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CHAPTER III
METHODOLOGY

3.0 Introduction:

The chapter deals with the research approach or research design adopted for the study, setting of the study, selection of samples, sampling technique, construction of tools and technique used, testing of the tools, pilot study, data gathering process and plan for data analysis.

Research approach:

Research approach or research design refers to the way in which the investigator plans or structures the research process. It is a set of flexible guide spots designed to keep the research in the right direction.

Research approach or research design is the plan, structure and strategy of investigations of answering the research question. It is the overall plan or blue print; the researcher selects to carry out the study.

Design of the study:

The importance of the role of research in a modern, technologically advanced country is paramount. Different faculties in different settings conduct it. It is an equally important activity in nursing profession. Hence priority must be given to research activities in the field of nursing practices as it is expected to lead to improve and refine the theories and practices.

Research is a systematic process of collecting and analyzing information for some purpose. Scientific research is, “Systematic, controlled, empirical and critical investigations of natural phenomena guided by theory and hypothesis about the presumed relations among such phenomena.

In short, it can be said that, research is a systematic and scientific approach to a problem in order to solve it. This makes it necessary to plan research related activities in a systematic manner in advance.

Experimental method:

Experimental research is a systematic and logical method used in a science laboratory, which helps in developing an organized body of knowledge. The experimenter
manipulates some elements such as stimuli, treatments and environmental conditions and observes how the conditions of behavior of subject are affected or changed. Though this method has greatest utility in the laboratories, it can also be used effectively in non-laboratory settings, such as clinics, wards, homes where some factors can be controlled up to some extent.

In the present study the descriptive survey and experimental: Solomon-four-group design is adopted; therefore the whole research work is planned accordingly. After selection of the topic, methodology becomes an important consideration as the second step of the research work.

3.1 Selection of the topic:

Society today is in a process of rapid change, due to various reasons such as technological development, explosion of knowledge, expansion of communication process and changing philosophies of the individuals.

At no time in the history of mankind, was society so complex and dynamic, as it is today. The democratic creed accepted by the Indians provides more freedom and opportunities to the individuals. But at the same time, it requires that every individual should become self-dependent and responsible citizens.

Explosion of knowledge demands maximum utilization of mental abilities, on the part of the learner to receive, understand, assimilate and use the ever-increasing store of knowledge. While imparting store of information the efforts are mainly the development of cognitive skills; to help an individual to become more adaptable to new and changing circumstances and help the individual in problem solving skills.

Every individual has information need, parents have information need for child rearing. How to tackle small problems regarding child's illness at home? When to consult doctor or seek medical help? What food should be given to the child? There are many questions in the parent's minds hence they express the desire that there should be some information booklet, which will tell them how they should take care of their children during illness.

Many parents through T.V., radio, newspapers, magazines try to collect the health information and practice accordingly.
The investigator felt the need to develop the self-instructional manual for mothers in caring the children with acute respiratory infection, because it is one of the life threatening illnesses among the under-five year children. If the mother recognizes the danger signs and seeks the medical help early, many deaths can be prevented.

Because of the reform in the education system female literacy has increased. Investigator found that women from Naigoan area are literate, and through informal communication with many women seeking health care facility for themselves and for their children at Naigoan maternity home, found that they expressed desire to have some information booklet, which will give them information how to care for their children. Hence the investigator felt the need to take up the present study: “A study to develop the Self-instructional Manual for mothers in caring the under-five year children with acute respiratory infection”.

3.2 Methodology of the study:

Selection of the method of the study is an important part of the whole research process. The objective and the hypotheses formulate as a guide to what the researcher is proposing to test. The major objective of the present study is to find out the mothers’ existing knowledge and practices regarding acute respiratory infection among under-five year children and based on that, to develop self-instructional manual and then give the manual to them and assess their knowledge regarding caring children with acute respiratory infection.

Thus the objectives themselves have paved the way for the selection of the research method. The investigator felt the need to conduct the study in two phases because first the existing knowledge and practices and the prevalence of the acute respiratory infection among under-five year children had to be found out, therefore the first phase would be the descriptive survey method; to describe the existing knowledge and practices and during survey the prevalence of the diseases will be noted based on that the self-instructional manual will be prepared.

The second Phase of the study is to assess the mothers’ knowledge regarding acute respiratory infection; therefore experimental- Solomon four group design was selected. In the experimental research, researcher strives to ascertain how and why a particular
condition or event occurs through manipulating on an experimental variable under highly controlled conditions.

3.2.1 Descriptive survey method - Phase I

This research design is used in the first Phase of the study. According to Shelley (1984), descriptive designs are used to provide detailed information about the interrelationship of certain variables concerning the phenomena in question. Descriptive research designs often provide very practical data on which many decisions related to activities of daily living are based.

According to Best (1977), a descriptive study describes what is concerned with the condition and relationship that exists, opinions that are held, processes that are going on, effects that are evident or trends that are developing.

The word survey is composed of the elements that indicate precisely what happens in the survey process. The word ‘sur’ is derived word from the Latin word ‘super’, meaning above, over or beyond; the word vey comes from the Latin word videre, to or to see. Thus the word survey means, “to look to see over or beyond” the casual glance of the superficial observation.

Descriptive survey study is essentially simple in design. It is a common approach used with more or less sophistication in many areas of human activity.

