Chapter 3
METHODOLOGY

The present study
It is evident from the review of relevant literature that problems in communication affect various aspects of life of an individual. Many studies have been conducted in India and abroad to study the effects of communication skills in various professions. However, there are only few studies which have emphasised on the communication skills training for student nurses. This study aimed to explore the effectiveness of communication skills training program designed for undergraduate student nurses studying in various nursing colleges of Mysore.

3.1 Statement of the problem
The study is entitled as, “Effectiveness of Communication Skills Training Program among Undergraduate Student Nurses studying in selected nursing colleges at Mysore”.

3.2 Operational Definitions
Studying the various definitions about communication, knowledge, attitudes and skills in previous literature, the following operational definitions were given for the concepts included in the study.

3.2.1 Communication skill training program
It is the training program developed by the researcher for the student nurses which comprises of various skills of communication. It includes introduction to basics of communication building rapport and questioning skills, listening skills, empathy skills and ethical considerations of communication which were delivered using various teaching methods for 10 hours.

3.2.2 Knowledge of nurse patient communication
Knowledge is the awareness resulting from interpreting information, understanding the ideas that originate from a combination of data, experiences, and individual interpretation of the student nurses regarding the communication concepts and skills while communicating with the patient.
3.2.3 Attitude towards nurse patient communication
Attitude is the way of thinking and a tendency to respond positively or negatively towards ideas or feelings and readiness to adapt the communication skills by the student nurses while communicating with the patient.

3.2.4 Self perceived nurse-patient communication
Self perceived communication is the perceived belief of the students on their ability to build relationship, opening the discussion, gathering the information, understanding the patient’s perspective, sharing information, reaching agreement, and providing closure to the patient.

3.2.5 Observed nurse-patient communication skills
Communication skill is an ability and capacity acquired through deliberate, systematic and sustained effort to smoothly and adaptively carry out set of skills such as building rapport, opening the discussion, eliciting information, and responding to information that is expected to manifest while communicating with the patients.

3.2.6 Undergraduate student nurses
Undergraduate student nurses are the students studying in I year and IV year of B.Sc. Nursing course in selected colleges at Mysore.

3.2.7 Selected nursing colleges
Selected nursing colleges are the institutions that are conducting the basic B.Sc. Nursing course, which is recognized by the Indian Nursing Council (INC) with I year and IV year nursing students studying in Mysore.

3.3 Variables of the Study
3.3.1 Dependent variables
In the present study, the following are considered to be the dependent variables.

1. Knowledge of nurse-patient communication skills.
2. Attitude towards nurse-patient communication skills.
3. Self perceived nurse-patient communication skills.
4. Observed nurse-patient communication skills.
3.3.2 Independent variable
1. Communication skills training program.

3.3.3 Demographic variables
The demographic variables considered for the present study were, age, year of course, domicile, religion, socioeconomic status, type of family, number of siblings, birth order, person responsible for choosing nursing course, health worker in family, chronically ill person in family, and previous exposure to communication training of the student nurses.

3.4 Objectives of the Study
1. To explore the effectiveness of communication skills training program on the knowledge of nurse patient communication skills within and between the Experimental group and the Control group.
2. To explore the effectiveness of communication skills training program on the attitude towards nurse patient communication skills within and between the Experimental group and Control group.
3. To explore the effectiveness of communication skills training program on the self-perceived communication skills within and between the Experimental group and Control group.
4. To explore the effectiveness of communication skills training program on observed communication skills within and between the Experimental group and Control group.
5. To correlate the knowledge, attitude, self perceived and observed nurse patient communication skills.
6. To find the association of the demographic data with knowledge, attitude, self perceived and observed nurse patient communication skills.

3.5 Research Design
The research design used in the present study was, Quasi Experimental design to evaluate the effectiveness of communication skills training program of I year and IV year undergraduate student nurses.
3.6 Hypotheses

In view of inadequate knowledge about the effectiveness of communication skills training on knowledge, attitude, self-perceived and observed communication skills among the undergraduate student nurses the following hypotheses were formulated

\( H_0 \) Selected demographic variables have no influence on knowledge, attitude, self-perceived and observed communication skills of I year and IV year undergraduate student nurses in the Experimental and Control group.

\( H_{01} \) Communication skills training program has no effect on knowledge of nurse-patient communication skills of I year and IV year undergraduate student nurses in the Experimental and Control group.

\( H_{02} \) Communication skills training program has no effect on attitude towards nurse-patient communication skills of I year and IV year undergraduate student nurses in the Experimental and Control group.

\( H_{03} \) Communication skills training program has no effect on self-perceived nurse-patient communication skills of I year and IV year undergraduate student nurses in the Experimental and Control group.

