, years of experience, working area and place of study. Many in service education programmes to be conducted on clinical pathway for laparoscopic cholecystectomy.

The investigator's findings were consistent with the study conducted by Carol et al. (2008) on intensive care nurses knowledge of pressure ulcers and effect of an educational program. The study results showed that there was no association between knowledge level of nurses and their experience, qualifications or seniority.

Association between selected demographic variables and level of satisfaction on nursing care in control and experimental group of laparoscopic cholecystectomy patients.

There was no significant association between the selected demographic variables namely age, sex, educational qualification, dietary intake, place of work, nature of work occupational status, residential area and level of satisfaction in control group and experimental group of patients. This shows that everyone has a same level of expectation related to care regardless of age, sex, educational qualification, occupational status, nature of work, residential area. So clinical pathway can be formulated and used in general for all patients undergoing laparoscopic cholecystectomy without considering the demographic variables.

Association between the selected demographic variables and outcome in control and experimental group of laparoscopic cholecystectomy patients.

There was no significant association between the selected demographic variables namely age, sex, educational qualification, dietary intake, place of work, nature of work, occupational status, residential area and patients' outcome in control and experimental group of patients.

Thus clinical pathway can be developed in common for all the patients undergoing laparoscopic cholecystectomy to improve their outcome regardless of their age and other demographic variables. The common outcome checklist can be used for all the patients to evaluate the clinical outcome. The investigator's findings were supported by the study conducted by Quintana et al. (2009). The goal of the study was

to evaluate the influence of age and gender on the health related quality of life outcomes after cholecystectomy. This study showed that lower the pre intervention health status, higher the post operative outcome, otherwise there is no association between age, gender and patients outcome.

Association between selected clinical variables and the outcome in control and experimental group of laparoscopic cholecystectomy patients.

There was no significant association between the selected clinical variables namely weight, history of co-morbid illness, treatment of co morbid illness, history of trauma, history of rapid weight loss, history of surgeries, history of bad habits and patients outcome in control and experimental group. But there was a significant association between history of surgery and outcome in control group of patients.

Thus clinical pathway can be applied to all patients undergoing laparoscopic cholecystectomy regardless of their weight, co morbid illness and other clinical variables. But previous history of any surgery has a little impact on the patient's outcome so it is the responsibility of the nurse to pay special attention to the patients who have past surgical history.

Summary

This chapter dealt with the discussion of findings in the present study which includes demographic variables, clinical variables, level of knowledge of nurses, patients outcome and satisfaction, and effectiveness of clinical pathway on patients satisfaction and clinical outcome.

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

This is the most creative and demanding part of the study. This chapter gives a brief account of the present study including the conclusion drawn from the finding, recommendations, limitations of the study, suggestions for the study and nursing implications.

Summary

The present study was indented to analyze the effectiveness of clinical pathway for patients undergoing cholecystectomy upon the knowledge and practice of nurses and patients' outcome 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 Laparoscopic cholecystectomy.
2. To assess the patients' outcome in control and experimental group of patients undergoing laparoscopic cholecystectomy.
3. To evaluate the effectiveness of clinical pathway by comparing the pre and post test level of knowledge and practice of nurses regarding clinical pathway for patients undergoing laparoscopic cholecystectomy.
4. To compare the patients' outcome in control and experimental group of patients undergoing laparoscopic cholecystectomy.

5. To compare the level of patient satisfaction on nursing care in control and experimental group of patients undergoing laparoscopic cholecystectomy.
6. To determine the association between selected demographic variables of nurses and their pre and post test level of knowledge regarding clinical pathway for patients undergoing laparoscopic cholecystectomy.
7. To determine the association between selected demographic variables of control and experimental group of patients undergoing laparoscopic cholecystectomy and their outcome.
8. To determine the association between selected clinical variables of control and experimental groups of patients undergoing laparoscopic cholecystectomy and their outcome.

Null Hypotheses

Ho_1: There will be no significant difference between the pre and post test level of knowledge and practice of nurses regarding clinical pathway for laparoscopic cholecystectomy patients.

Ho_2: There will be no significant difference in the patients' outcome between the control and experimental group after implementation of clinical pathway for patients undergoing laparoscopic cholecystectomy.

Ho_3: There will be no significant association between the selected demographic variables of nurses and their pre and post test level of knowledge regarding clinical pathway for laparoscopic cholecystectomy

Ho_4: There will be no significant association between the selected demographic variables of control and experimental group of laparoscopic cholecystectomy patients and their outcome.

