CHAPTER V
DISCUSSION
This Chapter is devoted to the discussion on the basis of findings presented in the Chapter III. In Chapter III, the demographic profiles of the three cultural groups are discussed elaborately. In Chapter-IV, the findings are discussed in terms of the objectives we have already set. The present study is concerned with mainly two elements related to the Polycystic ovary syndrome (PCOS) – namely biological and cultural correlates of PCOS.

In the present study it is found that fertility of women are influenced by a large number of biosocial factors like maternal age, education, religion, economic conditions and so on which corroborates with study of Khongsdier, 2005; Kost and Amin, 1992; Bicego, 1993; Freeny and Feng, 1993; Kapoor and Kshatrya, 2000; Wardatul, 2002; Omariba, 2006; Regassa, 2007; Andoh et. al., 2007. Women of urban areas prefer sedentary lifestyle. A sedentary lifestyle plays a significant role in obesity (Seidell et. al., 2005). Worldwide there has been a large shift towards less physically demanding work, (WHO, 2008; WHO, 2009; and Ness-Abramof et. al., 2006) and currently at least 30% of the world's population gets insufficient exercise (WHO, 2009). This is primarily due to increasing use of mechanized transportation and a greater prevalence of labor-saving technology in the home (WHO, 2008; WHO, 2009; and Ness-Abramof et. al., 2006). In children, there appear to be declines in levels of physical activity due to less walking and physical education (Salmon et. al., 2007). Other than that as no such data is available on the correlation of demographic profile of population of Assam with Polycystic Ovarian Syndrome, so far to compare. So the demographic profile of three studied population is compared with each other. It reveals from the present study that as women age, fertility declines due to normal, age-related changes that occur in the ovaries.

In today's society, age-related infertility is becoming more common mainly because many women wait until their 30s to begin their families. A gradual decline in fertility begins around age 32 and continues to decrease rapidly after age 37 because of the reduction in the number and quality of eggs in the ovaries. The lower number of eggs leads to changes in hormone levels, which further reduces a woman's fertility. A woman's best reproductive years are in her 20s. Fertility gradually declines in the 30s, particularly after age 35. Each month that she tries, a healthy, fertile 30-year-old woman has a 20% chance of getting pregnant. That means that for every 100 fertile 30-year-old women trying to get..
pregnant in 1 cycle, 20 will be successful and the other 80 will have to try again. By age 40, a woman’s chance is less than 5% per cycle, so fewer than 5 out of every 100 women are expected to be successful each month (American Society for Reproductive Medicine 2012: 4).

The present study concerns women of age between 20 and 45 although the lower and upper age limits have not been stated. Majority of the respondents belonging to both experimental and controlled group is of the age group 25-30 years followed by the next higher age group. The age groups are taken in conformity with the most productive period of a woman. Fertility of a normal woman at its peak at the age group of 20-25 years. Thereafter, it gradually fades away as stated above. Study reveals that there is a sharp decline in a woman’s ability to achieve pregnancy over age forty. Estimates from embryo biopsy reveal that at least 90% of a woman’s eggs are genetically abnormal when a woman is over 40. This explains the increased pregnancy risk over 40 (Murphy et al., 2011). The miscarriage rate is 33% at age 40. Genetically abnormal pregnancies are more common at this age. Similarly, Pregnancy over 45 is a very difficult proposition. Women over 45 have less than a 1% chance of getting pregnant using their own eggs. This is because virtually all of their remaining eggs are genetically abnormal. Successful pregnancy over 45 is therefore nearly always the result of egg donation. As such, in this study upper age group is terminated at age 45. Socio-economic and cultural factors play an important role in influencing the fertility of a population. Various socio-economic and cultural factors that affect fertility are marriage system, age at marriage, remarriage, education, occupation, income, family structure, value of children, rural-urban differences, religion (Ramu, 1988). Women’s economic condition has been suggested to have a significant effect on reproductive health (Midhet et al., 1998). Female education is believed to have a great influence on the fertility and maternal health as it enhances the knowledge and skills of the mother concerning age at marriage, contraception, nutrition, prevention and treatment, of diseases (Mosley and Chen, 1984). Kannan and Nagarajan (2008) have observed that higher employment, higher income and nuclear family system could bring the reduction of the fertility rate in the Kanyakumari district women. A study on the determinants of fertility in Norway conducted by Naz (2000) shows that female’s education is a significant
determinant of fertility. Akpotu (2008), who study education as correlates of fertility rate among the families in Southern Nigeria observed that education and fertility rate are inversely related, both in urban and rural societies. However, education was found to be more inversely related to fertility among women and urban dwellers. The study revealed that education has a major impact on fertility and even after controlling for other relevant factors, the education of women stands out as a significant factor in determining fertility. It shows that education has been found to increase women's level of autonomy in decision making, in acquiring knowledge, in gaining access to economic resources, and in interacting with a wider social circle. It is through this autonomy that education exerts an impact on fertility. Several studies confirmed the strong negative relationship between parent's education and their fertility behavior (Nouri, 1983; Graff, 1979; UNICEF, 1991; Lesthaeghe and Willems, 1999).