According to Polit & Hungler (1993), the purpose of the descriptive studies is to observe, describe and explore the aspects of a situation.

3.2.2 Experimental Design - Phase II

Solomon Four-Group design:

When data are collected both before and after an intervention, the pre-test (initial) measure sometimes has the potential to distort the results. That is, the post-test measures may be affected not only by the treatment but also by exposure to the pre-test. Solomon four group design consists of two experimental groups and two control groups. One experimental group and one control group would be administered the pre-test and the other groups would not, thereby allowing the effects of the pre-test measure and intervention to be segregated (Campbell & Stanley, 1963).
Solomon four group research design is used.

Schematic representation of the Solomon four group research design (Campbell & Stanley, 1963) is as follows:

\[
\begin{array}{cccc}
0_1 & x & 0_2 \\
0_3 & \ldots & 0_4 \\
& x & 0_5 \\
& \ldots & 0_6 \\
\end{array}
\]

Group I (Study gr.) : This group will have pre-test and post-test with intervention.
Group II (Control gr.) : This group will have pre-test and post-test without intervention.
Group III (Study group): This group will have post-test with intervention. No pre-test.
Group IV (Control gr.) : This group will have post-test without intervention. No pre-test.

3.3 Variables:

3.3.1 Research Variables

Independent Variables:

In this study the Independent variable is the Self-Instructional Manual and Verbal Explanation given to the mothers of under-five year children regarding acute respiratory infection among children.

Dependent Variable:

In this study the dependent variable is the Knowledge of Mothers regarding acute respiratory infection, the signs and symptoms of ARI, danger signs of ARI, management of ARI, and prevention of ARI.

The effect of the independent variable on the dependent variable was studied.

3.3.2 Selection of Independent Variable:

Self-instructional manual was selected as an Independent variable for the present study. The self-instructional manual has clear, simple instructions. The information was given a pictoral form which enabled them to get their concepts clear.

Health teaching is usually given in the form of verbal information and is given only once. But any teaching is known to only initiate a change in the behavior or change in the existing knowledge and skill. The information received is usually forgotten after a
period of time. The theories of learning say that the desire to get an ultimate change in behavior is usually reached, gradually through regular reinforcement of teaching.

Reinforcement of teaching can be done either verbally or by using written information. Hence the investigator selected to develop a self-instructional manual for mothers to teach regarding acute respiratory infection among under-five year children.

3.3.3 Selection of the Dependent Variable:

Under-five child mortality is very high in spite of advancement in medical technology. It is the right time for enabling mothers to acquire practical skills and self-confidence needed to take greater responsibility for their children's growth and development.

Educating mothers about child care including prevention of ARI, diarrhoea, taking care of the child during illness, seeking medical help in right time etc. and encouraging sense of responsibility towards and pride in home and family is main purpose of maternal child health service.

Maternal education is emerging as the single-most significant determinant of child mortality. Caldwell, (1979) offers three explanations i) educated mothers brake with tradition, or become less fatalistic about illness and adopt many of the alternatives in child care and treatment of illness, becoming available in a rapidly changing society, thus profoundly influencing their children's chances of survival, ii) an educated mother is more likely to know where proper facilities are and to regard them as part of her world, and their use as a right, not a boon; and iii) education of mothers greatly changes the traditional balance of familial relationships, with profound effects on child care. Maternal education cannot be proxy for general social and economic change but must be examined as an important force in its own right. (Anonymous, 1985).

Both U.K. and China provide an example of importance of mass mobilization, health education and social engineering in tackling a problem of child mortality. "Save the Children" movement in Britain was a broad based social movement convinced that high infant mortality was intolerable but also preventable. The principal aim however was to educate mothers to become more responsible for the health of themselves and of their children.
In the under-five child mortality cause, the acute respiratory infection is first in the list hence the investigator selected the mothers of under-five year children who are literate and able to read the self-instructional manual.

3.3.4 Randomization:

Randomization procedures make the dividing line between classical and modern experimentation and are of great practical benefit to the experimenter, as Fisher (1960) noted, for they provide relief “from the anxiety of considering and estimating the magnitude of the innumerable causes by which ... Data may be disturbed,” that is from the classical difficulties of trying to hold everything constant without ever being certain that this has been achieved. Randomization has therefore been likened to life insurance, in as much as it is a precaution against disturbances that may or may not occur and that may or may not be serious if they do occur (Michael, Beck 1993).

Randomization may apply to both sampling and the assignment to control intervention groups. Random sampling occurs when every member of a population has an equal chance of being included in the sample. In random sampling a study will have more chance of external validity; that is, the results of the study are generalizable to the population from which the sample was drawn.

Random assignment refers to the process of placing subjects in groups in a random manner. Any individual entering the study should have equal chance of receiving, or not receiving the treatment or intervention. The reason behind randomization is that it should produce an experimental and control group that have similar characteristics.

In the present study, for Phase I and Phase II the samples were selected randomly.

3.4 Selection of the Sample:

3.4.1 Sample: Phase I: Under five year children and their mothers from Naigoan area
Phase II: Mothers of under-five year children from Naigoan area.

3.4.2 Sample size: Phase I- 100 mothers, and 100 children
Phase II- Sixty mothers

3.4.3 Criteria for sample selection: 1. Mothers having an under-five year child
2. Mothers who can speak Hindi, Marathi and English
3. Mothers who can read Marathi.
3.4.4 Sampling Technique:

The impetus behind the drive for research in nursing and health behavior is to describe the universe and its phenomena, to understand it, and ultimately, to control it. This trilogy of goals, common to all research, can be implemented through generalizations of principles that describe or apply to categories of people, events, places, or phenomena.

