Chapter III

RESEARCH METHODOLOGY

Research methodology is the plan, structure and strategy of investigation conceived to obtain answers to research questions on problems. It includes an outline of what the investigator will do from writing the hypothesis and their operational implications to the final analysis of data and its implications. Thus, it is a procedural plan that is adopted by the researcher to answer questions validly, objectively, accurately and economically (Kumar Ranjith, 2004).

Methodology chapter consists of research approach, research design, research setting, population, sampling and sampling technique, criteria for sample selection, pilot study, description of the tool, scoring of the tool, data collection, plan for data analysis.

The researcher adopted the research methodology to assess the knowledge and attitude among men towards small family and male sterilization. The study was conducted in three phases which is presented schematically and followed by a detailed description of the phases-I, II and III respectively.
FIGURE 2: SCHEMATIC REPRESENTATION OF THE DIFFERENT PHASES OF STUDY UNDERTAKEN

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Findings and Conclusions
PHASE - I

Research Approach

Quantitative research approach was used to assess the knowledge of the men on small family and male sterilization.

Research Design

The research design is the blue print for conducting the study. In phase-I descriptive cross sectional survey was adopted. Several studies (Andrea, 2013; Azth et al., 2013; Chaudhuri, 2004 and Bose, 2001) have consistently reported that male sterilization is safer and easier method of permanent contraception and the acceptance of male sterilization is less prevalent among the couples. NSV was introduced in India since early 1990s. However only fewer men underwent NSV. Therefore a descriptive cross sectional survey was found to be most suitable as men from different walks of life can be assessed for their knowledge on small family and male sterilization.

Research Setting

The study was conducted in Coimbatore district popularly known as the Manchester of the South India and Datriot of South. Textile mills and small scale industries are the main economy of the population. Coimbatore is also known as the hub of educational institutions and super speciality hospitals. In the last 5 years, many Information and Technology (I.T) parks have been established providing the livelihood for youngsters.
Phase-I was done at Govindaswamy Kuppuswamy Naidu Memorial (GKNM) Hospital, a tertiary level, super speciality hospital which was the 1st hospital in Tamil Nadu State to be awarded National Accreditation Board for Hospitals and Health Care Providers (NABH) certificate for rendering quality medical and nursing care. The hospital has 28 Out Patient (OP) departments. On an average 700 patients from Coimbatore, Tirupur and Erode district accompanied by their well wishers seek medical services on a daily basis from 8 a.m. to 5 p.m. at GKNM Hospital throughout the week except on Sundays and gazetted holidays declared by the Government.

**Population**

Refers to all married men who were in the Out Patient Department of GKNM Hospital either as a patient or an accomplice a patient during the study period from November to December, 2010.

**Sampling and Sampling Technique**

Samples consisted of men who visited the Out Patient Department of GKNM Hospital and who fulfilled the inclusion criteria. Men with different educational background, religion and from different regions seek medical ailments at GKNM Hospital. Hence a convenience sampling technique was found to be most suitable for sample selection.

The pilot study results had a mean value of 5.6 on knowledge of small family and male sterilization with a standard deviation of
4.49. The relative precision was fixed as 5% with 95% confidence and the sample size was determined using the following formula,

\[
    n = \frac{Z^2 \sigma^2}{\Sigma^2 \mu^2} = 987
\]

The sample size was 987 and it was rounded off as 1000 to avoid non response error.

A total of 1000 men were selected as samples for the phase-I.

**Criteria for Sample Selection**

**Inclusion Criteria**

- All married men up to the age of 50 years.
- Married men willing to participate.

**Exclusion Criteria**

- Married men who had undergone vasectomy or NSV
- Married men who were not able to comprehend Tamil/English

**Pilot Study**

The researcher conducted a pilot study for a period of one month in November, 2010 in the Out Patient Department of GKNM Hospital. The researcher selected a total of 100 subjects for the pilot study. The pilot study revealed that the study was feasible and practicable. A questionnaire was provided both in Tamil and English as per the preference of the subjects. The reliability of the tool was also established in pilot study.
**Description of the Tool**

The tool was developed by the researcher after extensive literature review and nursing experts opinion. The tool adopted for data collection consisted of section A and B for phase-I of the study.

