CHAPTER VI

SUMMARY AND CONCLUSIONS

Infertility is not an absolute condition. The ability to conceive varies with each cycle, environmental circumstances and treatment options. Women may find themselves increasingly despairing at the thought of never becoming pregnant. Social events loom as infertile women begin to dread social occasions. They may also get isolated from family members and work colleagues.

Thus the understanding of bio-psycho-social aspects of infertile women and their treatments seeking behavior can help nurses to design successful interventions to reduce stress, promote healthy adaptation and prevent them moving towards avoidance and denial.

6.1. Statement of the Problem

An explorative study to determine the “Bio-psycho-social dimensions and health behaviour in infertile women” at Apollo Hospitals, Chennai.

6.2. Objectives of the Study

1. To identify the demographic variables of infertile women such as age, educational status, religion, occupation, type of family, type of marriage and years of Infertility.
2. To determine the biological variables of infertile women such as menstrual cycle pattern, sexual pattern, ovulation, semen characteristics of husband, causes, investigations, and treatment for female infertility.
3. To assess the psychological variables of quality of life, self-concept, level of anxiety, depression, and stress in infertile women.
4. To assess the social variables in terms of the marital adjustment between the husband and wife and the family support of infertile women.
5. To identify the health behaviour of infertile women through their attitude towards treatment options and treatment seeking behaviour – sequential tracking, back tracking, paralleling, taking a break and withdrawal.
6. To determine the association between demographic variables and psycho-social and health behavioural variables of infertile women.

7. To determine the association between biological variables and psycho-social and health behavioural variables of infertile women.

8. To determine the inter correlation between the psycho-social variables and health behavioural variables of infertile women.

9. To predict the variance between psycho-social and health behavioural variables upon the self-concept in infertile women.

10. To predict the variance of demographic, biological, psycho-social and health behavioural variables upon the self-concept in infertile women.

6.3. Methodology

6.3.1 Study locale

Apollo Hospitals which is located in Chennai has a well established Reproductive Medicine Department with all the facilities to treat infertile women. The infertile women from all parts of Chennai and from neighboring States visit the department for treatment.

6.3.2. Sample

Approximately 800 – 850 infertile women are treated at Apollo Hospitals every year. Among them 200 infertile women who were willing to participate in the study was selected using purposive sampling technique.

6.3.3. Variables

In the present study 11 major variables were included which were grouped as demographic variables, biological variables, psycho-social variables, and health behavioural variables were included. The demographic variables were age, educational status, religion, occupation, type of family, type of marriage and years of infertility. The biological variables were menstrual cycle, sexual patterns, ovulation, causes of infertility, investigations, treatment taken by the infertile women and semen characteristics of their husbands.
The quality of life, self-concept, anxiety, depression and stress were the psychological variables included in the study. The social variables of the study were marital adjustment and family support. The health behaviour of infertile women were assessed through two variables i.e., attitude towards treatment options and their treatment seeking behaviour.

6.3.4. Research tools

The following research tools were used in collecting the data.

1. Demographic Variable Proforma developed by the investigator to study the profile of infertile women.
2. Biological Variable Proforma developed by the investigator to study the physical aspects of infertile women.
4. Semantic Differential Scale on Self-concept by Avilo (1971) was used to assess the self-concept in infertile women.
5. Anxiety Scale (Ellen et al 2003) to study the level of anxiety in infertile women.
6. Depression Status Inventory by Zung 1974, to measure the depression in infertile women.
7. The Stress Reactions to Infertility Inventory (Newton 2000) for assessing the stress levels.
8. Marital Adjustment Scale (Spanier 1976) was used to determine the degree of marital adjustment.
9. Family Support Scale was developed by the investigator to assess the level of family support available for infertile women.
10. Attitude Scale of Infertile Women towards Treatment Options was developed by the researcher.
11. Questionnaire on Treatment Seeking Behaviour of Infertile Women was also developed by the researcher to collect data on treatment seeking behaviour of infertile women.
6.3.5. Data collection

The investigator obtained the formal administrative permission to conduct the study at Apollo Hospitals, Chennai. In order to get an open and honest response from the infertile women, they were explained about the purpose and usefulness of the study. The study participants were assured of maintaining anonymity. An informed consent was obtained from the infertile women who were willing to participate in the study, indicating their voluntary participation.

The investigator collected data from 200 infertile women who were attending the outpatient department, at the selected hospital using purposive sampling technique, until the specified samples were obtained. Most of the patients were interviewed in a room in OPD. Data were collected through the self administered scales and questionnaires. Those having difficulty in reading were helped by the interviewer by reading the questions.

