CHAPTER III

METHODLOGY

Research methodology is a way to systematically solve the research problem. It is a science that deals with the various steps that are generally adopted by a researcher in studying research problem along with the logic behind them.

Current chapter deals with the research methodology adopted by the researcher to understand the lived in experience of the childless women.

This chapter gives overview of the research approach, research design and setting of the study, population, sample and sampling technique. It also describes the explanation of the steps and procedures for managing, analyzing and interpreting the data.

RESEARCH APPROACH

Research Approach refers to the researcher’s overall plan for obtaining answers to the research questions and for the research hypothesis.\textsuperscript{121}

This study investigated the lived in experiences of childless women with the aim to understand the phenomenon of infertility in respect to how they describe, make meaning in terms of social, psychological, physical, financial, marital and sexual construct and how they cope with it. In addition, this study also investigated the medical and conventional methods used by childless women as treatment. To answer the research questions of the study \textbf{Qualitative Research Approach} was adopted.

Qualitative research methods emphasize individual’s lived experiences in an effort to locate the meaning individuals or groups attribute to social or human problems.\textsuperscript{122} Qualitative research studies are approached by reorganizing transcribed interviews into themes and categories in an effort to offer interpretations and “bring meaning and insight to the words and acts of the participants of the study”.\textsuperscript{123}

Quantitative research emphasizes on prediction, control and measurement, whereas qualitative research emphasize discovery, description and meaning. Historically, research topics that could not be explained objectively held no place in the realms of
science. However, in more recent times there is a move to include not only the traditional quantitative method but also a more humanistic approach. This is particularly important with researching topics that involve human interaction or experiences. Qualitative studies do not seek to prove causal relationship, but instead uses methods such as in-depth interviews to understand people’s feelings and experiences from their point of view.

Qualitative research methods are consistent with the philosophy of nursing in which subjectivity, shared experiences, inter relatedness and human interpretation of reality are considered. Researcher in qualitative research believes that informants of the study actively participate in social actions and thus understand the phenomena under study in different way.

Review of literature gives a brief overview about previous work done with childless women. Majority of the studies done in India are quantitative in nature that does not give an insight of the living in experiences of childless women. So researcher adopted qualitative research approach to reflect upon their infertility experiences. Use of qualitative approach is justified as it helps to bring emotions, feelings, pain, coping strategies, impact on relationship and lives of infertile women in totality to forefront.

**RESEARCH DESIGN**

Research design is the overall plan for obtaining answers to the questions being studied and for handling some of the difficulties encountered during the research process.⁴¹

Among methods those lies within qualitative paradigm is the field of phenomenology. Phenomenology rooted in a philosophical tradition developed by Husserl and Heidegger in early 20th century is concerned with lived experiences of humans. In essence, phenomenology is a complex and multifaceted philosophy, oriented towards describing events as internalized in the subjective consciousness of individuals.¹²⁴ The focus of this approach is on how individuals make sense of an experience and how they develop meaning. Following a comparative examination of the literature on the variants of phenomenology, **Hermeneutic Phenomenology** was opted for this study.

In phenomenological design, Interpretive (Hermeneutics) phenomenology developed from the philosophy of Heidegger (1962) focuses on interpreting and understanding
and not just describing the human experience. Interpretive phenomenology assumes that the researcher has some personal experience with the phenomenon being studied and is able to go beyond description to capture the essence. Researcher uses his/her prior knowledge and insights to interpret and uncover hidden meanings with the goal of producing a vivid textual representation of the phenomenon described.\textsuperscript{125}

Unlike phenomenology which encourages a detachment (bracketing) from the phenomenon being investigated, hermeneutics enquiry emphasizes connectedness and relationship. It enables researcher to understand people’s personal experience of specific issues by focusing on their personal perception of the same.\textsuperscript{126} Hermeneutic phenomenologist rely primarily on in depth interviews with individuals who have experienced the phenomenon of interest. In phenomenology design of qualitative research, researcher transcribes interviews and organizes them into themes and categories in a reflective way by carefully looking for the meaning of the participants.\textsuperscript{121} Through this process, the meaning participants describe of their experiences is understood inductively from the data.

Thus, researcher adopted hermeneutic phenomenology design of qualitative studies, which enabled childless women to describe their infertility experiences in terms of impact of infertility on day to day life, personality, goals of life, social and marital relations, and coping. The use of this design provided researcher with a way of exploring lived in experiences, the actuality of experience.
SCHEMATIC PRESENTATION OF RESEARCH DESIGN

Identification of target population (childless women attending OPD of selected IVF clinic)

Seeking administrative approval

Selecting sample according to inclusion criteria

Audio taped in depth Interview of childless

Identification of units

Describing subthemes with the help of meaning units

Extracting themes from sub themes

Formation of Meta themes from themes
POPULATION

Population is a complete set of persons or objects that possess some common characteristics that is of interest to the investigator. Population for this study comprised of childless women.