\( H_{04} \) Communication skills training program has no effect on observed nurse-patient communication skills of I year and IV year undergraduate student nurses in the Experimental and Control group.

\( H_{05} \) There is no relationship between knowledge, attitude, self-perceived and observed nurse-patient communication skills of I year and IV year undergraduate student nurses.
3.7 Participants

Undergraduate Nursing Colleges in Mysore

Convenient sampling

Experimental Group
Nursing college

Simple random sampling

Group I
30 I Yr

Group II
30 IV Yr

Group III
30 I Yr

Group IV
30 IV Yr

60 UG Nursing Students

Control Group
Nursing College

Simple random sampling

60 UG Nursing Students

Figure – 1. Thematic representation of sampling technique

A. Inclusion Criteria
Nursing students:
1. Aged between 17-19 years, and 21-23 years.
2. Those who are proficient to read, write and speak English.
3. Those who are in I year and the IV year B.Sc Nursing course.

B. Exclusion Criteria
Nursing students:
1. Who are repeaters.
2. Who have hearing disability.
3. Who have serious visual problem.
4. Who did not give written informed consent. (Annexure-2)
3.8 Tools

3.8.1 Socio-Demographic data (Arunadevi & Manickam, 2014) (Annexure-3)
This was developed by the researcher to gather the basic information of the participants regarding age, gender, year, course, domicile, religion, socioeconomic status, mother tongue, English language proficiency, type of family, number of siblings, birth order, person responsible for choosing the nursing course, health worker in family, chronic illness of family members, and previous exposure to communication skills training program.

3.8.2 Knowledge Questionnaire – (Arunadevi & Manickam, 2014)(Annexure-4)
This tool was developed by the researcher to collect data from undergraduate student nurses for the purpose of assessing their knowledge about communication skills. The questions were constructed in the form of multiple choices. The tool was developed after reviewing related literature and in consultation with subject experts. Initially, the tool consisted of 38 questions which were further reduced to 30 questions based on content validity suggested by the experts. Later, 14 questions were finalized after conducting Item analysis. The Chronbach’s alpha of the questionnaire was 0.64.

3.8.3 Communication Skills Attitude Scale (Rees, et al., 2002) (Annexure-5)
The Communication Skills Attitude Scale (CSAS) was developed by Reeds et al (2002). This tool assesses the attitude of individuals towards the usage of communication skills. The tool consists of 26 items, 13 of which are written in the form of positive statements which refer to positive aspects of communication skills and 13 negative statements which refer to negative aspects of communication skills. Each item is rated by a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Total score of the tool ranges from 26 to 130. Higher score indicates positive attitude and lower score indicates negative attitude. The Cronbach’s alpha of the tool was reported to be 0.84. However, in the present study with an intension of exploring the attitude towards communication skills of student nurses, the tool was subjected to factor analysis. Using principal component analysis with varimax rotation, 4 factors emerged which were named as Learning, Importance, Quality and Success. The modified scale has 18 items with high factor loadings. Each item is rated by a 5-point Likert scale, out of which 8 items were scored reversely. The Chronbach alpha for these 18 items was found to be 0.60.
Table 1 - Factor wise representation of each item under communication skill attitude scale and their factor loadings

<table>
<thead>
<tr>
<th>Factors</th>
<th>Item No</th>
<th>Statements</th>
<th>Rotated Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Learning</strong></td>
<td>5.</td>
<td>Learning communication skills will help me respect patients.</td>
<td>0.62</td>
</tr>
<tr>
<td></td>
<td>9.</td>
<td>Learning communication skills has helped me or will help me facilitate team-working skills.</td>
<td>0.67</td>
</tr>
<tr>
<td></td>
<td>10.</td>
<td>Learning communication skills has improved my ability to communicate with patients.</td>
<td>0.68</td>
</tr>
<tr>
<td></td>
<td>14.</td>
<td>Learning communication skills has helped me or will help me to respect my colleagues.</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td>16.</td>
<td>Learning communication skills has helped or will help me recognize patients’ rights regarding confidentiality and informed consent.</td>
<td>0.80</td>
</tr>
<tr>
<td><strong>Importance</strong></td>
<td>6.</td>
<td>I haven’t got time to learn communication skills.</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td>11.</td>
<td>Communication skill teaching states the obvious and then complicates it.</td>
<td>0.56</td>
</tr>
<tr>
<td></td>
<td>15.</td>
<td>I find it difficult to trust information about communication skills given to me by non-clinical lecturers.</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>24.</td>
<td>I find it difficult to take communication skills learning seriously.</td>
<td>0.65</td>
</tr>
<tr>
<td><strong>Success</strong></td>
<td>4.</td>
<td>Developing my communication skills is just as important as developing my knowledge of nursing.</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td>18.</td>
<td>When applying for nursing, I thought it was a really good idea to learn communication skills.</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td>21.</td>
<td>I think it’s really useful learning communication skills in the nursing program.</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td>23.</td>
<td>Learning communication skills is applicable to learning nursing.</td>
<td>0.50</td>
</tr>
</tbody>
</table>
3.8.4 Self perceived nurse-patient communication skills (Arunadevi & Manickam, 2014; Arunadevi & Manickam, 2016) (Annexure - 6)