When a large proportion of individuals or items or units have to be studied, we take a sample. It is easier and more economical to study the sample than the whole population of the universe. Great care therefore is taken in obtaining a sample. It is important to ensure that the groups of people or items included in the sample are representative of the whole population to be studied.

The mothers of the under-five year children of Naigoan area were the universe. The investigator got the list of all under-five year children, which served as a sampling frame for her, which was prepared for the purpose of pulse polio programme. Sampling frame is a listing of the members of the universe from which the sample is to be drawn. The accuracy and completeness of the sampling frame influences the quality of the sample drawn from it. The list of all the under-five year children from Naigoan health post area was the sampling frame, from that by using the simple random method the under-five year children were tick-marked by going through the list randomly to get sample size of 100, out of 4000 under-five year children for the phase I study to assess the existing knowledge and practices of the mothers, to do the information need assessment for developing the Self Instructional Manual and find out the existing prevalence of ARI among Naigoan community children. These 100 children's data and their mother's knowledge assessment of ARI were done.

For the Phase II study the sampling frame was the under-five year children's list, which was prepared latest i.e. year 2004. The new list for pulse polio, which was prepared, was used. The total children were 3058. Out of these listed children randomly the investigator picked out the under-five year children by tick marking so as to get a total of sixty-sample size.

In Phase II the Solomon four group design was used, therefore these sixty children's mothers were randomly assigned into four groups. The list was prepared and
according to the groups the investigator went about collecting the data. The four groups were as follows:

- First Group: Pre-test- Intervention- Post-test
- Second Group: Pre-test- Control Group-Post-test
- Third Group: - Intervention- Post-test
- Fourth Group: - Control Group-Post-test

The same tool was used for all the four groups. The purpose of using the simple random method is that each unit has an equal chance of being drawn in the sample. This technique provides the greatest number of possible samples. This allows representativeness, freedom from bias in selection and thus generalizability to the target population.

Thus for Phase I and II study the probability sampling and simple random method was used for selecting the samples.

3.5 Setting of the study:

Naigoan Maternity Home was established in 1957 and became functional in 1958 with forty-five beds to provide the maternity services. Presently it is a thirty bedded municipal institution, which caters to the Naigoan community. In the maternity home premises a dispensary is also there, so that the day-to-day health matters of the community also can be tackled.

In 1985 the health post was established in Naigoan maternity home to provide outreach services.

3.5.1 Health Post:

Health post is of BMC of greater Bombay. The health post exists in all municipal ward areas covering Mumbai’s population. The selected health post of the present study is shown in the map of Greater Mumbai. (Fig.No.6), a written permission to conduct the study in health post was obtained from Executive Health Officer. (Appendix-A).

To meet the lacunae in the health services for the poor committee called working group on reorganization of family welfare; the Govt. of India formed primary health care services in urban areas. The committee report was published in 1982. Krishnan committee proposed to establish health post in areas where at least forty per cent of population is living in slum or slum like areas to provide PHC and family welfare services. BMC adopted the recommendation of the Krishnan committee and established fifty-six health
Bombay City District and Bombay Suburban District

Physical

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District Boundary

District Headquarters

Caves

Hills

Study area

High Up-Land

Low Land

Swamp
posts in the year 1984 under out reach section. The total number of health posts functioning as of today is 196.

The main goal of health post are survey, service, motivation, follow up and encouraging community participation. Though the health posts are situated either in dispensaries, maternity homes or independently, they have adopted an out reach approach to health care. The concept of health post is unique and is community based.

India Population Project V, this project was introduced in the year 1989-90 in the existing six health posts under out reach services. Under this IPP V project many health posts were established. The project would; support the Govt.’s goal of improving the availability and quality of family welfare (family planning and maternal and child health) services to poor urban families.

The principle goal is to assist in the implementation of Govt.’s policies and programme for revamping the organization service delivery and outreach system for family welfare in urban slums as part of the national urban revamping scheme. Naigoan health post caters to the population of 51,482, having 11,534 households and 3058 under-five year children. In 1995 the postpartum center facility was introduced to cater to the maternal and child health services in collaboration with maternity home, in more comprehensive method. The pediatric OPD is open every day except on Saturdays, when it is conducted to deal with common health problems.

Naigoan community is comprised of simple middle and lower income group families. Majority of them are of the Hindu and Buddhist community, very few are of Muslim, Christian, Sikh and others. Largely police establishment occupies the Naigoan area. There is a Naigoan Court, a Police headquarter, Police officers quarters and police quarters and a Police Hospital. The next large area is occupied by B.D.D. Chawls, (old and new), and the cloth shopping centers, few hutments, Kohinoor mill chawls etc.

The common languages spoken here are Marathi, Hindi and Gujarati. Maximum people are literate and they give more importance to the child’s education.

The houses in this area are of very small size and the family size is large. Both joint and nuclear types of families are living in this community. Hutment areas are having very small houses and a very narrow passage to reach the house. The hutment area is very congested and in some places the drainage system is open. They have a common toilet
facility and water facility. There is no proper ventilation and the flooring is damp, which is conducive for the child to become ill.