The rate of fertility decreases with increase in the mean age at marriage, which corroborates with the studies of Bharati and Dastidar, 1990; Das and Dey, 1998; Varma et. al., 1999; Khongsdier, 2005; Sahu, 2006; IIPS, 2007. Yadav and Badari (1997) analyzed the age at effective marriage can still play an important role in the reduction of fertility of some states in India such as Uttar Pradesh, Bihar and Rajasthan. Many studies found strong negative correlation between age at marriage and fertility (Luker, 1975; Osterud and Fulton, 1976). Noord-Zaadstra et al., (1991) concluded that increasing age was associated with a reduced conception rate. Khongsdier (2005) has shown that the mean number of live births per mother decreases with the rise in age at marriage of the mother. Some studies also shows that age at marriage is associated with socio-economic conditions thereby it is difficult to assess its direct impact on fertility (Gulati, 1988). Among the respondents belonging to experimental and controlled groups, maximum got married between the ages 20 to 30 years. However, the maximum numbers of husbands of the respondents got married between 25-35 years. This again reflects the traditional pattern of families of the respondents were slightly elder persons are chosen as husbands.

In the present study the mean age at marriage of experimental groups of both Assamese and Bengali are in not much of difference. In case of Assamese, it is 25.55 and that of Bengali it is 25.95. But this difference is significant between Assamese (25.55) and
Rajasthani (23.94) and Bengali (25.95) and Rajasthani (23.95) groups. Similar trend can be observed in case of age at marriage of husbands of Rajasthani group and the husbands of other two groups with reference to experimental groups. The difference in these cases is however much larger than the respondents. The mean age at marriage of husbands of Assamese and Bengali experimental groups are 29.67 and 30.09 respectively while for that of Rajasthani experimental group it is 27.35. Early marriage is still prevalent among the Rajasthanis.

In order to test if there is any significant difference in mean age at marriage between the experimental and controlled groups of the samples, chi square test was conducted. This implies that there is scope to believe that mean age at marriage between PCOS women and that of the non-PCOS women are different in respect of Assamese and Bengali community. The age at marriage situation is different in case of Rajasthani women. The findings show no significant difference in mean age at marriage between Rajasthani experimental group and Rajasthani controlled group. In other words physical constraints may not play any significant role in case of PCOS women in Rajasthani group.

The active married life of a couple is the indicator of length of sexually active married life. The findings relating to active married life suggest that length of active married life is shorter in case of controlled group than the experimental group except that of the Rajasthani group. Although in both the cases i.e. experimental and controlled groups - most of the respondents fall in the category of 1-5 years of active married life (Assamese experimental group: 62.79%; Assamese controlled group: 84.21%; Bengali experimental group: 76.04%; Bengali controlled group: 88.65%; and Rajasthani experimental group: 69.23%; Rajasthani controlled group: 68.93%) yet, the percentages are higher in case of controlled group and the differences between them are significant especially in respect of Assamese and Bengali community. The behavior of the Rajasthani group on this count however is different as the active married life is almost similar in case of both experimental and controlled group - rather the controlled group shows the opposite trend as more respondents in the 5-10 years category has been recorded than the in the experimental group.
In the present study it is found that more than 80 per cent of the Bengali and Assamese (both experimental and controlled group) are non-vegetarian. But none of the Rajasthani respondents is non-vegetarian. All the Rajasthani women (both experimental and controlled group) in the studied sample are purely vegetarian. However, only 2.33 per cent and 11.84 per cent of the Assamese (both experimental and controlled group) and 2.9 and 10.63 percent of the Bengali (both experimental and controlled group) are found to be vegetarian. The lifestyle, food habit, economic status plays a vital role in one’s life (both physically and mentally) (Baviskar, 2012). Baruah (2006) found that there is a correlation between polycystic ovarian syndrome with body weight and food habits of Bengali and Assamese women of Assam.

