CHAPTER IV
DISCUSSION

In this chapter, the findings of the present study have been discussed in the context of other similar studies in order to understand the status of fertility and postmenopausal health of the studied population. In order to understand the differences between the working and non working women, the selected factors are compared between them in regard to factors affecting menopause and postmenopausal health.

Fertility

Fertility is one of the two components of the present study. It is related to some important events of a woman’s life starting from menarche to menopause. Fertility is profoundly affected by a large number of biological as well as socio-cultural factors like women’s age, age at menarche, age at marriage, age at first childbirth, age at menopause, birth interval, education of both spouses, occupation, economic status, type of family and adoption of birth control methods.

Age at menarche

Age at menarche is a milestone event in the life of a woman which marks the beginning of her fertile period. Menarche exposes a woman to possible child bearing. In fact in many societies, age at menarche determines the age at marriage (Mandelbaum, 1974). In Indian society, where traditionally, marriage takes place at a comparatively early age, the onset of menarche signals the parents that their daughter has stepped into womanhood and is now capable of bearing a child and therefore eligible for marriage.

The onset of menarche is influenced by biological or genetic factors as well as environmental and nutritional factors. According to Tanner (1960), the menarcheal age depends on the combined action of genes at many different loci rather than a single gene. Usually menarche may start between 11 and 14 years of age, but it may occur at as early as 9 years or as late as 15 years of age. The age at menarche varies in different populations. The average age at menarche is 12.5 years in the United States, 12.72 years in Canada and 12.74 years in Turkey.
In India, different studies have shown varying mean age at menarche in different population groups. Bannerjee et. al. (2007) found the age at menarche in Bengali girls to be 12.3 years; Rao et. al. (1998) found it to be 15.4 years in a lower socio-economic group of western India.

In the present study, the mean age at menarche of the working women is 12.24±1.13 years and 12.4±1.33 years in the non working women, which is similar to the mean menarcheal age of 12.8 years among rural Assamese girls studied by Das in 1986; and 12.95 years among the Brahmins and 12.5 years of the Koch studied by Das (1991). The mean age at menarche of the present study is comparable to those reported in various studies in caste populations in Assam (Rakshit, 1960; Das and Das, 1966; Das and Sengupta 1984).

Many studies have reported that age at menarche has decreased in recent years (Anderson et al. 2003; Hosny et al. 2005) which can be associated with improvements in nutritional status and general health along with many environmental factors (Biswas et al., 2013). In the present study, the non working women reported higher age at menarche than the working women, but it is within the range of age at menarche of the Indian girls.

Age at marriage

Age at marriage marks the beginning of the effective reproductive span of a woman’s life. Although a girl becomes capable of bearing children after menarche, in Indian society the age at marriage is an important determinant of fertility as socially sanctioned child-bearing is limited only to married women. Age at marriage is considered to be an important determinant of fertility because it determines the length of the reproductive span of a woman. Low age at marriage increases exposure to higher number of pregnancy and childbirth. In India the age at marriage is comparatively low and this may be one of the factors leading to the high level of fertility. The Govt. of India in its National Population Policy Statement has stated that the minimum age at marriage be 18 years for girls and 21 years for the boys.

The District Level Household Survey 2002-04, Assam reported the mean age at marriage for women in Assam to be 20.7 years. The mean age at marriage in urban areas of Assam was 22.4 years and in Kamrup District it was 21.5 years. These
figures are similar to the present study which has been conducted in the urban areas of Guwahati, wherein the mean age at marriage among the working women is 22.47±4.22 years which is same with the mean age at marriage in the urban areas. Again among the non working women it is 20.37±3.57 years, which is more or less same to the mean age at marriage of the women of Assam. The working women got married later than the non working women. This higher age at marriage among the working women may be due to the influence of other social factors like education and occupation which are expected to be higher in working women than in non working women.

**Age at childbirth (First childbirth and last childbirth)**

Age at first child birth is an important variable that influences the fertility performance of a woman. It is observed that women are more fertile at a younger age. It is to be noted that the fecundity of females or the child bearing of a woman on an average is between 30-35 years and a woman’s capacity to bear children reaches the highest level between the ages of 20-25 years after which it starts declining, first slowly and then rapidly after the age of 38 years and reaches zero level at about 50 years. On the basis of research evidences it may be said that women can bear children from the age of 15 to 44 or 49 years of age (Bhende & Kanitkar, 1996). According to Mitra (2005) also, women who gave birth to their first child before the age of 20 years had higher fertility than those women who had their first childbirth after 20 years of age. Therefore, if a woman gives birth to a child for the first time at a higher age, her fertility is lowered.