This tool was developed by Arunadevi and Manickam (2014) to assess the self perceived nurse-patient communication skills. This was prepared after a detailed literature review and based on the routine conversation between the nurse and the patient in the clinical set up. Initially, the tool was framed with 52 items. After scrutinizing, the items were reduced to 40 and sent for content validity. After the content validity modifications were made based on the guidelines of the experts. Finally, after a principal factor analysis only 26 items were confined with a five point likert scale namely poor, fair, good, very good, and excellent. Further, the tool consists of four factors namely Initializing and Building Relationship (IBR), Gather Information (GI), Responding and Giving Information (RGI) and Closing the Conversation (CC). A high score indicates a better self perceived communication skills of the students. The Chronbach’s alpha was reported to be 0.90.

3.8.5 Kalamazoo Essential Elements of Communication Checklist (Bayer-Fetzer Group, 2001) (Annexure - 7)

This tool was developed by the Bayer-Fetzer Group on Physician-Patient Communication in Medical Education for the purpose of assessing the applied practical communication skills of the students. The checklist has 8 items, namely: builds relationship, opens the discussion, gathers information, understand the patient perspective, share information, reaches agreement, provides closure, and manages...
flow. The items in the observational rating scale were assessed by using five-point rating scale. The Chronbach’s alpha was 0.91.

3.9 Development of ‘Nurse -Patient Communication skills teaching Modules’ (Annexure - 8)

The first step in constructing this program was stating the instructional objectives. These objectives were derived from the assessed need.

3.9.1 Program objectives

Upon completion of the program the student nurses will be able to:
1. Explore the basics in communication in general terms.
2. Build the rapport and questioning skills effectively with the patient.
3. Exhibit listening skills while communicating with the patient.
4. Demonstrate empathy while communicating with the patient.
5. Explain the ethical considerations while communicating with the patient.

3.9.2 Selection and organization of program content

After determining the objectives of the program, the content was drafted incorporating with various methods of teaching and learning. The content was selected after careful assessment of the students’ need and after discussion with the nursing faculties, nurses, and the patients. Experts in nurse-patient communication were consulted and after several rounds of discussion, a pilot program was developed. While trying this out several modifications were suggested by the experts. Incorporating their observations and comments, five modules were confined for communication skill training program.

The modules were
1. Introduction to basics of communication that deals with the definition, importance, process, types, verbal and nonverbal techniques, the barriers of communication and ways to overcome.
2. Building rapport and the questioning techniques.
3. Active listening skills
4. Empathy skills
5. Ethical considerations while communicating with the patient.
On considering the schedule of the nursing students and their availability, the training program was planned for 10 hours, two-hour per day for each module for five days.

3.9.3 Selection of the teaching methods

This is the third step in constructing the program. The selection of teaching methods was carried out according to the subjects and the educational principle. The methods used were Lecture, Demonstration, Simulation, Visual aids, and teaching aids like power point presentation, role plays, group discussion, hand outs, pen and paper were used.

3.9.4 Evaluation of the program

Evaluation of the effectiveness of the program was determined based on the extent to which the participants in the Experimental group have gained the knowledge, attitude, self perceived and observed nurse patient communication skills.

3.9.5 Video recording of the participants

3.9.5.1 Instructions to the students

The students were asked to give informed consent for participating in the study and also for video recording their encounter with the simulated patient for the purpose of research. They were instructed that they will be allotted to a simulated patient for carrying out their regular history collection procedure with the simulated patient. The video recording will be done for two times with the simulated patients as pre test and post test. The students were also informed that there will be no time limit for the conversation.

3.9.5.2 Simulated Patient

For the purpose of the study one simulated female patient was selected from outside the Institute and their confidentiality was maintained. Informed consent was obtained from her for participating in the study and been video recorded while conversing with the students. The selected simulated patient was informed about the situation and described about their role before 1 week of the study. Rehearsal was made with the simulated patient as being a patient who got admitted to the hospital for fever, vomiting, abdominal pain and body pain from the previous night. The simulated patient was instructed to give the same information regarding the previous diet pattern,
frequency of vomiting and site of abdominal pain. A set of expected questions during the conversation were prepared and been discussed with the simulated patient.