**Biological characteristics and common symptoms of PCOS**

According to the objective, in this study, the biological profiles of the respondents have been examined in terms of anthropometric parameters and purely biological factors and an attempt has also been made to substantiate the common symptoms of PCOS using the data. The findings show that except height, all other variables show a definite and distinguished trend separately for experimental and controlled groups. The trend shows that variable values are more in case of experimental group than the controlled groups. And also can conclude anthropometric parameters like weight, Abdominal skinfold, Suprailiac skinfold, waist hip ratio and body mass index plays a significant role on the PCOS women. Higher the value of these parameters in a woman, higher is the chances that the woman is having PCOS.

In our present study it reveals that the reproductive performance of the three experimental groups is very poor in comparison to the controlled group. The study showed that maximum numbers of PCOS women of all three communities fall in the category of overweight; while in case of non PCOS women, maximum numbers fall in the category of normal weight. Among the women having PCOS, a considerable proportion of them are also obese while there were no obese women in any of the controlled groups. While conducting significance test in respect of anthropometric parameters, we found that BMI differs significantly between experimental and controlled group. The reproductive performance decrease with increase in body mass index. Most of the infertile are found to
overweight and obese. This result corroborates with the study of Sudha et al., (2009). Elsenbruch et al., (2003) found that in their comparison of 50 PCOS women with 50 age-matched healthy controls the PCOS sample had a significantly higher unfulfilled wish to conceive than the control sample (P < 0.001). However, this may be because 30% of the PCOS participants in the study were referred from their Gynecologist due to ‘infertility’ problems, thus introducing the possibility of selection bias. This finding was supported in a study by Hahn et al., (2005) who found that the number of control patients with one or more children was significantly higher than in the PCOS group, and the number of PCOS patients wishing to conceive was significantly higher than that of the control group. Schmid et al., (2004) found that concluded that all women in this sample survey were unable to conceive for the same reason, i.e, PCOS.

Present study also shows that the dominance of “O” blood group among the respondents of both experimental and controlled groups. But the findings show that experimental groups have higher percentages of respondents having “O” blood group than the controlled group except in case of Rajasthani women – in which case percentages are equal (66.67%). The blood group that occupies the next position is “B” which is followed by “A” blood group. The samples present very few women having “AB” blood group. In Rajasthani experimental group, no women have been recorded as having “AB” blood group. Thus as a whole, no definite trend can be observed from which it can be concluded that any definite type of blood group has any role in the PCOS.

The hormonal concentration of the PCOS women show that mean FSH and mean LH hormones are less than the normal range in case of all three communities and therefore it leads to a conclusion that there could be a decrease in the ovarian reserve. On the other hand the decreased level of LH also indicative of the fact that there is a possibility of anovulation, which results in infertility. This also shows an elevated mean prolactin value which led to the fall in follicle-stimulating hormone (FSH) and luteinizing hormone causing infertility.