The chawls have a common toilet facility. They have only one room and some have two rooms with a facility i.e. mori to take a bath. The water comes in the morning for two hours and they have to finish all the water work and store the water. In spite of a regular health education programme the people have a habit of throwing the garbage from the building therefore the surrounding area of the building is dirty. The municipal employees regularly pick up the garbage from the common dustbin. The families which are near by to the ‘F’ south don’t use the health facility from Naigoan maternity home because ‘F’ south dispensary, Wadia children’s hospital, Wadia maternity home and KEM hospital is more nearer to them.

They celebrate all the festivals. They have regular group celebrations, pooja, and they take both vegetarian and non-vegetarian type of food. They use gas and stove for cooking food. Majority of the women are housewives and they are engaged in taking care of family cooking and child’s education. The people are very co-operative for any health activity that is organized for them. They are very receptive. They received the investigator very happily and co-operated in participating in the study. The investigator took the verbal consent for participating in the present study. (Appendix- B)

3.6 Tools & Technique:

The tools of the study: Interview schedule Phase I (Appendix-C), & Phase II (Appendix-D).

Opinion Interview schedule (Appendix-D-1).

Translated Interview schedule Phase I (Appendix-E).

Translated Interview schedule Phase II (Appendix-F).

Self Instructional manual (Appendix-K).

3.6.1 Interview Schedule: Phase I

3.6.1.1 Tool I: Knowledge Interview Schedule:

The main purpose of the tool was as follows

1. To identify the existing knowledge and practices of the mothers regarding caring children with acute respiratory infection among under-five year children.

2. To find out the prevalence of ARI among under-five year children.
3. To do the need assessment before developing the self-instructional manual on ARI.

This Tool was divided into five sections:

Section I: Socio Economic Demographic Profile.

Section II: Under Five-Year Child’s Data

Section III: Knowledge Assessment of Mothers Regarding ARI and Caring child with ARI

Section IV: Assessment of Practices of Mothers in caring the child with ARI

Section V: Need Assessment to develop Self-instructional Manual.

3.6.1.2 Section I: Socio Economic Demographic Profile: was comprised of total nine questions. It included name of the mother, age, religion, address, education, occupation, family income, house, type of family and number of people living in the family, number of children in the family and birth order of the child having ARI at the time of survey.

3.6.1.3 Section II: Under-five year child’s data:

In section II: The information collection consisted as follows:

- Name of the child
- Age of the child
- Place of birth
- Birth weight
- Birth of the child
- Current weight of the child
- Child’s diet
- In past six months any serious illness
- Was the child admitted in the hospital before?
- Reason of hospitalization
- In past six months how many times child had ARI?
- Detail history of present illness.
3.6.1.4 Section III: Assessment of knowledge on ARI:
Section III consisted of knowledge assessment of mothers regarding ARI and caring child with ARI. It was divided into four sub-sections

A) Questions related to ARI. This sub-section had seven questions. The next sections were related to factors influencing ARI.
B) Caring the child during illness. It had seven questions.
C) Questions regarding child’s diet. This had six questions.
D) Questions related to immunization, which included six questions.

3.6.1.5 Section IV: Assessment of practices in caring child with ARI:
Section IV consisted of assessment of practices of mothers regarding caring the child with ARI. This section was divided into five sub-sections.

1. This section had fourteen questions of caring the child during illness.
2. This section had five questions of feeding the child.
3. This section had consisted four questions of immunization.
4. This section consisted of ten general questions.

3.6.1.6 Section V: Information-need assessment:
Section V had four questions of need assessment of mothers in order to develop a need-based appropriate self-instructional manual for mother in caring for the child with ARI.

3.6.2 Interview Schedule: Phase II

3.6.2.1 Tool II: Interview Schedule:
This tool was divided into two parts.
Part I: Socio-economic demographic profile.
Part II: Included section I and section II

3.6.2.2 Section I: Questions related to acute respiratory infection.
In this section there were total ten questions related to acute respiratory infection among under-five year's children.

3.6.2.3 Section II: Questions related to factors influencing ARI.
This section was sub-divided into four sections as follows:

A. Questions related to caring the child during illness: This included seven questions.
   The question No.1: When should a child be taken to the doctor for respiratory ailments? This question framing was changed because the response was
immediately, whereas the expected outcome was that they should be able to tell the signs and symptoms for seeking the medical help. The question was reframed as follows: What are the signs that you see in your child for taking the child to the doctor for respiratory ailments?

B. Questions related to feeding: Included four questions.
C. Questions related to immunization: This included four questions.
D. Questions related to caring ear and nose under the heading of miscellaneous: which included two questions; these questions are important factors in influencing the acute respiratory infection among the under-five year children.

3.6.3 Tool III: Self-instructional Manual:

This teaching module was used for the intervention ‘teaching mothers regarding ARI among under-five year children.

3.6.3.1 Objectives,

1. Mother understands the structure and function of respiratory system in simple manner.
2. Mother understands the meaning of ARI.
3. Mother knows the cause of ARI.
4. Mother knows the predisposing factor of ARI.
5. Mother is able to recognize the signs and symptoms of ARI.
6. Mother is able to identify the danger signs of ARI.
7. Mother is able to take the child for medical help in time.
8. Mother is able to practice the home care remedies in cough and cold.
9. Mother knows the prevention of ARI.