Ho_5: There will be no significant association between selected clinical variables of control and experimental group of laparoscopic cholecystectomy patients and their outcome.

The conceptual framework for the study was developed on the basis of Wiedenbach's Helping Art of Clinical Nursing Theory, which was modified for the present study. An intensive review of literature and experts guidance laid the foundation to the development of tools such as demographic variable proforma for nurses and patients, clinical variable proforma for patients, structured knowledge questionnaire for nurses, practice check list, patient satisfaction rating scale and patient outcome check list.

In this study, quasi experimental research design was adopted. Since there were a limited number of nurses, one group pre and post test design was adopted for nurses. The present study was conducted at Apollo Main Hospital, Chennai among nurses and laparoscopic cholecystectomy patients. The study sample size for the present study was 30 nurses and 60 patients undergoing laparoscopic cholecystectomy, Among 60 patients, 30 patients were assigned to control group and 30 patients to experimental group who satisfied the inclusion criteria.

The investigator used the demographic variables of nurses and patients and clinical variable proforma of patients to obtain the baseline data. Structured

questionnaire was used to assess the knowledge of nurses, practice checklist was used to identify whether the patients were receiving the appropriate care, rating scale to assess the level of patient satisfaction and checklist to assess the patient's outcome. The data collection tools were validated and reliability was established. After the main study, the data collection of the main study was conducted for a period of 4 weeks. The collected data was tabulated and analyzed by using appropriate descriptive and inferential statistics.

The Major Findings of the Study

Demographic variables of nurses

Majority of nurses were in the age group of 21-25 yrs (80%), females (93.3%), having less than 5 years of experience (86.6%), completed diploma nursing(56.6%), studied in private institution (86.6%), working as staff nurses (70%), in private wards (66.6%), and not attended in service education on clinical pathway (70%).

Demographic variables of patients undergoing laparoscopic cholecystectomy

Most of the patients in control group and experimental group undergoing laparoscopic cholecystectomy were males (66.6%, 70%), belongs to age group of above 50 years (43.3%, 40%), married (90%, 86%), graduates (36.3%, 46.6%), employed (53.3%, 46.6%), non vegetarians (70%, 70%), indoor place of work (86.6%, 80%), moderate worker (70%, 56.6%), with monthly income of >15,000 (73.3%, 70%), and acquired health information about laparoscopic cholecystectomy from health workers (63.3%, 53.3%) respectively.

Clinical variables of patients undergoing laparoscopic cholecystectomy

Most of the patients in control and experimental group undergoing laparoscopic cholecystectomy were above 70kgs (46.6%, 50%), had co morbid illness (66.6%, 76.6%), on treatment (50%, 76.6%), had no history of trauma (90%, 90%), had no rapid history of weight loss (86.6%, 83.3%), suffering from gall bladder disease for less than 3 months (86.6%, 83.3%), had no history of jaundice (83.3%, 86.6%), and had no history of bad habits (63.3%, 46.6%) respectively.

Knowledge of nurses regarding clinical pathway for laparoscopic cholecystectomy

In pretest, most of the nurses had inadequate knowledge (70%) and had moderately adequate knowledge (30%). In post test, majority of the nurses had adequate knowledge (76.6%).

Comparison of mean and standard deviation of pre and post test knowledge of nurses regarding clinical pathway for laparoscopic cholecystectomy.

The knowledge of nurses in post test [M=16.5, SD= 1.52] were high in comparison with the pre test [M=9, SD=2.61]. The difference was found to be statistically significant at $p<0.001$ level of confidence and since the‘t’ value was higher than the table value, structured teaching programme regarding clinical pathway for laparoscopic cholecystectomy was effective in improving the knowledge of nurses. Hence the null hypothesis Ho_1 was rejected.

Comparison of mean and standard deviation of practice scores of nurses for control and experimental group of laparoscopic cholecystectomy patients.

The mean practice scores for nurses in experimental group of patients were high in comparison with the practice scores in control group of patients. The difference was found to be statistically significant at $p<0.001$ level of confidence and since the 't' value is higher than the table value, clinical pathway is effective in improving the practice scores.

Comparison of mean and standard deviation of level of patient satisfaction on nursing care in control and experimental group of laparoscopic cholecystectomy patients

The level of satisfaction on nursing care in experimental group of patients (M=33.93, SD=3.677) was high in comparison with the level of satisfaction in control group (M=22.16, SD= 4.099). The difference was found to be statistically significant at $p<0.001$ level of confidence and since the't' value was higher than the table value, clinical pathway is effective in improving the level of satisfaction. Hence the null hypothesis Ho_2 was rejected.