In order to establish this objective, data pertaining to infertility, nature of menstrual cycle, overweight and obesity, Dysmenorrhea, Hypothyroidism and Hirsutism was collected during the survey.
On analysis of the data, it is observed that majority of the respondents belonging to the three cultural categories present irregular menstrual cycle which is more prominent among the Bengalis (78.44%) followed by Rajasthanis (70.94%). In case of Assamese, although this symptom is less acute yet, it accounts for as much as 59.88% women. In case of overweight as a symptom of PCOS, all the three categories of women show a more or less uniform trend which ranges from 54.65% (Assamese) through 58.08% (Bengali) to 58.11% (Rajasthani) showing that this symptom is manifested by majority of women. Thus overweight as manifested by the women in the experimental group can be accepted as symptom of the PCOS. Another major symptom associated with PCOS is dysmenorrhea. Majority of the PCOS women in all the three communities present this as a symptom. The prevalence of it is highest among the Assamese PCOS women (77.90%) followed by the Bengali (66.46%) and then Rajasthani women (43.58%). The other symptoms like hypothyroidism and hirsutism appears to be very minor in case of the respondents under study and thus alone cannot determine the presence of PCOS in women. Health-related-quality-of-life of experimental women influenced by symptoms of PCOS has negative influence on quality-of-life of PCOS women. Infertility, irregular menstruation, overweightness plays a vital role in women’s life. The women those who are affected by PCOS, are more or less affect their social life. They remain cut off of the society as because women have a nature of curiosity, why she is not getting pregnant? It is a topic of their gossipping. As they go to any social function they are showered by several queries, which make them feel awkward. Society as well as family makes their life miserable. They feel worthless, hopeless. When it comes to infertility, our culture generally blame that problem lies almost exclusively with women. It corroborates with many of studies, such as Elsenbruch et al., (2003) concluded that the female quality of life is affected by PCOS. According to Wright et al., (1991); Sarlio-Lahteenkorva et al., (1993); Sonino et al., (1993); Van Balen and Gerrits (2001); Kitzinger and Willmott (2002), women with PCOS experience considerable stress related to their symptoms. Studies of women with, from whatever cause, hirsutism, obesity, amenorrhoea and infertility (all of which feature among the common symptoms of PCOS), show to conform to, idealized ‘feminine’ norms of appearance and behavior. According to Menning (1982); Keye (1984); Lalos et al., (1985);
Daniluk (1988); Tarlatzis et al., (1993); Hirsch and Hirsch (1995). The psychological problems arising following infertility are most often reported to be distress, depression, anxiety, sexual problems, marital and social maladjustment, loss of control and lowered self-esteem. Other studies on Health related quality of life with PCOS which corroborates with the present study are: Greil (1997); Guerra et al., (1998); Oddens et al., (1999); Himelein and Thatcher (2006); Elsenbruch et al., (2003); Coffey and Mason (2003); Hahn et al., (2005); McCook et al., (2005); Trent et al., (2005); Barnard et al., (2007); Ching et al., (2007); Eggers and Kirchengast (2001); Trent et al., (2003); Schmid et al., (2004); Kitzinger and Willmott (2002); Tan et al., (1998); Coffey et al., (2003); Cinar et al., (2011); Farreli and Antoni (2010); Hollinrake et al., (2007); Stunkard et al., (2003); Rasgon et al., (2003); Hahn et al., (2005); Weiner et al., (2004); Barry et al., (2011); Jones et al., (2007); Downey et al., (1989); Paulson et al., (1988); McCook et al., (2005).

Reproductive measurements of a group of population show the trends in their reproductive behavior. A comparative analysis of the reproductive measurements of the experimental and controlled groups has been made with the data collected during the study. The findings show that average conception of the PCOS women of all three cultural groups is quite negligible which little over 1 is (one). But the rate is much higher in case of controlled group - and among the Rajasthani controlled group it is the highest i.e. 2.29 conception per woman. Of the total conceptions, the success rate is negligible which are to the tune of 15. 79% in case of both Assamese and Bengali women having PCOS and 26.19 percent in case of Rajasthani PCOS women. While on the other hand, the success rates are much higher in case of non-PCOS women belonging to all the communities (it is 84.99 in case of Assamese, 82.05 in case of Bengalis and 84.11 in case of Rajasthani community). This shows the great divide between the women with PCOS and their counterpart. Comparing within the experimental group, we find that success rate is significantly higher in case of Rajasthani women (0.45 mean live births) as against 0.28 in case of Assamese and 0.24 in case of Bengali) and one notable reason for this may be their economic soundness due to which they can sustain in the fertility treatment process for a longer time. It may be for the same reason that the live births and mean live birth is significantly higher among the Rajasthani women than the Assamese and Bengali PCOS women.
Chi-square test was conducted to see if there exist any significant differences between the reproductive measurements of the experimental and controlled groups and it shows that the reproductive measurements of both experimental and controlled group differ vastly in case of all the three cultural categories. From this, it can be inferred that higher the reproductive measurement like, miscarriages, still births and for that matter the reproductive wastages, higher is the chances that the woman is suffering from PCOS. In other words, higher the mean conception and mean birth, lower is the chances of suffering form PCOS.