In the present study, the mean age at first child birth of the working women is found to be higher than the non-working women. It may be due to the higher age at marriage of the working women. The mean age at first child birth of the working women is 24.16±3.897 years and for non-working women it is 22.0±3.35 years. Thus it has been found that the working women gave birth to a child for the first time at a later age than the non-working women and also the last childbirth for the working women was at a later age than non-working women.

The mean age at last childbirth of working women is 31.95±4.68 years and 30.74±3.6 years for non working women. Thus, the last childbirth for the working women was at a later age than the non working women.
Although women have a long fertile period, both the groups of women in the present study have curtailed their child-producing period by the adoption of some kind of birth control measure. However, the child bearing period of the non working women (12.74 years) is found to be higher than the working women (6.79 years). It may be due to the fact that working women wanted to make it short due to their engagement outside their home.

**Completed Fertility**

Fertility is the number of live births of a woman but not the number of her surviving children. In India it has been observed that women who have passed through the entire reproductive period in the married stage, that is whose marriage was consummated by the time they were 15 years and who remained married up to the end of the reproductive period, have borne on an average 6-7 children. (Bhende & Kanitkar, 1996). In the present study the average live birth is 2.79 among the working women and it is 3.04 among the non-working women. The mean live birth is higher among the non-working women than among the working women. This may be because the working women are more educated, marry later, have better awareness of family planning and because they are employed outside their homes. So they do not want to take the burden of more children. Statistically also the difference between the two groups of women in regard to mean fertility is significant.

The mean fertility of the working and non working women is lower than the mean fertility of Assam (3.7) and Kamrup District (3.5) (District Level Household Survey 2002-04). The impact of urbanisation, high cost of living and desire to improve the standard of living may have influenced the desire to limit the family size leading to the practice of contraception and thereby reducing the mean fertility of the women of the present study.

**Gap between last childbirth and menopause**

The fertile period of an ever married woman continues up to the attainment of menopause. But it is observed that nowadays, women restrict their fertility after they have achieved their ideal family size. This fertility period is restricted by the adoption of birth control methods.
In the present study, among both the working and non working women, the highest percentage (59.0% and 69.6% respectively) have had their last childbirth between 11-20 years before they attained menopause. 18.2% of the working women compared to 12.0% of the non working women attained menopause 21-30 years after their last childbirth. Women who have attained menopause within 10 years of their last childbirth are 22.8% and 18.4% respectively among the working and non working groups. Statistically, the difference between the two groups of women with regard to gap between last childbirth and menopause is significant. The working women limit their family much earlier than the non working women.

Duration of fertility

Length of reproductive span of a woman is the most important physiological factor determining fertility. It is generally held that as the duration of married life increases, the number of children also increases, unless the couple practice family planning (Singh, 1986).

In the present study, for 16.0% of the working women and 9.6% of the non working women the duration of the fertile period between was 10-19 years. For the highest percentage of women, both working (66.4%) and non working (69.2%), the duration of the fertile period was between 20-29 years. For 17.6% working women and 21.2% non working women, the fertile period was more than 29 years. Thus, it can be said that non working women had a longer duration of fertile period compared to the non working women. However, the difference between the working and non working women with regard to duration of fertility period is statistically non-significant.

Pregnancy wastage

Pregnancy wastage, which includes abortion and still birth, is considered to be one of the important factors affecting fertility. It is difficult to obtain accurate report on intra-uterine death in the early months of pregnancy because it is not easy to distinguish between delayed menstruation and early spontaneous abortion. According to Sobhe (1990), higher is the number of pregnancies, greater is the risk of pregnancy wastage.
According to the District Level Household Survey 2002-04 on Reproductive and Child Health, in Assam 92.0% of pregnancies end in live births, 3.0% in induced abortions, 3.0% in spontaneous abortions and 1.0% in stillbirths. Live birth is higher in rural areas (93.0%), than in urban areas (86.0%), while the incidence of induced abortion is more in urban areas (7.0%) than in rural areas (2.0%). Compared to the other districts, incidences of induced abortion (8.0%) and spontaneous abortion (6.0%) are highest in Kamrup district.