3.6.3.2 Content of the Self Instructional Manual:

1. Acute respiratory infection
2. Anatomy of respiratory tract
3. Respiratory tract illness
4. Causes of respiratory infection
5. Factors influencing acute respiratory infection
6. Signs and symptoms of acute respiratory infection
7. Danger signs of pneumonia

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8. Management of acute respiratory infection
9. Treatment
10. Prevention of acute respiratory infection

3.6.4 Tool IV: Opinion Interview schedule:

This tool was designed to identify the mother’s opinion on the self-instructional manual with regard to the following aspects:

1. The clarity of the content
2. The adequacy of the content of acute respiratory infection
3. The suitability of the pictures in the self-instructional manual
4. The usability of the booklet
5. To identify the overall opinion about the self-instructional manual
6. Need of more information

3.6.5 The Development of the tool: It was a step-by-step procedure for which the investigator adopted a practical approach.

Prior to the preparation of the tools the investigator visited the paediatric wards of K.E.M. and Wadia Children Hospital, where the children are admitted with acute respiratory infection. The investigator observed the children, interacted with the mothers and reviewed their patient profiles. Investigator observed the patients with ARI frequently visiting the Naigoan maternity home, Paediatric OPD.

This gave an over all picture of the incidence of ARI. The investigator discussed with the paediatrician, expert doctors from preventive social medicine and nursing teachers specialized in paediatrics to develop the tool.

To develop an appropriate tool to assess the mother’s knowledge regarding ARI among under-five year children, the investigator conducted many informal, unstructured and structured interviews with mothers of children admitted with acute respiratory infection in KEM hospital Ward No. one and two and Wadia Children hospital. And also the mothers were interviewed who visited the child center with an under-five child at Naigoan maternity home. Based on these responses it was decided to develop a semi-structured questionnaire to assess the mother’s knowledge regarding ARI among under-five year children.
Thus, the investigator’s observation, clinical experience, the opinions of the experts and literature review greatly helped in the formulation of the tools.

Since it is not feasible for the investigator, to observe the practices of mothers in caring the children with ARI, the practice-based questions were included in the questionnaires.

3.6.5.1 Validity:

The content validity of the tool is concerned with the extent to which a test reflects the variable it seeks to measure.

To determine the content and construct validity, the tools were prepared and given to experts from various fields i.e. Pediatrics, Preventive Social medicine and nursing. Their suggestions were incorporated in the tools.

The tool was later translated into Marathi. (Appendix-E & Appendix-F) Five nursing personnel established the validity of the translated tool.

3.6.6 Interview Technique:

To elicit the personal information of the respondents and to assess the client’s knowledge regarding the ARI among under-five year children interview technique was considered to be the best one, so as to probe with opportunities to reveal relevant information in a naturalistic way. It also helps to identify interpretations and inconsistencies, if any. Questionnaire was rejected because this might be misunderstood or ignored, as parenting is a sensitive and personal issue.

Telephone interviews would have been inconvenient for parents with children. Face to face interviews were thus considered to be suitable method for researching parent’s information needs and knowledge assessment of the mothers. This has the advantage of allowing explanation and wide ranging discussion. The data elicited through this technique include:

Phase I study:

A) Personal information of the respondents
B) Under-five child’s data
C) Knowledge assessment of the mothers regarding acute respiratory infection among under-five year children
D) Practices of mothers in caring the children with ARI
Phase II study:

- Personal information of the respondents
- Knowledge assessment of the mothers regarding acute respiratory infection among under-five year children.
- The Opinion of the mothers regarding the self-instructional manual.

3.7 Pilot study:

A pilot study is to assess feasibility and practicability of the research methodology and to ensure that the investigator as laid out in the protocol is realistic. Pilot testing the design often reveals potential confounding variables and threats to internal validity as well as problems in sampling, measurement, and procedure.

3.7.1 Pilot study-Phase I:

A pilot study was conducted from 25-5-03 to 30-5-03 on twenty mothers of under five-year child, at Naigoan maternity home in order to ensure the feasibility of the tool and the practicability of the research study.

The mothers who attended the child center, paediatric OPD, Immunization Clinic and Post-partum center among these clients randomly twenty mothers having under-five year child were selected. The investigator approached the respondents individually and discussed the overview of the study and obtained their verbal consent for the participation in the study.

These mothers were then physically and mentally prepared for the interviews. They were made to sit on the bench or on a chair and investigator sat next to them, and by developing a rapport with them they were mentally prepared. The socio-economic demographic profile, the under-five child’s information and existing knowledge and practice of mothers regarding caring the child with ARI and Need assessment for developing instructional manual, concerning all these points the interview was conducted and data was collected. The responses were recorded simultaneously.

The pilot study helped the investigator to visualize some of the practical problems. Based on the practical problems experienced during the pilot study the following changes were made in the tool.
The following changes were incorporated in the tool, in section II- under five child’s data: The information regarding child’s immunization and vitamin ‘A’ prophylaxis was deleted because it is asked under the practices question in section IV.

In section III questions related to mother’s knowledge regarding ARI among children included total twenty-three questions. The investigator felt the need to group the questions under different subheadings so that the sequence of questions to a particular topic is maintained. Therefore section III was subdivided into two parts as follows:

- A: Questions related to ARI: This part included six questions
- B: Questions related to factors influencing ARI: This part was subdivided into three parts as follows:
  1. Questions related to caring the child during illness: which included 7 questions.
  2. Questions related to feeding the child: It included 6 questions.
  3. Questions related to Immunization: which included 6 questions.