6.3.6. Statistical techniques used in the study

The following statistical techniques were used to analyse the data collected.

1. Frequency and Percentage distribution was used to describe the demographic and biological variables of infertile women.
2. Mean and Standard deviation was computed to determine the psycho-social and health behavioural variables of infertile women.
3. Chi-Square analysis was employed to find out the association between the demographic variables and the psycho-social and health behavioural variables of infertile women.
4. Correlation Coefficient was computed to assess the relationship between the psycho-social and health behavioural variables of infertile women.
5. Step wise Multiple Regression analysis was carried out to know the relative contribution of independent variables on the dependent variables.
6.4. Major Findings of the study

6.4.1. Demographic variables of infertile women

- Only 6.5 per cent of infertile women were above 41 years and the educational status of infertile women was almost equally distributed at high school (27%), higher secondary (35%) and graduate (34%) levels.
- A majority of the infertile women were Hindu (86%), housewives (83%) living in nuclear families (75%), married non-consanguinely (98%) and 58% of them were suffering from infertility for 2-4 years.

6.4.2. Biological variables of infertile women

- Seventy one per cent of the infertile women had regular menstrual cycles but only 50 per cent had adequate sexual patterns.
- The cycles were anovulatory in 82 per cent of them. The causes of infertility in the present study were observed to be 42 per cent of ovulation problems, 18 per cent of tubal problems and 12 per cent of uterine problems and 19 per cent of any other problems.
- In the present study majority of the infertile women have undergone hormonal and follicular studies (47%). A significant number of infertile women had undergone combined investigations like Hormonal studies, follicular studies & laparoscopy (14%), follicular studies & laparoscopy (9%). The data in above table reveals that they have also undergone many combinations of investigations as required by the medical team to identify the cause of infertility.
- The semen analysis reports revealed 57% of the husbands had normal semen characteristics.

6.4.3. Psychological variables of infertile women

- The mean quality of life scores of infertile women was 13.79 and with the standard deviation of 3.76. And only 14 per cent of them had low quality of life and the remaining 44 per cent had moderate quality of life and 44 per cent of them had high quality of life.
The mean self-concept scores of infertile women were 47.83 with the standard deviation of 13.72. 52 per cent of them had moderate level of self-concept while 27 per cent of them had low self-concept and 21 per cent had high level of self-concept.

The anxiety scores of infertile women ranged from 2 – 7 with the mean of 4.89 and standard deviation was 1.07. Sixty one per cent of them were anxious to conceive whereas 39 per cent of them were found to be normal.

The depression scores of infertile women ranged from 29 – 66 with the mean of 49.10 and standard deviation of 9.03. While 55 per cent of infertile women were normal, 16 per cent of them had moderate level of depression and 29 per cent had mild depression.

The infertile women had a mean stress score of 230.30 with the standard deviation of 24.33. 24 per cent of them experienced high level of stress at the same time 40 per cent of them had only low level of stress.

6.4.4. Social variables of infertile women

- The mean marital adjustment score in infertile women was 93.8 with a standard deviation of 12.00. The marital distress was present in 64 per cent of infertile women and only 36 per cent of them had marital adjustment.
- The mean score of family support to infertile women was 45.35 with a standard deviation of 9.81. Most of the infertile women had moderate (48%) to high level (44%) of family support.

6.4.5. Heath behavioural variables of infertile women

- The infertile women had a mean score of 66.01 with a standard deviation of 7.63 in their attitude towards treatment options. None of them had low positive attitude and 76 per cent of them had moderately positive attitude towards treatment options.
- The treatment seeking behaviour had a mean score of 22.22 with a standard deviation of 9.06. The regular treatment seeking behaviour was found among 46 per cent of infertile women and 29 per cent of them had highly irregular treatment seeking behaviour.
6.4.6. Association between demographic variables and the psycho-social and health behavioural variables.