Comparison of mean and standard deviation of patient's outcome in control and experimental group of laparoscopic cholecystectomy patients.

The patients' outcome in experimental group (M=20.83, SD=2.20) was high in comparison with the patients outcome in control group (M=17.13, SD = 2.31).The difference was found to be statistically significant at $p<0.001$ level of confidence and

since the ‘t’ value is higher than the table value, clinical pathway is effective in improving the patients outcome. Hence the null hypothesis Ho_2 was rejected.

Association between the selected demographic variables of nurses and their pre and post test knowledge regarding clinical pathway for laparoscopic cholecystectomy

There was no significant association between selected demographic variables namely age, total years of experience, designation, working area, professional qualification and place of study and pre and post test level knowledge of nurses. Hence the null hypothesis Ho_3 was retained.

Association between the selected demographic variables and the level of satisfaction in control and experimental group of laparoscopic cholecystectomy patients.

There was no significant association between the selected demographic variables namely age, sex, educational qualification, dietary intake, place of work, nature of work occupational status, residential area and level of satisfaction in control group and experimental group of patients. Hence the null hypothesis Ho_4 was retained

Association between the selected demographic variables and patients' outcome in control and experimental group of laparoscopic cholecystectomy patients.

There was no significant association between the selected demographic variables namely age, sex, educational qualification, dietary intake, place of work, nature of work,

occupational status, residential area and patients' outcome in control and experimental group. Hence the null hypothesis Ho_4 was retained.

Association between the selected clinical variables and outcome in control group and experimental group of patients

There was no significant association between the selected clinical variables namely weight, history of co-morbid illness, treatment of co morbid illness, history of trauma, history of rapid weight loss, history of surgeries, history of bad habits and patients outcome in control and experimental group. But there was a significant association between history of surgery and outcome in control group of patients. Hence the null hypothesis Ho_5 was rejected with history of surgery and retained with other clinical variables.

Conclusion

Clinical pathways are proposed as a means of providing high quality care in a timely and cost effective manner. The findings of the study indicated that teaching will improve the knowledge and practice of nurses regarding clinical pathway for laparoscopic cholecystectomy as well as patients' outcome in terms of length of stay, prevention of complications and patient satisfaction.

Implications

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 practice

Nurses have a major role in assessing and providing necessary care for patients undergoing cholecystectomy. All the clinical nurses should attend short term courses and update their knowledge with practice of clinical pathway which would thereby help in providing quality and efficient care to the patients.

Nursing education

With emerging health care trends, nursing education must focus on clinical pathways that will help to enhance nursing care. Our nursing students should be made aware of the clinical pathway, as it greatly influences the patient's outcome. Nurse educators should take initiatives to publish articles in journals related to clinical pathway for cholecystectomy and its advantages.

Nursing administration

With the ever growing challenges of health care needs, the administrators have a responsibility to provide nurses with substantive continuing education opportunities. This will enable the nurses to update their knowledge, acquire special knowledge and demonstrate high quality care.

Nursing administrators should take the initiative in organizing educational programs on clinical pathway for the nursing personnel in the hospital to gain adequate knowledge. Nurse administrators should also conduct periodical review meetings to evaluate the quality of clinical pathway.

Nursing administrator should collaborate with governing bodies in formulating policies and protocols to emphasize nursing care with the use of clinical pathway and plan for man power, money, material, methods and time to conduct successful and useful education programs.

Nursing research

There is a need for extensive and intensive research in this area. It opens a big avenue for research on comparison of clinical pathway and other modalities of care and its quality, advantages, disadvantages and cost effectiveness. As evidence based practice is the recent trend in nursing care, this will further encourage studies on the effectiveness of clinical pathway upon the knowledge and practice of nurses and patients outcome. Dissemination of the findings of the research through conferences, seminars, publications in national and international nursing journals will benefit a wider community.

Nursing theory

The conceptual and theoretical models exclusively for laparoscopic cholecystectomy patients are yet to be developed by nursing theorists. The present study is based on wiedenbach's helping art of clinical nursing theory which can be used to educate and guide the nurses in caring laparoscopic cholecystectomy patients.

Recommendations

- The similar study could be undertaken on larger scale for more valid generalization.
- This study could be replicated in different settings.
- The study could be conducted to analyze the relationship between the use of clinical pathway and time spent by the nurse.
- Clinical pathways can be established for major disease conditions and other surgeries.

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