In the present study, considering the total pregnancy wastage, including spontaneous abortion, induced abortion and stillbirths, the mean among the working women is 0.08 and among the non working women it is 0.05. This difference is statistically non significant. But though the mean number of spontaneous abortion is same among the working and non working women (0.02), the mean number of induced abortion is higher (0.04) among the working women than the non working women (0.02). Working women are therefore more likely to wilfully abort their unwanted pregnancies than the non working women. Likewise, the mean number of stillbirth is higher (0.02) among the working women than among the non working women. This may be because the working women do not get adequate rest and care during pregnancy and are at a higher risk of stillbirth. However, the difference with regard to pregnancy wastage between the working and non working women is not statistically significant.

**Age at menopause**

The age at which natural menopause occurs is between 45 and 55 years for women worldwide (Kaufert and Syrotuik, 1981). Studies in various parts of the world show that women of developing countries reach menopause at an earlier age, compared to those of the developed countries (Ray, 2010). In India, the mean age at menopause has been found to be 44.3 years (National Family and Health Survey-2, 1998-99; Ray 2009). Few studies have tried to analyse the mean age at menopause in India and they estimated it between 44 to 47 years (Singh and Ahuja 1980, Sharma and Hiramani 1985, Randhawa et al., 1987). Different studies in India have shown that the age at menopause differs according to different social, economic, ethnic and residential status (Sharma et al., 2007; Sidhu et al., 2005; Dasgupta and Ray, 2008).
The mean age at menopause of the Assamese women of the present study is found to be 46.66 years. The mean age at menopause is $47.17 \pm 3.85$ years among the working women and $46.04 \pm 3.33$ years among the non working women. Comparing the two groups of women, there is a statistically significant difference in the mean age at menopause between the working and non working women. So, it can be inferred that the working women attained menopause at a later age than the non working women.

The mean age of attainment of menopause was found to be 48.4 years in a study done by Joseph et al in South Canara District, India and $47.91 \pm 3.16$ years among Punjabi women in Chandigarh (Pathak and Parashar, 2010). However, the findings of the present study is contradictory to that reported by Pathak and Parashar, who found that working women had relatively earlier menopause at an average of $47.65 \pm 3.77$ years compared to non working women whose average was $48.12 \pm 2.85$ years and to the study by Hidayat et al., 1999 who found working women having early menopause at 46.52 years and non-working women having late menopause (47.86 years); but it is in agreement to the findings reported by Sethi et al. (1996) who found late menopause in Punjabi Khatri working women (49.61 years) and early menopause (46.86 years) in non working women.

**Age at marriage and fertility**

Coale and Type (1961) have pointed out that early marriage could be one of the determinants of high fertility. Several studies done in India have found that fertility declines with increasing age at marriage (Bharati and Dastidar, 1990; Verma et al., 1999).

In the present study, an inverse relationship of age at marriage with mean fertility among both the working and non working women is observed. The mean fertility of the working women who married before they were 18 years of age is 3.93 and among the non working women it is 3.63. On the other hand, mean fertility of the working women who married after the age of 29 years is 1.9 and among non working women it is 1.5. In other words, the mean number of live birth gradually decreases with increasing age at marriage. Therefore, in the present study, age at marriage has been found to be an important factor influencing the fertility rate in both the groups of women. The findings correspond to other similar studies (Pandey and Talwar, 1987;
Khongsai, 2012; Khongsdier, 2002; Maheo, 2004; Roy, 2012) which reported that fertility goes down when marriage takes place at a later age. This may be because it reduces the duration of exposure to pregnancy and later the marriage, lower is the fertility.

Age at menopause and fertility

Age at menopause is also another factor closely related to the fertility. A woman’s capacity to bear children comes to an end with the onset of menopause when menstruation ceases. According to Kumudini Dandekar (1956), nearly 83% of rural women in India experience menopause before reaching the age of 50 years (Bhende & Kanitkar, 1996).

In the present study, among the working women, the mean live birth is highest (4.11) among those who have attained menopause before the age of 40 years. On the hand, among the non working women, the highest mean live birth is 3.7 in women who attained menopause after 49 years of age. The lowest mean live birth is recorded in the age group 45-49 years in both the working and non working women with the mean live births being 2.68 and 2.86 respectively. The differences in mean live births in respect to mother’s age at attainment of menopause have been found to be statistically significant in both the groups of women.