**Section A:** Section A consisted of demographic data such as qualification, occupation, income per month, age, years of married life, type of family, religion, number of children and temporary family planning method adopted by the husband and wife.

**Section B:** The section B on the knowledge of small family and male sterilization consisted of 11 multiple choice questions. Question number 1 to 3 were on small family with 3 options and with one right answer. Question number 4 to 10 were on male sterilization and question number 11 on sterilization/permanent family planning methods had 6 options with three right answers (Appendix-IV).

**Scoring of the Tool**

The section A, demographic data of the subjects was coded and subjected to statistical analysis. In section B, the 11 questions on knowledge of small family and male sterilization were given one mark each for the right answer. Question number 11 had 3 right options for permanent family planning methods hence the total score was 14 for 11 questions.
Based on the total score obtained, the level of knowledge on small family and male sterilization were classified as:

- 0 - 7 : Inadequate knowledge
- 8 - 12 : Moderate knowledge
- 13 - 14 : Adequate knowledge

**Data Collection**

The instrument used for data collection was a self administered questionnaire which was distributed to the subjects based on their choice of language Tamil or English. The questionnaire required a maximum of 10 minutes for completion. 25-30 subjects were surveyed daily while the male patient and his male accomplice were waiting in the consultation room. The data was collected for a period of two months November to January, 2011.
PHASE – II

Research Approach

Quantitative research approach was used to assess the experience of the men who had undergone NSV.

Research Design

Descriptive cross sectional survey was adopted in phase-II. The researcher was interested in assessing the experiences of men who had undergone NSV namely the NSV candidatures who volunteered themselves were the spokesman or role model to interact with subjects in Phase-III. The NSV candidatures deliberated on small family, male sterilization, the reasons for undergoing NSV and the benefits of undergoing NSV.

Research Setting

The research setting was Coimbatore city. The address and phone number of subjects who had undergone NSV and residing in Coimbatore city were collected from Seethalakshmi Maternity Home, Coimbatore, where the NSV camps are regularly held.

Population

Refers to men who had undergone NSV and fulfilled the criteria and residing in Coimbatore city.

Sampling and Sampling Technique

Using convenience sampling technique a total of 20 subjects who had undergone NSV were selected as samples for phase-II of the study. In Coimbatore city in the year 2010-2011, 97 men had undergone NSV. The available phone numbers were less than 50.
Though many men who underwent NSV were contacted, only 20 samples volunteered, while other men were reluctant and were unwilling to share their experience due to personal prejudices such as unwillingness to expose themselves, non availability of time for interaction session, extramarital affairs, etc.

Criteria for Sample Selection

Inclusion Criteria

- Married men who had undergone NSV
- Married men who were able to comprehend Tamil / English
- Married men who were able to frankly share their NSV experience
- Married men who were able to interact fluently in Tamil and English on their NSV experience.

Exclusion Criteria

- Married men who had undergone conventional vasectomy.
- Married men who were not willing to interact with fellow men on their NSV experience.

Description of the Tool

The tool was developed by the researcher after extensive literature review and nursing experts opinion. The tool adopted for data collection consisted of section A and B for phase-II of the study.

Section A : Section A consisted of demographic profile of the subjects who had undergone NSV such as education, occupation, income, age, years of married life, type of marriage, type of family, religion, significant past health history and number of children.
Section B: Section B consisted of 13 questions in total on the experience of the NSV candidatures before and after the procedure. Question number 1, questioned if the couple had adopted any form of temporary family planning methods. In the sub section of question number 1 the respondent had to ensure who among the couple – husband or wife used the temporary family planning methods. Question number 2 on source of information of NSV had 6 options. Question number 3, was on the personnel who encouraged the NSV candidature to undergo NSV with 5 option and Question number 4 on the reasons for undergoing NSV had 5 options. Question number 5 was an open ended question on the date / year of undergoing NSV. Question number 6 and 7 had two options on pain after NSV and advice on use of condom after NSV respectively. Question number 8 to 13 on the after effect of NSV had 3 options each with one right answer (Appendix –V).