3.9.5.3 Scenario
After completing the questionnaires, the student nurses will be taken to the fundamental lab where the clinical setup was arranged with the simulated patient. The students were assigned to the simulated patient and asked to proceed with the routine physical and health history collection from her. Video recording begins immediately after assigning the students to the simulated patient. The video recording was done by the professional videographer using a movable Camcorder with stand along with an external and internal mike for audio recording, which was fixed in the stand inside the fundamental laboratory where the interview was conducted.

3.9.5.4 Video Processing and Randomization
After the completion of the video recording the video data was converted to DVD form. Later, irrespective of the pre-test/post-test or Experimental/Control group, the videos were coded and shuffled using a computer generated random numbers.

3.9.5.5 Raters
Four experienced nurses who had satisfied the following criteria of educational qualification with Masters in Nursing, should be presently involved in the patient care, should also be involved in teaching and supervision of the student nurses and who do not know the participants of the study were assigned for rating the videos. The raters were given training to assess the nurse- patient conversation using other simulated videos. They also were made to rate the recorded videos of the pilot study independently for their practice. Later, the recorded videos were projected on to the large screen and the four raters observed the video and rated independently using Kalamazoo’s Essential Elements of Communication checklist. The raters had no clue on the pre test/post test videos, and the group of the participant i.e. Experimental/Control group. It was also ensured that the raters were not familiar with the simulated client. In order to find the inter rater reliability of the raters, Kappa score was calculated (Table-2). The obtained overall Kappa score 0.78 was found to be high.
Table- 2

*Fleiss Kappa Inter-Rater Reliability of the Observed Nurse Patient Communication Skills*

<table>
<thead>
<tr>
<th>Factors</th>
<th>Rater 1</th>
<th>Rater 2</th>
<th>Rater 3</th>
<th>Rater 4</th>
<th>% of agreement</th>
<th>Fleiss Kappa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Relationships</td>
<td>3.04</td>
<td>3.04</td>
<td>3.08</td>
<td>3.04</td>
<td>97.12</td>
<td>0.74*</td>
</tr>
<tr>
<td>Opens Discussion</td>
<td>3.04</td>
<td>3.00</td>
<td>3.04</td>
<td>3.04</td>
<td>97.92</td>
<td>0.79*</td>
</tr>
<tr>
<td>Gathers Information</td>
<td>2.92</td>
<td>2.88</td>
<td>2.88</td>
<td>2.88</td>
<td>90.97</td>
<td>0.73*</td>
</tr>
<tr>
<td>Understands the Patients</td>
<td>2.46</td>
<td>2.25</td>
<td>2.38</td>
<td>2.42</td>
<td>87.50</td>
<td>0.73*</td>
</tr>
<tr>
<td>Perspective</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shares Information</td>
<td>2.17</td>
<td>2.17</td>
<td>2.21</td>
<td>2.25</td>
<td>93.75</td>
<td>0.76*</td>
</tr>
<tr>
<td>Reaches Agreement</td>
<td>2.17</td>
<td>2.25</td>
<td>2.17</td>
<td>2.25</td>
<td>93.06</td>
<td>0.79*</td>
</tr>
<tr>
<td>Provides Closure</td>
<td>2.17</td>
<td>2.17</td>
<td>2.25</td>
<td>2.25</td>
<td>94.44</td>
<td>0.81**</td>
</tr>
<tr>
<td>Manages Flow</td>
<td>2.67</td>
<td>2.63</td>
<td>2.67</td>
<td>2.63</td>
<td>95.83</td>
<td>0.92**</td>
</tr>
<tr>
<td>Total</td>
<td>2.58</td>
<td>2.55</td>
<td>2.59</td>
<td>2.60</td>
<td>93.82</td>
<td>0.78</td>
</tr>
</tbody>
</table>

*0.61 – 0.80 – Good, **0.81 – 1.00 – Very good

3.10 Validity

Validity of the tools was done by nine experts from various fields. 7 experts were from Nursing, 1 expert is a Psychologist and 1 is statistician. The content validity were obtained and considered the necessary suggestions and corrections by the experts. Later the tools were modified based on it.

3.11 Pilot Study

Before launching the main study, a pilot study was conducted among 12 participants to check for proper execution of procedures that to be followed while conducting the main research. The participants were selected randomly from the Cauvery College of Nursing after obtaining the permission from the management of the institution.
The pilot study was conducted in three stages.