Education and fertility

Education, especially of the mother, is considered to be one of the important factors affecting fertility. Education has been found to exhibit a stronger and more consistent relationship to fertility than does any other single fertility variable. Multivariate analysis of the education fertility relationship across nations yields strong negative correlation (Pick et al., 1998). Many studies have revealed the inverse relationship of education of women with their fertility rate (Cochrane, 1979; Dey and Goswami, 2009; Majumdar Paul, 2000).

The present study also reveals that in both the groups of women, the mean number of live birth decreases with higher category of educational status. The illiterate women have the highest number of mean live birth, 4.53 among the working women and 4.79 among the non working women. The lowest mean live birth is observed among the women who are post graduates. It is 1.80 among the working
women and 1.87 among the non working women. The ANOVA test indicates that the differences in live birth within mother’s educational level are statistically significant.

In the present study, the father’s educational level also has been found to have an inverse relationship with fertility. The women with illiterate husbands have the highest mean live birth. It is 5.20 among the working women and 5.0 among the non working women. The lowest mean live birth is observed among the women whose husbands are post graduates; 2.21 among the working women and 2.1 among the non working women. So, the importance of educational status of both the wives and their husbands in influencing fertility has been found in the working and non working groups.

**Occupation and fertility**

In the present study, the non working women, i.e the women who are not gainfully employed outside the home but are homemakers, have higher fertility (3.04) than the working women (2.79). This is in agreement with many studies that reveal a negative relationship between female labour force participation and fertility at the micro level, although there is controversy about the casual direction of the relationship between the two phenomena (Cramer, 1980; Felmlee, 1993; Stolzenberg and Waite, 1977). Women’s employment plays an important role in the variation in fertility levels within and between countries (Becker, 1993; Rindfuss and Brewster, 1996; Standing, 1983).

The occupational status of husband is another important socio-economic factor that influences fertility. The occupational pattern of a population indicates their economic status. A number of studies have found a positive relation between economic status and fertility. Occupation of husbands shows an inverse relationship with the level of fertility. In the present study among the working women, the average live birth is the highest (3.75) in those women whose husbands are unskilled labourers while the lowest average live birth (2.22) is seen in those whose husbands are in government service. On the contrary, among the non-working women the highest average live birth (4.37) is seen in those whose husbands are dependent or retired followed closely by women whose husbands are in business or are self employed.
Income and fertility

In developing countries, negative association between fertility and income has been highlighted by many authors (Mamdani, 1981; Dastidar, 1996). Similarly, in the present study, the mean fertility is inversely related to monthly family income among both the working and non-working women. The mean fertility is the highest in the lower income group. It is 3.89 and 4.27 among the working and non-working women respectively. On the other hand, the mean fertility is the lowest in the higher income group. It is 2.79 among the working and 3.04 among the non-working women. Thus, once again it can be proved that there is an inverse relation between income of the family and fertility.

Type of family and fertility

In the present study, the mean live birth has been found to be higher in nuclear families among both the working (2.80) and non-working women (3.06), compared to 2.71 and 2.98 in the joint families respectively. However, statistically there is no significant difference in the number of live birth with respect to type of family among the working and also among the non-working women. This is in agreement to other studies which have found little or no significant variation in fertility according to family type (Stycos, 1958; Freedman et al., 1964; Palmore, 1972).

Birth control and fertility

The use of contraceptive has been described as the most important proximate determinant of fertility (Sherris et al., 1985; Mauldin and Segal, 1988). Robey et al. (1992) have shown that the differences in the levels of contraceptive use explain 92 percent of the variation in fertility among the 50 countries they studied. This implies that where contraceptive use is widespread, fertility is low.

In Assam knowledge of modern contraceptive method is almost universal. 58% of the currently married women were using any method of contraception. Female sterilization is the most widely known method of all contraceptive methods in Assam followed by pills (IIPS District Level Survey 2004).

In the present study, of the total 557 Assamese women, 94.6% have adopted some sort of birth control methods while 5.4% women have not accepted any method.
Comparing the two groups of women, the percentage of women who have adopted birth control methods is slightly higher (95.8%) among the working women than the non working women (93.2%). This difference in the two groups of women is statistically not significant. Both the working and non working women who have not adopted any birth control method belong to the present age group of 55-59 years. Thus, it can be said that women of younger age group are more interested in birth control in comparison to the higher age groups. It is observed that 89.1% of the working women have adopted permanent surgical sterilization as a method of birth control and for the non working women it is 69.5%. After sterilization, the next most common method of birth control is oral pills. It has been accepted by 42.86% of the working women and 62.66% of the non working women. More working women have accepted sterilization as a method of birth control than the non working women, which is also statistically significant.