The findings in general show that more the women are physically sound more are the span of active married life. Except for the last category i.e. active married life of more than 15 years, where we have recorded only four women, in all other cases mean weight goes on increasing along with the active married life. Thus, it can be said that active married life and BMI are directly related –more the value of BMI more is the span of active married life. An attempt to relate the reproductive measurements of the experimental groups to some of the socio cultural variables inherent to them show that majority of this group of infertile women are housewives having educational level as graduate, belonging to medium income group, who got married at the age-group of 25-30 years and belong to android fat distribution and overweight. This is true for both Assamese and Bengali women having PCOS. But the case of Rajasthani women having PCOS is somewhat different in respect of income group, i.e. most of them belong to high income group.

It has been established that overweight and obesity is a symptom of PCOS. During the analysis it is found that maximum number of women are overweight and are mainly housewives; their education level is high (graduate) and they live in a family of medium income earner and they got married at the age group of 25-30 years. They are mainly non-vegetarian. This is true for all the three groups with an exception that majority of them fall in the high income group and all of them are vegetarian in case of Rajasthani experimental group.
Reproductive performance and menstruation cycle of the experimental groups

Primary infertile women in the three experimental groups are found to have irregular cycles. The irregular cycle is acute among the Bengalis constituting 71.86 percent of, followed by Rajasthani women with 55.56 percent who are closely followed by Assamese PCOS women with 54.65 percent. These finding conforms to the common concept that irregular cycle is a common symptom of PCOS women. Thus led us to conclude that primary infertility and irregular cycle go hand in hand. There are however considerable numbers of Assamese women who are desp-ite being PCOS have regular cycles. According to Hartz et al., (1979), that obese women or women with abnormal fat distribution with normal length of cycles (25-35days) must have less regular cycles than women of normal weight and fat distribution.

An empirical study conducted in US in 2005 (Dokras et. al) found that 35 percent of women with polycystic ovary syndrome had depression. Its findings recommend that women with PCOS be routinely screened and adequately treated for depression. Depression indeed plays a significant role in women having PCOS. Disappointment due to failure in repeated attempts to have a child, tension due to ill health and family pressure and social ethos for not having a child at the expected time are the basic causes of depression in PCOS women. During the study it was therefore attempted to find out the level of depression of the PCOS respondents. In an attempt to examine the level of depression in terms of infertility, it is found that majority of the respondents having PCOS belonging to all three cultural groups are having moderate to severe depression. As much as 70.93 percent of the women belonging to Assamese experimental group are having moderate to severe depression; in case Bengali community it is 50.30 percent and in case of Rajasthan women it is 47 percent. This cultural variation is significant. During the survey it was gathered that this deviation is mainly related to the process of decision making. The more the burden of decision making, the more is the tension and vice versa. In case of Assamese women the decision making about the reproductive health depends largely. While the Rajasthani women have nothing to decide about going for fertility treatment or reproductive health. This is done in the family by elders. According to Cinar et al., (2011) found that 28.6% of PCOS women versus 4.7% of control women had clinical depression scores.
indicating an 8.1-fold increased risk of depression in PCOS. Depression and anxiety scores 
were higher in PCOS women than controls. Obese PCOS subjects had higher depression 
scores and rates than non-obese PCOS women. Depression and anxiety are more common 
in patients with PCOS compared with healthy women; According to Melissa et al., (2006) 
concluded that common features of polycystic ovary syndrome (PCOS), including 
hyperandrogenism, ovarian dysfunction and obesity, can be highly distressing. We 
compared 40 women with PCOS to women with infertility but not PCOS, and to women 
with neither PCOS nor infertility, on measures of depression and body image. Women with 
PCOS reported higher depression scores and greater body dissatisfaction ($p < .001$) than 
comparison group women. Body image was strongly associated with depression overall, 
even after controlling body mass: Menning (1982); Keye (1984); Lalos et al., (1985); 
Daniluk (1988); Tarlatiz et al., 1993; Hirsch and Hirsh, 1995; Domar et al., (1993); 
Sanders and Bruce (1997).

McCook et al., (2005) concluded that women with PCOS have the greatest concern 
in the area of weight, followed by menstrual problems and infertility, which almost 
coincides with our present study. In the present study it is found that the quality-of-life of 
PCOS women is greatly affected by overweightness, followed by infertility and then 
menstrual problem.

According to Wright et al., (1991), the problem of infertility in particular causes 
psychological distress. For many affected couples and more intensely for women than men. 
It also coincides with our present study but we had not compared the experimental group 
with their husbands.