Target Population: Target population for the present study comprised of childless women of Haryana.

Accessible Population: Accessible population in current study were childless women attending OPD of selected infertility clinic in Haryana.

SAMPLE

A sample is a subset of population elements. An element is the most basic unit about which information is collected. A representative sample is one whose key characteristics closely approximate those of the population.

Sample for the present study constituted of childless women of Haryana who met the inclusion criteria and were attending OPD of selected infertility clinic.

Inclusion Criteria:
Childless women who were:
1. Available at time of data collection and willing to participate.
2. Seeking artificial reproductive technique treatment.
3. Suffering from primary infertility or secondary infertility (never delivered).
4. Not suffering from any chronic medical disease and mental illness.
5. Can understand and respond in Hindi /English.

Exclusion Criteria:
Childless women who have:
1. Not started with assisted reproductive technique treatment.
2. Adopted.

SAMPLING TECHNIQUE

The process of selecting a portion of the population to represent the entire population is referred to as sampling technique.
Phenomenological researcher commonly use a criterion sampling method where the criteria itself is experience with phenomenon under study. Criterion purposive sampling in qualitative studies involves studying cases that meet a predetermined criterion of importance.121

In keeping with phenomenology research study, criterion purposive sampling technique was used for selection of childless women in present study.

SAMPLE SIZE

The guiding principle for sample size in qualitative studies should be the concept of saturation.127 There are no rules for sample size in qualitative research. It depends on what one wants to know, the purpose of the study and practical factors. Often qualitative researchers refer to the redundancy criterion: that is when no new information is forthcoming from new sampled units, stop collecting data.128

Sample size for the present study comprised of 22 childless women who were attending the OPD of infertility clinic for treatment. Data saturation was achieved after interviewing 20 childless women. Researcher interviewed 2 more childless women to explore the possibility of any new units and to confirm that saturation had been reached.

SETTING

Setting of the study refers to the physical location and conditions in which data collection takes place in a study. Qualitative researchers collect data in real world, naturalistic setting.121

Current study was undertaken at AMRIT IVF CENTER situated at Karnal, Haryana. AMRIT IVF CENTER is a part of AMRITDHARA hospital which is 100 bedded private hospital in heart of City Karnal managed by society since last 52 yrs. Amritdhara hospital has facilities of ICU, ICCU, emergency, dialysis, medical and general surgery. Amrit IVF Centre established in January 2010 provides the facility of IVF and other advanced ARTs. Amrit IVF center has state of art infrastructure and provide most advance facilities in ART. Center looks after the treatment needs of patients via facilities like ovulation induction, IUI, IVF, ICSI, Donor egg, Donor sperms, Donor Embryo (genetic surrogacy), Sperm Bank and Cryo Preservation of
embryos completely in accordance to national guidelines regarding ART. Infertile women from all districts of Haryana and nearby states avail services of the center. Amrit IVF center provides facilities for complete assessment of couples including blood tests, hormonal essays, hysteroscopy and laproscopy and semen investigations. Infertility team at Amrit IVF center comprised of infertility specialist, IVF specialist, embryologist, gynaecologist, counselor, staff nurses and lab technicians. Hospital has a well functioning pharmacy and canteen too. Daily attendance of IVF OPD range between 7-10 new patients and 1–3 IUI are performed on daily basis. IVF team of Amrit IVF clinic carry out 7-10 IVF per month.

To facilitate uninterrupted interviews and privacy, researcher was allotted a room with adequate sitting facility in the IVF center. Main criteria to select the particular setting was administrative approval and approachability. Researcher approached other infertility clinics of district Ambala, Hisar and Karnal for permission but could not get administrative approval. Hence current setting was chosen for data collection.

**DATA COLLECTION TOOLS AND TECHNIQUE**

Based on the research approach and objectives of the study, the following data collection tools were constructed in order to generate data:

1. Personal Sheet
2. Interview Guide

**Personal Sheet**: A personal data sheet was developed to gather personal information about the samples in consultation with experts and based on personal experience of researcher. Personal data sheet collected information regarding age, occupation, education, age at marriage, annual income, type of family, place of residence, ever usage of any family planning method, facing childlessness since how many years, known cause of childlessness, duration of taking ART, number of IUI or IVF undergone and anybody else known to face the same problem (childlessness).