The questions, which are direct and difficult to answer such as what is acute respiratory infection? And what is breathlessness? were omitted.

In section IV the questions related to practices of the mother in caring the child with ARI included thirty-five questions. This section was also subdivided into four parts as follows:

A) Questions related to caring the child during illness: This included fourteen questions.
B) Questions related to feeding the child: This included five questions.
C) Questions related to Immunization: This included four questions.
D) General questions included ten questions.

In section V there were no changes. The subdivisions in sections III & IV will help in analyzing the data in a more organized manner. For tool reliability test, retest method was not used because it was an open-ended interview schedule.

The findings of the pilot study were analyzed. The socioeconomic demographic profile was analyzed in frequency and percentage. The under five child’s data also was analyzed with frequency and percentage. The existing prevalence of ARI was analyzed. Since it was exploratory descriptive method to find out existing knowledge and practices
of mother in caring child with ARI the response to the questions was analyzed in form of frequency percentage, of having correct and incorrect knowledge & practice.

3.7.2 Pilot study-Phase II:

A pilot study was conducted from 16-02-04 to 23-02-04 on 10 mothers of under five year children at Naigoan health post area i.e. Kondaji chawl, B.D.D. chawl randomly the house was selected having an under five year child and the investigator discussed the overview of the study and obtained the verbal consent for participation in the study. The mothers were made to sit and the investigator sat next to them and made them physically comfortable and then by enquiring about their child’s health and then preparing them mentally for the interview the data was collected.

The socio-economic demographic profile, the assessment of mother’s knowledge regarding acute respiratory infection and factors influencing acute respiratory infection based on this the data collection was done, and the responses were recorded simultaneously.

The following changes were incorporated in the tool: In part II there are two sections. In section I question no.7. Instead of: What is fast breathing? This question was changed to: When will you say that the child has fast breathing?

a. In less than two month old child.

b. In two months to twelve months old child.

c. In twelve months to five yr. old child.

This change was done because each age group has the respiratory rate different. As the age of child increases the respiratory rate decreases.

Question No.10. What is wheezing? Mothers felt it difficult to understand this question therefore, it was changed to: Is it normal for a child to have a whistling sound during breathing?

In section II, there are questions related to factors influencing ARI: This section was sub-divided into three parts as follows:

A) Questions related to caring the child during illness: This included 7 questions. The question No.1 is ‘When should a child be taken to the doctor for respiratory ailments?’ 

This question framing was changed because the response was immediately, whereas the
expected outcome was that they should be able to tell the signs and symptoms for seeking the medical help. The question was reframed as follows:

What are the signs that you see in child for taking the child to the doctor for respiratory ailments?

B) Questions related to feeding: Included four questions.

C) Questions related to immunization: This included four questions

There was separate part III which included questions related to existing practices since this was not the objective of second phase of the study therefore it was deleted. The tool was aimed to assess the pre and post intervention knowledge regarding ARI. This part III was deleted and in part II one sub-division was included as follows:

D) Questions related to caring ear and nose under the heading of miscellaneous: which included two questions; these questions are important factors in influencing the acute respiratory infection among the under-five year children.

The mothers were interviewed for pre-test, then given the self-instructional manual and were asked to go through the manual and were contacted again after eight to ten days. Some mothers expressed few queries. The investigator clarified the doubts by explaining the self-instructional manual, and then they were asked about the manual and post-test was taken. The opinion interview-schedule was filled up simultaneously and other than ARI, if mothers had any difficulties regarding child health, was answered by the investigator.

The pilot study helped the investigator to visualize the practical problems and gave better understanding regarding the research methodology. Pre-testing of the instrument provides a means for solving unforeseen problems in its administration in the field. It is necessary to find out how the questions work and whether changes are needed launching on the full scale study (Wilkinson 1984) based on the practical experiences during data collection the necessary changes were made in the tool and the methodology. Instead of only giving the self-instructional manual, the matters were discussed through the self-instructional manual with the mothers and then it was handed over so that they can go through repeatedly at ease whenever they will get time from their busy schedule. Parinello (1983) conducted a survey among twenty eight patients hospitalized for vascular surgery, to determine the effectiveness of a pre-operative teaching booklet. The booklet was rated
as very helpful by eighty per cent of the patients. Its helpfulness was increased when discussed with a member of the health care team. This shows the discussion helps to increase the understanding. Printed information appeared highly desirable. Benefits of having printed information for support and advice is obvious with patients and caregivers reporting frequent referral to the leaflets given to them. Take home written information is increasingly used to reinforce verbal instructions given in the health care settings. (Moran, 1995). Reinforcement will improve mother’s knowledge and hence she can practice accordingly in caring the child with acute respiratory infection.

3.8 Data Gathering Process:

The formal administrative permission was obtained from the executive health officer, B.M.C. from head office. The informal meeting with the health staff at Naiogoan Maternity Home with medical officer of maternity home, health post staff i.e. F.T.M.O., P.H.N. and the health workers and community health volunteers, the paediatrician and M.O. in-charge of Post Partum Center and sister in-charge of maternity home and P.H.N. of child center to get their co-operation during the study.