**Post menopausal health**

There are many stages relating to menopause in the life of a woman. They are premenopause, perimenopause, menopause and postmenopause. According to WHO (Ray, 2009) premenopause refers to the 1 or 2 years immediately before the menopause or the whole of the reproductive period prior to the menopause. Perimenopause includes the period immediately prior to the menopause (when the endocrinological, biological and clinical features of approaching menopause commence) and the first year after menopause. In clinical terms, menopause is a date. For women who still have a uterus, menopause is defined as the day after a woman’s final period finishes. This date is fixed retrospectively, once a year has passed by without any menstrual flow. Postmenopause refers to the period a year after the last menstrual period.

**Perimenopause**

Perimenopause is a period of menopausal transition. According to the definition by Stages of Reproductive Aging Workshop (STRAW) held in July 2001, the menopausal transition begins with variations in menstrual cycle length and ends with the final menstrual period, classically confirmed only when followed by 12 months of amenorrhea (Soules et al., 2001). The perimenopausal phase of a woman’s life can span several years. The changes that occur during this period of transition
affect women to varying degrees. For some women, these changes give rise to symptoms that are severe and disruptive, and for others symptoms are mild and the transition is welcomed (Cheung et al., 2004). During the transition to menopause, women may experience vasomotor, urogenital and psychological symptoms as well as sexual dysfunction (Ray, 2009). The prevalence of these problems varies with differential cross-cultural understanding of menopause, social status, familial roles of women in middle age, rural-urban residence and menstrual history (Bernis and Rehar, 2007, Dennerstein et al., 1993; Charney, 1996; Lock, 1998; Malcara et al., 2002; Damodaran et al., 2000; Frackiewicz and Cutler, 2000; Gelfand, 2000).

In India, several studies have shown the reporting of vasomotor, psychosomatic and psychological symptoms are high by the women, and the frequency of reporting such problems vary with ethnic groups, socio-economic status, rural-urban residence and also across different menopausal age groups (Ray, 2009).

In the present study, of the total 557 women, 67.0% reported some complications related to their menstrual cycle during the perimenopausal period. When we consider the working women, 69.0% of them reported perimenopausal complications compared to 64.4% of the non working women. As opposed to this, 30.9% of the working women and 33.0% of the non working women did not have any complications during their perimenopause period. Statistically the difference between the two groups of women with regard to perimenopausal complications is not significant. The percentages of the working and non working women who said that they did not suffer from perimenopausal complications are higher than that reported in The Women’s Health Surveillance Report, which says that only an estimated 10% report an abrupt cessation.

In the present study, 68.9% of the working women compared to 95.0% of the non working women had undergone irregular periods during their perimenopausal period. This difference is statistically significant. 44.3% of the working women reported that they suffered from heavy bleeding compared to 80.7% of the non working women. This difference is also statistically significant. Therefore, more working women have reported irregular and heavy bleeding than the non working women. Working women may have had to face more discomfort and inconvenience
than the non working women which may hamper their work outside their homes and therefore have reported perimenopausal complications in greater numbers.

It is seen that 40.1% of the working women and 33.5% of the non working women reported spotting during their perimenopause period, though this difference is not significant. Mood swings, as a symptom of perimenopause, was reported by 6.6% of the working women and 5.0% of the non working women. According to the Chi-square test, statistically the difference between the two groups of women with regard to mood swings is not significant.

Of the total 373 women who reported to have complications during menopause, more than half, which is 57.6%, did not seek any treatment, while 42.4% sought treatment. Among the working women 45.8% sought treatment and 54.2% did not. Whereas, among the non working women only 37.9% sought treatment compared to 62.1% of those who did not. This difference between the working and non working women with respect to treatment sought during perimenopause is statistically not significant. The present study conforms to other such studies which reveal that, generally, women in developing countries tend to view menopause and its symptoms as a natural process that does not require medical care nor are they much knowledgeable about menopause related health problems (Wasti et al., 1993; Defey et al., 1996; Mashiloane et al., 2001). But, recently educated women from higher social classes are beginning to consider menopause as a health problem and seek treatment for it (Reynolds et al., 2001; Taechakraichana et al., 2003).