- There was a significant association between quality of life and the demographic variables of age, education, type of family and years of infertility at a statistically significant level of P < .001 level.
- The self-concept was found to have significant association with age, type of family and years of infertility (P < .001).
- The anxiety in infertile women was found to have significant association with age and type of family (P < .001).
- The psychological variable of depression was found to have significant association with age and type of family (P < .001).
- There was a significant association between stress and the demographic variables of age, education, type of family and years of infertility at a statistically significant level of P < .001 level.
- The marital adjustment and the demographic variables of age, religion, type of family and years of infertility were found to be associated at a statistically significant level of P < .001 level.
- The association between family support and the demographic variables of age, type of family, type of marriage and years of infertility were statistically significant at the level of P < .001 level.
- There was a significant association between attitude towards treatment options and the demographic variables of age and years of infertility at a statistically significant level of P < .001 level.
- The treatment seeking behaviour and the demographic variables of age, education, type of family, type of marriage and years of infertility were found to be significantly associated at the level of P < .001 level.
6.4.7 Association between demographic variables and the psycho-social and health behavioural variables.

- There was a significant association between Quality of Life and the sexual patterns ($\chi^2=64.658$, $P<0.0001$), causes of Infertility ($\chi^2=29.624$, $P<0.05$), investigations ($\chi^2=30.949$, $P<0.05$), treatment ($\chi^2=28.783$, $P<0.05$) and semen characteristics ($\chi^2=18.379$, $P<0.05$).

- The data presented in Table.20 reveals that there was a significant association between self-concept and the sexual pattern ($\chi^2=60.806$, $P<0.0001$), causes of Infertility ($\chi^2=29.689$, $P<0.05$), investigations ($\chi^2=57.684$, $P<0.0001$), treatment ($\chi^2=29.088$, $P<0.05$) and semen characteristics ($\chi^2=29.599$, $P<0.0001$).

- A significant association between anxiety and the menstrual cycle ($\chi^2=18.274$, $P<0.0001$), sexual pattern ($\chi^2=18.916$, $P<0.0001$), and semen characteristics ($\chi^2=26.442$, $P<0.0001$) was found.

- There was a significant association between depression and the menstrual cycle ($\chi^2=13.214$, $P<0.0001$), sexual pattern ($\chi^2=30.233$, $P<0.0001$), investigations ($\chi^2=39.185***$, $P<0.0001$), treatment ($\chi^2=46.425$, $P<0.0001$) and semen characteristics ($\chi^2=26.461$, $P<0.01$).

- The Data presented in table 23 reveals that there was a significant association between stress and the menstrual cycle ($\chi^2=9.050$, $P<0.05$), sexual patterns ($\chi^2=93.233$, $P<0.0001$), ovulation ($\chi^2=10.355$, $P<0.0001$), causes ($\chi^2=44.796$, $P<0.01$), investigations ($\chi^2=68.298$, $P<0.0001$), treatment ($\chi^2=61.861$, $P<0.0001$) and semen characteristics ($\chi^2=48.954$, $P<0.0001$).

6.4.8 Correlation between psycho-social and health behavioural variables.

- The quality of life had significantly positive relationship with self-concept ($r = 0.926$) marital adjustment ($r = 0.694$) and family support ($r = 0.617$) at $P < 0.001$ level. The negative relationship was observed between quality of life and depression ($r = 0.616$) anxiety ($r = -0.548$) stress ($r = -0.692$) attitude towards treatment options ($r = -0.369$) and treatment seeking behaviour ($r = -0.442$) was statistically significant at $P < 0.01$ level.
The self-concept had significantly positive relationship with (r = 0.926) marital adjustment (r = 0.713) and family support (r = 0.680) at P < 0.001 level. The negative relationship was observed between self-concept and depression (r = -0.616) anxiety (r = -0.554) stress (r = -0.729) attitude towards treatment options (r = -0.350) and treatment seeking behaviour (r= -0.479) which was statistically significant at P < 0.01 level.

The anxiety had significantly positive relationship with depression (r = .931) stress (r = 0.469) attitude towards treatment options (r = 0.338) and treatment seeking behaviour (r = 0.353) at P < 0.001 level. The negative relationship was observed between anxiety and marital adjustment (r = -0.479) and family support (r = -0.537) which was statistically significant at P < 0.01 level.

The depression had significantly positive relationship with stress (r = 0.533) attitude towards treatment options (r = 0.390) and treatment seeking behaviour (r = 0.428) at p< 0.001 level. The negative relationship was observed between depression and marital adjustment (r = -0.551) and family support (r = -0.583) which was statistically significant at P < 0.01 level.

The stress had significantly positive relationship with attitude towards treatment options (r = 0.338) and treatment seeking behaviour (r = 0.410) at P < 0.001 level. The negative relationship was observed between stress and marital adjustment (r = -0.558) and family support (r = -0.559) which was statistically significant at P < 0.01 level.