The health worker and C.H.Vs were helpful to locate the houses for data collection. Since the study was separately done in each phase.

3.8.1 Phase I:

The period of data collection commenced from 2\textsuperscript{nd} June to 28\textsuperscript{th} June 2003. The data collection was done every day except Sunday. According to the convenience of the participant's, the investigator had to go for data collection. Between 10 am to 1.00 pm was suitable for them and late evening i.e. after 5.00pm. Some prefer afternoon accordingly the investigator had to go for home visit and collect the data by interview method.

The mothers were selected as per the sampling criteria. The investigator approached each mother individually. The investigator introduced herself to the mother and her relatives, if they were present at home. The nature and the scope of the study were explained to them and their verbal consent for participation in the study was obtained. The mother was asked to sit comfortably so as to prepare her physically and mentally for the interview. If the child disturbed in-between then the investigator waited till the child is paid attention and the disturbance was removed. Investigator followed the principle of home visiting.
The objectives of data collection were as follows:

1. To know the Socio-economic demographic profile.
2. To know the under-five child's data.
3. To know the prevalence of ARI.
4. To know the existing knowledge of the mothers regarding ARI.
5. To know the existing practices of the mother’s in caring the child with ARI.
6. To do the need assessment for developing the self-instructional manual.

Keeping these objectives in mind the tool was developed after the mother who was interviewed was prepared physically and mentally. The investigator sat comfortably facing the client of next to the client according to the place available in the home. Interview was conducted in Marathi or Hindi as per the choice of the respondents. The interview was initiated with non-probing individual centered questions that put them at ease. The responses were recorded simultaneously.

Towards the close of the interview most of the mothers asked their doubts regarding caring the child, child's feeding or any specific problem the child had. Each interview extended for a period of thirty to thirty-five minutes. The investigator thanked them for participating and giving co-operation in the study. Thus, the investigator could successfully cover a sample size of 100 mothers for the study. Based on the collected data investigator developed the self-instructional manual, which was used as an intervention in the second Phase of the study.

3.8.2 Phase II:

The period of data collection commenced from 28th Feb to 6th April 2004. (5 weeks) The data collection was done every day except Sunday. Because it is a holiday the family has to spend the day together. The investigator decided not to disturb the family enjoyment so Monday to Saturday was selected for data collection.

In Phase II there were four groups, (each group data gathering process was different. It is as follows): As per Solomon four group research design. Campbell and Stanley, (1963) says Solomon four group design is probably the most powerful experimental approach in terms of experimental designs, because its principle value is in eliminating pre-test influence on the experimental treatment. The first and fourth group has pre-test and the fact that the pre-test disappears in groups two and three. It enables, the
researcher to generalize to group, which have not received the pre-test in cases where it
may be suspected that the pre-test has not had adverse effect on the experimental
treatment. It removes a kind of Hawthorne effect from the experiment.

The investigator randomly assigned the subjects into four groups. Each group
consisted of fifteen mothers having an under-five year child. The groups were as follows:
Solomon four group research design is used.
Schematic representation of the Solomon four group research design is as follows:

\[ O_i \times O_2 \]
\[ O_3 \ldots O_4 \]
\[ \ldots O_5 \]
\[ \ldots O_6 \]

Group I (Study gr.) : This group will have pre-test and post-test with intervention.
Group II (Control gr.) : This group will have pre-test and post-test without intervention.
Group III (Study group): This group will have post-test with intervention. No pre-test.
Group IV (Control gr.) : This group will have post-test without intervention. No pre-test.

In first group the mothers were approached. The mother was psychologically
prepared for the interview. The investigator sat comfortably facing the mother and an
interview was conducted in Marathi or Hindi wherever necessary. Then the self-
instructional manual was given and the investigator explained about ARI with the help of
self-instructional manual. The manual was given to the mother and was asked to go
through again and make use of that in caring her child. At the close of the session she was
told after ten days the second visit to her will be made and she will be interviewed again.
The session lasted for about thirty minutes.

After ten days the family was visited again, if the door was locked on the second
or third day as per convenience, the investigator revisited the family for the post-test.
After approaching the mother the post-test was taken and the opinion interview schedule
was filled for the response of self-instructional manual. The investigator re-enforced about
the ARI and encouraged the mothers to go through the manual often. She then thanked the
mothers for their co-operation in the study.
The second group, it was a control group, which included pretest and no intervention and post-test. After locating the house the investigator greeted the family members, discussed the purpose of visit and explained the overview of the study and obtained verbal consent for participation in the study. The mother was asked to sit comfortably so as to interview her properly. The investigator collected the information regarding socio-economic demographic profile and assessment of mother’s knowledge regarding the ARI.

The investigator after ten days visited the family and interviewed the mother. At the close of the session the investigator corrected the wrong information and gave tips regarding feeding the child, home remedies and some danger signs of ARI and when to seek medical help.

At the close of the interview the mothers were told about caring the child with ARI, and if they asked any questions they were answered.

The session took twenty to twenty five minutes. The investigator thanked them for participating and giving co-operation in the study.

The third group, a study group which included only post-test with intervention and there was no pre-test. After locating the house investigator approached the mother of the under-five year child, discussed the overview of the study and obtained verbal consent for participation in the study. After sitting comfortably the information related to socio-economic demographic profile was collected and then the self-instructional manual was given and explained the ARI with the help of manual and was asked to go through the manual. At the close of the session the investigator informed the mother about the second visit after eight to ten days. And she will be asked about the self-instructional manual.