In a study conducted by Khan and Hallad (2006) in a village in north Karnataka in 2004-05, it was found that 78% of postmenopausal women and 58% of perimenopausal women did not contact any health personnel when their periods became irregular. Here too, the women cited similar reasons like these are common problems, not serious, financial problems etc.

The women of the present study who although reported having perimenopausal complication, more than half of the working and non working women opined that perimenopausal complication is a natural phenomenon and therefore it does not require any medical treatment. 36.5% of the working women and 27.0% of the non working women said that their complications were not severe. However, 5.2% of the working women compared to 21.0% of the non working women said that
because of financial constraints they could not seek medical treatment. Statistically, the difference between the working and non working women with regard to reasons for not seeking treatment is significant. So it can be inferred that more working women sought medical treatment for their menstrual problems in the perimenopausal phase.

This difference can be explained that because the working women are more financially independent and more conscious of their health condition so that they are healthy enough to go out to work. Besides, non working women are not financially independent and may therefore did not seek any treatment. Som and Ray (2012) in their study on menopause- specific quality of life of urban women in West Bengal made a similar comment “the poor quality of life among non working group of women is likely to be associated with their lack of economic independence, which reduces their possibility of availing health care services. On the other hand, working women are supposed to have better social support, relatively higher self-esteem, economic independency and also ability to access better health care services”.

**Attitude towards menopause**

The attitude of women towards menopause differs in different cultures and as such factors like cultural beliefs and values influence their perception (Ray, 2009; Lock et al., 1988; Obermeyer, 2000; Melby et al.2005). Women of developing countries, including India, have a positive attitude towards menopause as they consider this phase to be free from menstrual hassles (Bagga, 2004; Lock, 1994; Som and Ray 2012). Apparent positive mental attitude towards aging and/or menopause is attributed to the cultural upbringing whereas on the contrary it also points towards their negative health seeking behaviour (Sengupta, 2003).

In the present study, 56.35% of the working women and 48.0% of the non working women said that they were relieved at attaining menopause. 23.8% of the working women and 28.0% of the non working women said that menopause is related to illness, whereas 19.9% and 24.0% of the working and non working women respectively said that menopause would cause ageing. The difference between the working and non working women with respect to their attitude towards menopause is statistically non significant. This study is in agreement to a study conducted by Ray in 2010 among the Bengali women and Aaron et al. (2002) in South India which reveal
that Indian women welcome menopause as it liberates them from menstrual hazards, religious taboos and pregnancy.

**Nutritional status**

Nutritional status is defined as the physical expression of the relationship between the nutrient intakes or bio-availability of nutrients and the physiological requirements of an individual (Brown, 1984). Anthropometric measurements and BMI are widely used to assess the nutritional status of individuals and populations. The physical wellbeing and maintenance of good health of a person is associated with his or her nutritional status.

The physiological and psychological changes in menopause have an impact on food intake and nutritional status of women (Javoor et al., 2008). Menopause is one of the critical periods of a woman’s life during which weight gain and worsening of obesity is favoured (Khokkar et al., 2010).

In the present study, the mean Body Mass Index is found to be 23.50 among the working women and 24.69 among the non working women. This difference in mean BMI between the two populations is statistically significant; the non working women have higher BMI than the non working women. Again, considering the nutritional status in the present study, only 2 (0.07%) of the working women are underweight to thin. There are no underweight women among the non working women and no obese women among the working group. There are more overweight non working women and more normal weight working women. Thus, it is observed that the non working women are heavier than the working women.

**Perception of present health status**

Many studies have revealed that after attainment of menopause many women reported what Margaret Mead acknowledged as ‘post-menopausal zest’ (Klatz and Goldman, 2003). Women have to face many discomforts and go through a traumatic period during their perimenopausal transition. So, generally, women are relieved when they attain menopause. At the same time, many health concerns during this period may also arise as this period coincides with chronological aging of the women.
In the present study, an attempt was made to understand the way the postmenopausal Assamese women perceive their present health status. Of the total 557 women, the highest percentage (47.2%) consider themselves to be in a fair health status, 36.09% perceive their present health status to be “Not well” and only 16.69% to be “Good”. When we consider only the working women, it is seen that 60.91% are in fair health condition, 20.2% are in good health condition and only 18.89% consider themselves to be not well. However, among the non working women, the highest percentage of women (57.2%), consider themselves not to be well, and only 12.4%, consider themselves to be in good health status. The difference between the working and non working with regard to the perception of their present health status is statistically significant. So, a significantly larger proportion of non working women perceive themselves to be not well. Working women are more likely to have a more positive attitude towards their present post menopausal health status than their non working counterparts.