**Interview Guide**: Based on the review of literature, professional and personal experience of researcher, an initial interview guide was developed with 33 open ended questions. Guidance from other researchers’ open ended questionnaire like Bliss (1999), Geetanjali (2009) and Kamau (2011) was taken to give shape to interview
guide and to answer research questions. Although hermeneutic approach is open ended, an interview guide was determined as an important tool so that the same information could be explored with each participant. However, the interview guide was only intended as a guide, so as not to undermine the open ended nature of the study.

Second draft of guide was prepared after consultation with research supervisor and number of questions were reduced to 19. This draft of interview guide was used with 3 childless women who were not included in final study but who were similar in inclusion criteria. This helped researcher to modify the language and sequence of questions in interview guide. Care was taken to ensure that the questions were open-ended, and as non-directive as possible, in order to enable respondents to bring up new, unexpected issues which they felt related to infertility. For this purpose, a final question “is there anything else you would like to tell me, which we haven’t talked about yet?” was added to the interviews.

CONTENT VALIDITY

Content validity concerns the degree to which an instrument has an appropriate sample of items for the construct being measured and adequately covers the construct domain. Validation of a tool should be done with a minimum of three experts, but a larger group is preferable.

Once the guide was developed it was given to seven experts for review suggestions. Experts included: two infertility specialist, two nursing faculty, two clinical nurses working with infertile couples/women in IVF clinics and a social worker. Experts were asked to rate questions on four point scale of relevance (highly relevant to not relevant). The experts were requested to evaluate and rate each question individually and over all interview guide. All experts were bilingual, proficient in English and Hindi.

Content validity index (CVI) of the interview guide was calculated after validation by the experts. Item CVI (I-CVI) found to be between 0.85–1.00 (acceptable .80) and Scale level CVI (S-CVI) was found to be 0.95 (acceptable .90) Suggestions given
by the experts were incorporated in the interview guide in terms of clubbing certain questions and adding 3 questions in personal data sheet after consultation with guide.

DESCRIPTION OF TOOL

In depth interviews were used to help researcher understand the deep meaning and experiences of the childless women from their own words. Childless women were prompted to verbalize their experiences in order to understand what infertility meant to them, how this affected their lives, their experiences with adopted treatment modalities and their views related to adoption. They were further asked about their husbands’ and families perception regarding infertility.

DATA COLLECTION TECHNIQUE

Face to face interviews were conducted in separate room at selected infertility clinic where participant felt safe and comfortable. Personal (face to face) interview are regarded as the best method of collecting data because of the quality of information they yield.1

Face to face interview is considered as the best form of data collection when one wants to minimize non response and maximize the quality of the data collected. It enables the researcher to capture verbal and non-verbal cues including body language which can indicate a level of comfort or discomfort with the questions, emotions and behaviors. It also makes it easier for the respondent to either clarify answers or items. All interviews were recorded on a digital audio tape for transcription and review for analysis purpose.

ETHICAL CONSIDERATIONS

Ethical approval for the study was obtained from Institutional Ethical Committee (Annexure-A) of the Maharishi Markandeshwar University. As a part of the approval process, the rights and confidentiality of the participants was guaranteed. To protect the identity of the participants, confidentiality of the research data was maintained through the use of pseudonyms for all the participants interviewed. The identity of the participants was masked. All audiotapes and transcriptions of the participants were numbered and list of names of participants with corresponding numbers were kept
separately at location known only to investigator. Recorded interviews and transcriptions along with consent forms were kept in locked cabinet. Computer data, including audio files and interview transcripts were stored on researcher’s personal password protected computer.

Each participant was explained the outline of whole research and procedure in place to protect their identity in the form of informed consent (Annex-H). They were informed that audio tapes, any additional identifying information would be accessed, only researcher and by the research supervisor if necessary. Additionally, participants were informed in writing and again verbally prior to the interviews that participation is voluntary and they could withdraw from the process at any time. Their withdrawal will not have any impact on their course of treatment. Letter of consent for participation and audio taping purpose was signed/thumb impression by all participants. In addition, since researcher wanted them to feel comfortable all participants were informed they can refuse to respond any question they don’t feel comfortable with.

REFLEXIVITY STATEMENT

In phenomenological research, researchers are encouraged to write a full description of their own experiences of the phenomenon they are investigating.\textsuperscript{123} The responsibility of the researcher to the participants is monumental especially since qualitative research is interpretive. Not only should the researcher be sensitive to the topic but should be competent to conduct the study.