Data Collection

Using the structured interview schedule, the 20 samples were personally interviewed face to face to find out their experience after NSV. Approximately each subject required 20 mts – 25 mts for the interview. The data was collected over a period of 1 month during February, 2011. Seven of the NSV candidatures were interviewed in their work place 8, NSV candidatures were interviewed at their respective residence and 5 NSV candidature were interviewed in a common place.
PHASE - III

Research Approach

Quantitative approach was used to assess the knowledge and attitude of men on small family and male sterilization using two modalities of educational intervention.

Research Design

The researcher used a quasi experimental pretest posttest design. Three groups were selected namely two experimental and one control group. Experimental group-1 had Structured Teaching Programme via video assisted teaching on small family male sterilization as intervention. Experimental Group - II had interaction with support group on small family male sterilization as intervention. In experimental group-II the subjects in the three setting had three different NSV candidatures to deliberate on small family and male sterilization. The control group had no such interventions. The pretest was conducted initially and the posttest for all 3 groups were conducted after 1 month.

**FIGURE 6 : SCHEMATIC RESEARCH DESIGN OF THE STUDY, PRETEST - POSTTEST DESIGN (THREE GROUP)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest Before Intervention</th>
<th>Intervention</th>
<th>Posttest After 1 Month</th>
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<tbody>
<tr>
<td>E₁</td>
<td>T₁</td>
<td>X₁</td>
<td>T₂</td>
</tr>
<tr>
<td>E₂</td>
<td>T₁</td>
<td>X₂</td>
<td>T₂</td>
</tr>
<tr>
<td>C</td>
<td>T₁</td>
<td>-</td>
<td>T₂</td>
</tr>
</tbody>
</table>
Subjects who were exposed to structured teaching programme on small family and male sterilization.

Subjects who had interaction with support group on small family and male sterilization with NSV candidature.

Control group.

Education on small family and male sterilization through structured teaching programme via video assisted teaching.

Interactive session with support group namely the NSV candidatures on small family and male sterilization.

Pretest assessment of subject’s knowledge and attitude on small family and male sterilization before intervention.

Posttest assessment of subject’s knowledge and attitude on small family and male sterilization one month after the intervention.

Research Setting

The study was conducted in three different organisations where men population were more than 90% of the working class namely Central Reserve Police Force (CRPF), Southern Railways and I.T. park in order to avoid contamination of study subjects.

Population

Refers to all the married men who were available at the time of study in the three different settings during the time of study in the month of November 2011 to June 2012.
Sampling and Sampling Technique

Refers to married men who were available in 3 settings during the study period who met the inclusion criteria.

In Phase-III, the researcher adopted the convenience sampling technique. In the three setting the 1st fifty of the subjects were assigned to control group, the 2nd fifty of the subjects were assigned to structured teaching programme and the 3rd fifty of the subjects were assigned to deliberate with the interactive support group.

Criteria for Sample Selection

Inclusion Criteria

- Married men upto 50 years of age.
- Married men having one or more children.
- Married men nor his spouse who had not undergone sterilization.
- Married men who were able to comprehend Tamil, English / Hindi.

Exclusion Criteria

- Married men less than 25 years and above 50 years.
- Married men who had undergone conventional vasectomy.
- Married men’s spouses who had undergone sterilization.

The total sample size was 450 with 150 subjects each constituted the experimental group-I, experimental group-II and control group respectively.
Variables

**Independent Variables**

- Structured teaching programme on small family and male sterilization.
- Interaction with support group on small family and male sterilization.

**Dependent Variables**

- Knowledge on small family and male sterilization.
- Attitude on small family and male sterilization.
- Response to NSV.