Stage I: In this stage the participants were asked to give consent for the participation in the study. After which they were administered with the set of four self administered questionnaires on demographic data, knowledge, communication skills attitude scale, self perceived nurse patient communication skills. Approximately, the participants took about 45 minutes to complete the questionnaires. Later, the participants were taken to the fundamental lab of the respective college, where the simulated setup for the conversation between the students with the simulated patient was arranged. The students were allotted to the simulated patient and the interactions were recorded.

Stage II: This stage involved the administration of the five modules of the communication skills training program for the student nurses for 10 hrs.

Stage III: In this stage the post test data was collected by administering the four set of questionnaires that included, knowledge questionnaire, attitude scale, and self perceived nurse patient communication skills scale. Then the students were again taken for the video recording session with the trained simulated patient. The collected data were rated by the four trained rater’s using Kalamazoo essential elements of communication checklist (Bayer-Fetzer group, 2001) for the observed nurse patient communication skills. The data were subjected to statistical analysis in order to gain enough experience and to rectify the problems prior to conduct the main study.

Based on the pilot study, the following modifications were made to the procedures and curriculum

1. To limit the training sessions for 2 hours a day.
2. To reduce the space between the sessions so that it would not affect the control group.
3. To exclude the topic on Assertive communication, as the first year student nurses were finding difficult to understand the difference it makes with normal communication.
4. To assign unlimited time while conversing with the simulated patient to prevent an unwanted stress and interruption.
3.12 The Present Study:

3.12.1 Procedure

The study was conducted in three stages. After getting the permission from different nursing institutions in Mysore city, the students were explained the whole procedure of the study. Out of 180 students who gave the informed written consent, 120 were randomly selected from first year and final year as the participants of the study (Figure 1). Further, these participants were again randomly divided into two groups, 60 student nurses in Experimental and 60 student nurses in Control group. In both Experimental and Control group equal number of 30 participants from the first year and 30 participants from IV year (30 each) were allotted.

3.12.2 Stage I

The participants who were grouped as Experimental and Control group were administered with socio-demographic sheet, knowledge questionnaire (Arunadevi & Manickam, 2014), modified communication skills attitude scale (Rees, et. al., 2002), self perceived communication skills (Arunadevi & Manickam, 2014) and Kalamazoo essential elements of communication checklist (Bayer-Fetzer group, 2001) before conducting the communication skill training programme. Each participant took about 45 minutes to complete all the questionnaires.

3.12.2.1 Pre-test Video Recording

After completion of the self administered questionnaire the students were taken to the fundamental laboratory for the video recording of the conversation made between the student nurse and simulated patient. Care was taken in assuring that the participants were not familiar with the simulated patient. The video recording was done by the professional videographers for two days to record all the participants’ conversations with the simulated patient. The same simulated patient was interviewed by all the participants. Though all the participants were informed about the recording, care was taken to prepare the participants in order to ease them for the video recording. Utmost care was taken to avoid the unnecessary external sound that disturbs the quality of the sound of the conversation.
3.12.3 Stage II
In the second stage of the study, only those participants of the experimental group underwent nurse-patient communication skill training program which was developed by the researcher. The duration of the program extended upto 5 days (10 hours), with two-hour session each day.

3.12.4 Stage III
Post test-
After 10 days, the participants belonging to the control group were re-administered with the questionnaires as well as, video recording of the nurse patient communication was conducted to all of them.

For the Experimental group, post test was done after 10 days of the training program by administering all the four tools and the post video recording was also done. Data was collected by the researcher from April to May 2015.

3.13 Data Management
The obtained data from the participants was analysed using SPSS version 16. The analysis of data was done using different non parametric and parametric tests based on the objectives of the research.

3.13.1 Statistical Analysis
1. Descriptive statistics.
2. Independent t test and ANOVA was used to find the association between demographic variables and knowledge, attitude, self perceived communication skills, and observed communication skills.
3. Paired t test to compare within the Experimental and Control group.
4. Independent t test to compare between the Experimental and the Control group.
5. Karl Pearson’s correlation to find the relationship between knowledge, attitude, self perceived communication skills, and observed communication skills.
6. Inter-rater reliability of the raters was established using Fleiss kappa.
3.14 Ethical Considerations
Ethical clearance was obtained from the institutional ethical committee. Written permission was sought from the respective nursing colleges for recruiting the participants for the study. The details of the study were explained to all the participants prior to the recruitment to the study and the purpose of the research was informed to each one of the participants. They were also informed that they have the right to withdraw from the study at any time if they don’t feel like continuing in the study. Written informed consent was taken from each participant before conducting the research.