The marital adjustment had significantly positive relationship with family support (r = 0.465) at P < 0.001 level. The negative relationship was observed between marital adjustment and attitude towards treatment options (r = -0.422) and treatment seeking behaviour (r = -0.333) which was statistically significant at P < 0.01 level.

The family support had negative relationship with attitude towards treatment options (r = -0.309) and treatment seeking behaviour (r = -0.495) which was statistically significant at P < 0.01 level.
The attitude towards treatment options had positive relationship with treatment seeking behaviour ($r=0.345$) which was statistically significant at $P < 0.01$ level.

6.4.9 Prediction of psycho-social and health behavioural variables by demographic, biological variables.

- The demographic variables combined together predicted significantly all the psycho-social and the health behavioural variables causing variations in quality of Life ($R^2 = 0.451$, $P<.0001$), self-concept ($R^2 = 0.468$, $P<.0001$), anxiety ($R^2 = 0.339$, $P<.0001$), depression ($R^2 = 0.391$, $P<.0001$), stress ($R^2 = 0.459$, $P<.0001$), marital adjustment ($R^2 = 0.404$, $P<.0001$), family support ($R^2 = 0.259$, $P<.0001$), attitude towards treatment options ($R^2 = 0.204$, $P<.0001$) and treatment seeking behaviour $\ (R^2 = 0.538, P<.0001)$.

- The biological variables combined together predicted significantly all the psycho-social and the health behavioural variables causing variations in quality of Life ($R^2 = 0.306$, $P<.0001$), self-concept ($R^2 = 0.394$, $P<.0001$), anxiety ($R^2 = 0.319$, $P<.0001$), depression ($R^2 = 0.353$, $P<.0001$), stress ($R^2 = 0.375$, $P<.0001$), marital adjustment ($R^2 = 0.294$, $P<.0001$), family support ($R^2 = 0.293$, $P<.0001$), attitude towards treatment options ($R^2 = 0.350$, $P<.0001$), treatment seeking behaviour $\ (R^2 = 0.168, P<.0001)$.

- The path analysis between the psycho-social and health behavioural variables identified that the quality of life variable has significantly predicted only the self-concept variable ($\beta=0.873, P < 0.0001$).

- Whereas the self-concept variable significantly predicted martial adjustment ($\beta=0.111, P < 0.002$), Family support ($\beta=0.127, P<.0001$), and Treatment Seeking behaviour ($\beta=0.688, P < 0.0001$).

- The anxiety variable significantly predicted depression ($\beta=0.973, P<0.0001$). The depression variable did not predict any of the other psycho-social or health behavioural variables though it has caused over all significant variation ($R^2 = 0.892, F=198.125$).
The marital Adjustment predicted significantly the attitude towards treatment options (β-.172, P <.002). The family support variable predicted significantly the Treatment seeking behaviour (β-.171, P <.004). The attitude towards treatment seeking behaviour predicted significantly the treatment seeking behaviour (β.192, P <.011).

6.4.10 Prediction of self-concept by demographic, biological, psycho-social and health behavioural variables

- The self-concept was significantly predicted by the demographic variables of age (β -.066, P < .0001), and years of infertility (β -.229, p< .0001)

- The biological variables of sexual patterns (β -.543, p< .0001), ovulation (β -.117, P < .05) and causes of infertility (β -.208, p< .0001) also significantly predicted the self-concept of infertile women.

- The psycho-social variables of quality of life (β .688, p< .0001), stress (β -.096, P < .007), marital adjustment (β .111, p< .002) and family support (β .127, P < .0001) has significantly predicted the self-concept in infertile women.

- The health behavioural variables of attitude towards treatment options and the treatment seeking behaviour have not significantly predicted the self-concept in infertile women.

6.5. Implications of the Study

6.5.1. Nursing practice

The bio- psycho-social and behavioural dimensions of infertility are very complex in nature and required to be explored in all the aspects of the phenomena as well as the factors influencing it. The present study was helpful in identifying the bio psycho-social aspects of infertile women which will help to design strategies to help the infertile women face the crisis with confidence and courage. The study findings have opened several implications for nursing practice in the reproductive health arena.
The infertile women need to be motivated to seek treatment at the early age, as the fertility potential declines with advancement of age. The women living in nuclear families can be explained the need to have supportive people at home in helping them to avoid strenuous domestic work during the luteal phase of implantation of the conceptus. The nurses will be able to render culturally sensitive care if they develop an understanding about how infertility is viewed in the context of various religions and cultural groups.