The fourth group mothers were approached individually by the investigator. Then she introduced herself to the mother and her relatives present in the house. The nature and the scope of the study were explained to them and verbal consent for participation in the study was obtained.

After the preparation of mother physically and mentally the investigator interviewed and discussed in general points of their child’s health. She then thanked the respondents for their co-operation in the study.
The investigator after ten days visited the family and conducted the interviews to assess the knowledge regarding acute respiratory infection.

At the close of the session encouraged the mothers to go through the manual repeatedly and thanked them for their co-operation in data collection and participating in the study.

Thus the investigator could successfully cover a sample size of sixty respondents for the study.

Data gathering process was a challenging task for the investigator. Locating the family, gaining their co-operation, climbing the staircase up to the third floor or fourth floor was hectic. Sometimes the mother was not present in the house; on visiting again, sometimes the mothers told to come after one hour or two hours therefore completing the next client and again visited the family. The Naigoan area people are very co-operative. To locate the address and find the family many people helped. The families were receptive. They showed concern towards the investigator and co-operated in providing the necessary data.

Though the data collection process was tiring and exerting to the investigator but also it was a satisfactory achievement. Thus the investigator completed the data gathering process. The collected data had to be analyzed so as to become meaningful information to the researcher.

3.9 Plan for Data Analysis:

Statistical techniques were used for the analysis of data. The data was planned to be analyze on the basis of the objectives of the study. The qualitative and quantitative analysis was planned. The data obtained would be analyzed separately for both the phase of the study.

Analysis of data requires a systematic organization of the material in order to discover inherent relationship and differences in the data.

Statistical techniques have been used extensively in analyzing the data. For the purpose of the present study two types of analyses were done.

i) Descriptive analysis: The characteristics of a particular group can be studied by descriptive statistical measures. The conclusions made using such measures are limited to that particular group studies. No conclusions can be extended beyond
this group. In the present study, the statistical measures used for descriptive analysis were as follows:

a) Measures of Central tendency: This includes Mean.

b) Measures of variability: This includes standard deviation.

c) Graphical methods: This includes bar diagrams, pie diagram.

ii) Inferential analysis: Inferential analysis involves the use of statistical techniques to study the nature of the data and relationships between various variables of the study. Conclusions obtained through inferential analysis can be extended to infer population characteristics.

3.9.1 Phase I:

Phase I data will be assessed in the following manner:

1. The socio-economic demographic profile: This would be assessed in terms of frequency and percentage and will be presented in tables and diagram.

2. Under five-year child’s data: This would be analyzed using frequency and percentage and will be presented in tables as well as graphically.

3. The existing knowledge and practices of the mothers regarding caring the child with ARI: This would be analyzed using frequency and percentage and will be presented in tables and graphs.

4. Need assessment of the mothers: This was aimed to find out the information before developing the self-instructional manual. The data obtained through this need assessment would be analyzed using a qualitative method, to describe the opinions of the mothers.

3.9.2 Phase II:

Phase II data will be assessed as follows:

1. The socio-economic demographic profile: This would be assessed in terms of frequency and percentage and will be presented in tables and diagrams.

2. The assessment of knowledge regarding ARI and caring child with ARI: Data obtained from the interview schedule regarding assessment of knowledge of mothers regarding acute respiratory infection and caring child with ARI (Pre-test and post-test) study group and control groups using Solomon four group design
would be analyzed using frequency, percentage and will be computed with 't' test and ANOVA to find out the statistical significance.

3.9.3 Scoring Scheme:

The scoring scheme was designed in order to assign the scores, (Appendix I) in phase II study, as the objective was to assess the knowledge of the mothers regarding acute respiratory infection and caring the child with acute respiratory infection. Hence the pre-test and post-test by using Solomon four group design was used. To assess the knowledge the answer key was prepared (Appendix G). After preparing the blue print (Appendix H), based on the answer key (Appendix G) the scoring scheme was prepared as follows:

Section I: Answers related to acute respiratory infection

The total questions included were ten. Each question had a separate scoring key as the nature of questions differed. Most of the questions were grouped into four categories of response i.e. for one to two responses the score assigned was 0.25. For three to four response the assigned scores was 0.50. For five to six response the score was assigned 0.75 and seven to eight response was assigned 1.00 score. The responses were yes or no, in such a case ‘Yes’ was assigned a score 1.00 and ‘No’ was assigned zero score. The response as ‘Do not know’ was assigned zero score.

Section II: Factors influencing ARI:

A: Answers related to caring in illness

B: Answers related to feeding

C: Answers related to immunization

D: Answers related to caring ear and nose

The scoring scheme as mentioned in Section I; was followed in Section II
3.10 Conclusion:

In conclusion to know something we need to collect data. To collect data we need to go about systematically. To collect meaningful data the investigator carefully prepares the tool, keeping in mind the objectives of the study. Sample selection is done randomly by remembering the sample selection criteria which is the important point in research methodology. The collected data helps to know the problem in a much better way. Only collecting data is not enough to know something, but we need to treat it in other words it needs statistical analysis. Interpretation of the data gathered is the heart of any research study. The following chapter deals with the analysis and interpretation of the data collected by the investigator. To sum up it is a complete framework of the research study.