**Extraneous Variables**

- Previous knowledge on small family and male sterilization.
- Availability of internet resources and advertisement.
FIGURE 7: SCHEMATIC REPRESENTATION OF SAMPLE SELECTION FOR PHASE - III

Married men who fulfilled inclusion criteria

Central Reserve Police Force

Southern Railways

Information and Technology Park

Settings

No. of samples

150

150

150

Experimental group-I (N = 150)

Experimental group-II (N = 150)

Control group (N = 150)

50

50

50

50

50

50

Total Number of Samples (N = 450)

Experimental Group-I : Structured Teaching Programme (STP) via video assisted teaching

Experimental Group-II : Interaction with support group

Control Group : No interventions
Description of the Tool

The tool was developed by the researcher after extensive literature review and nursing experts opinion. The tool was prepared in Tamil and English. The tool consisted of section A, B, C, D and E.

Section A: Section A consisted of demographic profile of the subjects such as education, occupation, income, age, years of married life, type of marriage, type of family, religion, significant past health history, number of children, temporary family planning adopted, the couple who adopted temporary family method, the type of temporary family planning methods adopted by the couples and source of information on family planning methods.

Section B: Section B consisted of 15 structured questions on knowledge of small family and male sterilization and distribution as follows question no. 1 to 3 were on small family, question 4 was on meaning of family planning, questions no. 5 and 6 were on methods of family planning, questions 7 to 11 were on male sterilization, questions no. 12 to 14 on the after effect of male sterilization and 1 question on the types of male sterilization.

Section C: Section C consisted of 7 questions on knowledge of vasectomy. Question number 1 to 6 had 3 options. The question number 7 had 4 options.

Section D: Section D consisted of 5 questions on knowledge of NSV. Question number 1 to 4 had 3 choices. The question number 5 was dichotomous with yes or no option.
**Section E:** Section E consisted of self-designed 18 attitude statements with 3 positive and 3 negative statements on small family, family planning and male sterilization respectively on 5 point likert scale (Appendix – VI).

**Scoring of the Tool**

The section B on the knowledge of small family and male sterilization had 15 questions in total. Question number 1-5 and 8-14 were given a score of 1 each for the right option identified and zero for the wrong answer.

For question number 6 on the common temporary family planning methods for women and men was an open ended question which required 3 correct answers and the correct answer was given one mark each. The total score of question number 6 was 3. Question number 7 on the minimum age and maximum age for male sterilization was given a score of one each hence the total score was 2. Question number 15 was given a score of 1 each when the respondents were able to answer the two types of male sterilization. The total score of question number 15 was 2.

The grand total score of section B was 19 and was categorized as:

- 0 - 6 : Inadequate knowledge
- 7 - 12 : Moderate knowledge
- 13 - 19 : Adequate knowledge
**Section C:** The section C on knowledge of vasectomy had a total of 7 questions. Question number 1 to 6 with three choices had only one correct answer hence a score of 1 was given and zero for the wrong answer. The 7th question had 4 choices on the complications of vasectomy. The 7th question had 4 choices. Out of which 3 were correct and 1 mark was given for every right answer and hence the score of 3 was given for question number 7.

The grand score of section C was 9 and categorized as:

- 0 – 3 : Inadequate knowledge
- 4 – 6 : Moderate knowledge
- 7 - 9 : Adequate knowledge

**Section D:** The section D on knowledge of NSV had a total of 5 questions. Question number 1 to 4 had 3 choices with only one correct answer hence a score of 1 was given for each correct answer and zero for the wrong answer. Question number 5 was on the complications of NSV.

The grand score of section D was 5 and was categorized as:

- 0 – 1 : Inadequate knowledge
- 2 – 3 : Moderate knowledge
- 4 - 5 : Adequate knowledge

**Section E:** Section E consisted of 18 statements in a 5 point Likert’s scale. The section was further divided into 3 sub sections such as 6 statements on small family, 6 statements on family planning and 6 statements on male sterilization. Each section on
small family, family planning and male sterilization had 3 positive and 3 negative statements respectively. The options in the Likert’s Scale were strongly agree, agree, uncertain, strongly disagree and agree. The positive statement had a descending score of 5, 4, 3, 2, 1 and negative statements had an ascending score of 1, 2, 3, 4, and 5 respectively.

The total score for the attitude statement was 90. Based on the total score obtained the level of attitude on small family and male sterilization was classified as

- <54 : Unfavourable attitude
- 55 – 72 : Favourable attitude
- 73 - 90 : Most Favourable attitude

**Content Validity**

Content validity of the tools of all the three phases (phase-I, phase-II and phase-III) were obtained from 5 experts in the field of nursing before doing the data collection. Reliability of the tool was established.