The infertile women should be explained about the phases of menstrual cycle, signs of ovulation and how to plan their sexual intercourse during the period of ovulation. The awareness also need to be created regarding importance of maintaining body mass index within normal limits and the association between thin or obese body mass index and anovulation should be explained to them. As most of the women undergo various investigations and treatment procedures, proper explanations, pre requisites, preparations required, cost involved and the outcomes has to be adequately informed to infertile women by the nurses and chances must be given to clarify their doubts.

Infertility causes women to face personal and psycho-social problems. A systematic and continuous assessment of infertile women for stress and general Well-Being will help the nurses to prepare and plan specific interventions to meet their needs and help the infertile women to achieve their goal of becoming fertile. The counselling done by doctors often focus upon treatment options. But nursing personnel can play a vital and major role, as they get more opportunities to provide counselling and emotional support by listening to their psycho-social problems and helping them to identify positive coping solutions.

The stress reduction strategies must be more directed towards elderly infertile women, who are suffering from long duration of infertility, suffering from irregular menstrual cycles and undergoing extensive investigations and high tech treatment procedures, as the present study identified a higher level of stress in such type of infertile women. The infertile women often get depressed and lose their hope due to repeated investigations, treatment procedures and failure outcomes. They may exhibit irregularities in treatment seeking behaviour, but the nurses in the
reproductive health unit can encourage and guide them to explore and utilize all the options through compliance.

The psychological interventions can help them to throw away the negative emotions and replace it with positive emotions and can also promote their relationship with others instead of keeping themselves isolated from social occasions. The family counselling can be conducted in which even the husbands and other significant family members can be taught to learn and use stress reduction strategies and promote positive mental health.

6.5.2. Independent practice

The nurses can get educated to implement various stress reduction strategies for patients including positive therapy and can implement it to the patients independently. They can also conduct short term courses to other nurses and health care team members and train them to develop expertise in promoting the mental health of infertile women.

6.5.3. Nursing theories

The conceptual and theoretical models exclusively for the use of reproductive health nursing practice is yet to be developed by the nursing theorists. The path analysis used to identify the determinants of psycho-social dimensions of infertile women is presented in the present study in the form of a conceptual model which can be used to educate and guide the nurses in caring for infertile women.

6.5.4. Nursing education

The current curriculum in nursing education places much emphasis on obstetrical care of patients. The curriculum content needs to be revised where importance is also given to care of infertile women and the advanced reproductive technologies, recognizing the increase in the incidence of infertility. As the infertile women face much of the psycho-social problems and they are very sensitive, the students must be taught to show a compassionate and empathetic attitude while caring for infertile women. The counselling skills education and stress reduction
strategies is also required to be incorporated in the curriculum to enable the students to implement it effectively for their patients in distress.

6.5.5. Nursing administration

Though the nursing personnel are prepared to care for infertile women but not much exposure or experience is provided on latest reproductive technologies such as IVF and to care for the patients utilizing these services. Therefore the nurse administrators have an important responsibility in organizing continuing nursing education programmes and short term courses to prepare the staff nurses get specialized in caring for infertile women.

In most of the infertile clinics there is no separate physical infra structure is available to offer counselling for infertile couples. To implement stress reduction strategies like positive therapy an absolutely calm environment, free from noises and any other type of disturbances is needed to avoid interruptions in between the therapy process. Nurse administrators can ensure that such types of separate facilities are made available in the infertility units to implement stress reduction therapies with ensured privacy and free from intrusions.

6.5.6. Nursing research

Nursing research with regard to care of infertile women is not yet well developed. Further research in the area of bio-psycho-social dimension of infertile women are required to identify specific interventions that would be useful in helping the infertile couples to achieve their ultimate goal of becoming a parent. The interventions which would increase marital adjustment, family support and decrease stress of infertile women are to be developed, tested through research and recommended for practice.

The stress reduction strategies can be implemented to the couples together and their families and its effectiveness in reducing the stress levels in infertile women can be researched. The impact of psychological interventions upon the hormonal levels and follicular growth, and improving pregnancy rates can be studied.
6.6. Recommendations

- The same study can be done on a larger population for a more valid generalization.
- The study can be replicated in different settings.
- The impact of psychological interventions upon fertility in women in terms of hormonal levels, follicular growth and conception rates can be studied.
- The psychological interventions can be implemented for male infertility and its effect can be studied.
- A comparative study can be conducted to evaluate the effectiveness of different strategies available to reduce stress, anxiety and depression in infertile women.
- The knowledge, attitude and practice of reproductive health nurses in psychological interventions for infertile women can be studied.