As a researcher, I became interested in this research well before beginning of present study. As a childless woman, I found myself distressed and at loss when I discovered I was not able to have children naturally. During the course of my journey I had personal and professional contact with many childless women. As focus of my professional career was also working with women in different stages of reproductive life span, I had opportunities to participate in many discussions about women’s’ issue. I became attenuated to the topic and realized that infertility in India is treated as medical problem and not much has been done to understand the brunt of infertility on women in totality.

Key similarity which I had with participants is that we all were childless and main
difference was in educational status of participants and me. My education in psychotherapy and counseling has helped me well while analyzing the data. As Freud (1912) suggested to listen everything with “evenly suspended attention” I tried not to focus on anything in particular that a participant said, rather tried to give equal notice to everything. Freud meant that one should allow for the therapist’s own unconscious memory to arise for the purpose of interpretation. Although I was not interpreting data during the interview but I certainly use this skill while reading over the data and making connections.

PRESUPPOSITIONS

As an effective heuristic researcher, I am supposed to acknowledge the presuppositions and biases I bring to this study. Firstly, I acknowledge that all women want to experience motherhood in their life and infertility poses a dilemma to their womanhood. Secondly, women assume the responsibility of infertility since it is she who ultimately conceives. Thirdly, infertility is a misunderstood phenomenon that is cursed with myths and misconceptions that isolate the infertile women from fertile world. Fourthly, the medical community has not adequately met the needs of the infertile women. Fifthly, women with infertility face constantly emotional, psychological, physical and at times economic challenges.

I was aware of these biases while interviewing and analyzing the data. As a result of my experiences and opportunities of working with infertile women, I attempted to be aware of these potential biases throughout the research process. For example, before and after each interview, I reviewed my research expectation. This helped me to be aware of potential biases during and after the interview.

PILOT STUDY

Pilot study is the miniature trial run of the methodology planned for major project. The purpose is twofold: to make improvements in the research project and detect any problem that must be eradicated before the major study is attempted.121

A pilot study often involves small scale for the entire study, testing not only instruments but also sampling plan, study procedure and so on. After the administrative approval the pilot study was conducted in the month of October' 2014
at Amrit IVF clinic. The pilot study was conducted on five childless women attending infertility OPD of clinic and was in different treatment stages of ART. Face to face interviews were conducted with the help of open ended interview guide. All interviews were audio recorded on digital recorder. Findings of pilot study revealed that it was feasible to conduct the study and plan for thematic analysis was also determined.

PROCEDURE FOR DATA COLLECTION

Collection of data refers to a purposive gathering of information relevant to the subject matter under study. Formal permission was obtained from the appropriate authority to collect data at Amrit IVF Center, Karnal, Haryana. Women were selected as per inclusion criteria and after explaining purpose of study and confidentiality clause women were asked to sign/thumb impression informed consent.

Interview guide was used to collect data from. In depth face to face interviews were conducted in a separate room to maintain privacy during interviews. All interviews were audio taped using a digital recorder. The researcher used demographic question as introductory part to establish rapport with women and to get a glimpse of their background. The researcher asked questions and followed up the womens’ answers. The researcher made up follow up questions from the womens’ clues during interviews. Researcher encouraged women to express freely and to describe their experiences in response to the questions without restrictions. Probes such as “hmmm, yes, what else, anything else” were used to encourage participants. Non verbal encouragement techniques used included: maintaining eye contact, therapeutic touch to women when they cried, offering water, giving time to resume and silence that allowed women to recollect their thoughts and experiences. Research data took shape as the data collection was in progress. Duration of interview and number of questions varied among women and interview interviews lasted from 45 min to 70 minutes. Interviews were conducted from February 2014 to August 2014. All interviews were conducted in IVF clinic only.

Many of the women cried at certain points of interview while recalling some of the intense and emotional moments of their journey. Their reactions felt appropriate to sensitive nature of the topic. Majority of women thanked researcher for patiently listening to them and to help them to ventilate their feelings. Researcher exchanged
her phone number with all women with a view to give them opportunity to discuss their emotions and feeling or to ask any queries and concerns in future. Researcher ended the interview by asking women if they had any question/doubts that they would like to clear and thanked them for sharing their feelings and time spent with researcher.

A contact summary was made at the end of each interview to summarize the main points.

**ASSESSING RESEARCH VALIDITY**

Validation in qualitative research is an attempt to access the accuracy of the findings, as best described by the researcher and the participants. In qualitative research, validity is defined as the extent to which the data is credible, trustworthy, authentic and dependable. Lincoln and Guba (1989) substitute the concept of “authenticity” for validity. Specific measures were taken in present study to increase validity or authenticity.