**Ethical Consideration**

Ethical clearance was obtained from G. Kuppuswamy Naidu Memorial Hospital, Ethical Committee to conduct the phase-I study in the out patients departments of the hospital and for the researcher to conduct the phase - II and phase – III of the study. The subjects consent was obtained from every sample in the three setting
belonging to experimental group-I, experimental group-II and the control group.

The subjects were explained in each phase about the study and their willingness to participate in the study was sought. Written and informed consent was obtained from the subjects. Confidentiality of the response were ensured throughout the study.

**Description of the Intervention**

The Structured Teaching Programme (STP) via video assisted teaching on small family and male sterilization was developed by the researcher after an extensive literature review and by eliciting the opinion from 5 experts in the field of nursing.

The experimental group-I in phase-III who were subjected to structured teaching programme had the following themes deliberated via video assisted teaching, meaning of small family, benefits of small family, meaning of family planning, temporary and permanent methods of family planning, common temporary family planning methods for men and women, aspects of male sterilization, myths and taboos of NSV, comparison of conventional vasectomy and NSV, advantages of NSV, post operative care. The video assisted teaching was provided both in Tamil and English as per the choice of the subjects for a duration of 20 minutes in small groups of 17-18 subjects.
The experimental group-II in phase-III had interaction with support group NSV candidatures. The researcher had a focus group discussion with the NSV candidatures prior to the interactive session to help them deliberate similar information during their interactive session. One NSV candidature was selected for the three settings namely CRPF, Southern Railwasy and I.T. Park. The NSV candidature conducted the interactive session in small groups of 17-18 subjects. The NSV candidature provided a brief introduction of self, stated his post NSV status and experience, the reason for undergoing NSV, the advantages of NSV, the post operative care after NSV and his experience after NSV related to sexual life. An open forum was created for the subjects to interact freely and clarify their doubts on small family and male sterilization. The duration of interactive session was scheduled for half an hour in all the three settings, in small groups of 17-18 but it extended based on the deliberations of the subjects to clarify their doubts.

**Data Collection**

The nurse researcher after obtaining the consent from Ethical Committee and content validity from expert in nursing, the nurse researcher got the permission from the authorities in all the three settings namely Central Reserve Police Force (CRPF), Southern Railways and I.T. Park in Coimbatore district. The consent from all the subjects in the three settings were obtained before conducting the study.
The pretest questionnaires were distributed to the subjects in Tamil or English as per the preference of the subjects in experimental group-I, II and control group. The questionnaire consisted of demographic profile in section A, knowledge questions on small family and male sterilization in section B, knowledge questions on vasectomy in section C, knowledge questions on NSV in section D and attitude statement on 5 point likert’s scale in section E. Subjects required 8 to 10 minutes to complete the questionnaire. After the pretest assessment of knowledge and attitude among the subjects in the three groups the subjects had intervention as follows. The subjects in the experimental group-I had structured teaching programme via video assisted teaching prepared by the nurse researcher. Small groups of 17-18 subjects in each setting were collectively educated on small family and male sterilization either in English or Tamil as per their preference.

The experimental group-II were subjected to interaction with support group. The NSV candidature deliberated to small groups of 17-18 subjects in each setting. The nurse researcher was also available during the interaction phase to keep vigil of the deliberation proceedings. The control group had no interventions. In all the three settings 5 to 6 days were required for completing the intervention for the experimental group-I and the experimental group-II and for pretest assessment in the control group. The posttest on knowledge and attitude on small family and male sterilization was conducted
after a month using the same questionnaire distributed during pretest.

**Plan for Data Analysis**

Both descriptive and inferential statistics were used for analysing the data collected during all the 3 phases. The descriptive statistics used were mean, standard deviation and percentage. Inferential statistics such as chi-square, paired ‘t’ tested, Scheffe’s multiple comparison, Bonferroni and Classification and Regression Tree (CART) model, one way ANOVA and ANCOVA were used.