Creswell (2007) recommends eight validation strategies that qualitative researchers should employ to document the accuracy of their studies. Application of minimum of two strategies are recommended for any qualitative study. These validation strategies include:

1) Prolonged engagement and persistent observations in the field.
2) Use of multiple and different sources, methods, investigations and theories to confirm evidence.
3) Peer review or debriefing.
4) Refining working hypotheses as the inquiry advances.
5) Clarifying researcher bias from the outset of study.
6) Member checking.
7) Utilizing rich, thick descriptions to allow readers to make decisions regarding transferability.
8) An external audit.
To ensure validity of data, researcher used rich, thick descriptions to explain in detail the experiences of women. Detailed description by researcher allowed readers to transfer information to other settings and to determine whether the findings could be transferred because of shared characteristics.

The characteristics of participants in the study sample with maximum variance assured intensified validity and transferability of the findings.

Expert panel views were incorporated as research progress reports were presented before departmental research committee.

Researcher professional experience in Obstetrics and Gynecology area ensured prolonged engagement with childless women. Interaction with these women in field helped researcher to understand and grasp the underlying meaning of expression and experiences.

As a part of audit units, subthemes and themes were discussed and analyzed by two colleagues. Each of them independently reviewed interviews. As a group, themes were studied and examined, challenged among each other and made adjustment. As coding progressed, data was checked and rechecked and findings were reorganized. Apart from this, a record of all transcription and field notes were maintained for external audit. Finally, a cross checking of the whole analysis process was done by the research supervisor.

A final measure for ensuring validity was based on suggestion by Maxwell (2005)\textsuperscript{130} that validity is a goal rather than a product, it is never something that can be proven or taken for granted and is assessed in relation to the purposes and circumstances of the research. Therefore, researcher copiously read each transcript to uncover consistencies that suggested the womens’ experiences were in fact valid.

Triangulation of data was done by using in depth interview, verbatim and field notes to ensure dependability.

Member check method was not used in this study as infertility is a sensitive issue and women did not desired to revisit that painful journey. Hence, the transcriptions were not given for validation to the women.
RELIABILITY

Reliability is the degree to which the results are an accurate representation of the participants under study. In other words, if the study is repeated, what is the likelihood of obtaining the same data and the results? Reliability in the research design is based on the assumption that there is a single reality and that studying it repeatedly will yield the same results.

Concept of reliability was firstly conceptualized in qualitative studies as dependability or consistency. Clearly attaining this level of clarity and reliability is difficult within qualitative approaches. However Ratcliff (1995) reports that reliability within qualitative research can be strengthened by multiple listening of audio recordings to ensure accuracy of transcription and to develop closer relationship with data.

Hence, in order to ensure reliability, the researcher utilized field notes throughout the data collection process to capture accounts and records what was observed during the interviews and interviews were listened multiple times.

PLAN FOR DATA ANALYSIS

Due to the nature of the study, data analysis was concurrent with data collection. The interviews were transcribed into text by the researcher shortly after it was conducted. Researcher read the verbatim manuscript multiple times to understand the interview fully and to analyze the content embedded within each interview. Phrases and statements that stood out as significant to the overall experience were highlighted in the transcripts. The confirmed transcripts were translated by researcher in English and were confirmed by another bilingual expert.

To answer each research question, data was analyzed using Heideggerian Hermeneutic philosophy. Researcher employed Diekelmann and colleagues (1989) seven stage process of data analysis in hermeneutics that includes identifying categories, rationalizing themes and consecutive patterns depicting shared practices and common meaning from the texts. These seven stages are:

1. All the interviews/ verbatim are read for an overall understanding by researcher and team members.
2. Interpretive summaries of each interview are written independently by each team
3. Researcher and team members analyzed transcribed interviews by comparing the individual interpretation for similarities and differences.

4. Any disagreements on interpretation were resolved by going back to the text.

5. Common units were identified by comparing and contrasting the text and identification of subthemes.

6. Relationship among subthemes merged.

7. A draft of the themes with exemplars from texts is presented to the team. Responses or suggestions were incorporated.

The analysis took place after each interview was completed and transcribed. First, each interview was read for overall understanding by researcher and two independent researchers. The second step involved identifying units and beginning interpretation. The analysis process required ongoing reading and re-reading of the transcripts for comparing and contracting interpretation that leads to subthemes, relational themes and eventually meta-themes. Themes were discussed and a consensus was derived through intensive brainstorming. The emerging themes were supported by verbatim from the transcripts.

**SUMMARY**

This chapter dealt with the research methodology adopted for the study and includes description of the research approach, design, setting, sample, sampling technique, data collection tool and plan for data analysis. Qualitative research approach with phenomenological research design was used to achieve objectives.

The next chapter would deal with the analysis and interpretation of results.