In the present study an attempt was also made to understand the present health status of the women in relation to their perimenopausal complications. Even among the women who did not report any perimenopausal complication, 36.4% considered themselves to be not well at present and 28.8% to be in good health condition. Compared to this, among the 373 women who suffered perimenopausal complications, more than half (53.4%) said that they were fairly well and only 10.7% considered themselves to be in good health status.

Among the women who did not have perimenopausal complication, 60.7% of the non working women compared to 13.7% of the working women perceive themselves to be not well. However, 42.1% of the working women as against 14.6% of the non working women perceive themselves to be in good health condition.

So, the non working women, regardless of the fact whether they experienced perimenopausal complications or not, had a more negative perception of their present health status. These findings conform to the findings of the study done by Som and Ray (2012), which states that “working women have a better menopause- specific quality of life than their non working counterparts” and other such studies (Blumel et al., 2000; Fallahzadeh, 2010; Kakkar et al., 2007).
Menopause and health problems

Natural or physiological menopause occurs as a part of a woman’s normal aging process. During the menopausal transition years, a woman’s reproductive hormones, oestrogen and progesterone, levels drop and fluctuate for some time into postmenopause. As the body responds to the rapidly fluctuating and dropping levels of natural hormones, a number of effects may appear. Some common symptoms experienced by women are lack of energy, vasomotor symptoms such as hot flashes and palpitations, psychological effects such as depression, anxiety, irritability, mood swings, sleep problems, memory problems and atrophic effects such as problems with vagina and bladder. There are also some serious medical concerns related to menopause as, firstly loss of bone tissue makes bones weak and cause osteoporosis and secondly, heart disease risk may grow due to age related increases in weight, blood pressure and cholesterol levels (Khan and Hallad; Marcus, 1999; Sayed et al., 2000; Mashiloane et al., 2002; George, 1996).

In the present study, the health problems have been grouped into four categories_ psychological, vasomotor, urinary and musculo-skeletal. 63.8% of the working and 93.2% of the non working women have suffered from some psychological problem. 52.4% of the working and 72.4% of the non working women have reported to have suffered from vasomotor problems. Urinary problems have been suffered by 3.26% working and 6.4% non working women. Regarding musculo-skeletal problems, 85.7% of the working and 87.2% of the non working women have suffered from them. Urinary and musculo-skeletal problems are prevalent irrespective of the working status of the women. But, psychological and vasomotor symptoms are less prevalent among the working than among the non working women. This result is the similar to a study done in Iran which found that the severity of menopausal symptoms to be significantly less among employed women and women with higher educational level (Abedzadeh-Kalahroudi, 2012).

In the present study, psychological problems like irritation, insomnia, tiredness, mood swings and loss of libido have been considered. Of all these, there is no statically significant difference between the working and non working women with regard to irritation. But, in regard to other symptoms there is a statistically significant difference.
Within vasomotor, problems such as hot flushes, palpitation, change in blood pressure, heart problems and diabetes have been considered. None of these problems are significantly different between the working and non working women. In the present study, hot flushes is the most common vasomotor problem experienced by 33.5% working and 43.1% non working women. This finding is consistent with some other studies (Pathak and Parashar, 2010; Chompootweep et al. 1993; Mckinlay et al. 1992).

In the present study, the most common symptom of menopause related health problems are tiredness, hot flushes, aches and change in weight. This is similar to the findings of Joseph et al. (2014), Bairy et al. (2009), Sagdeo and Arora (2011) in India and Chin et al. (2002) in Singapore, Rahman et al. (2011) in Bangladesh and Nisar et al. (2009) in Pakistan.

Backache/joint pain and changing weight are very common in both the groups of women. 62.54% and 64.8% working and non working women respectively have experienced aches and pains. Change in weight has been experienced by 73.29% working and 83.6% non working women. Javoor et al., in 2008 stated that weight gain in postmenopausal women is expected as the physical activity of women in the middle years decreases along with metabolic rate. Conversely the energy requirement decreases and even regular or routine eating may lead to weight gain.

The less frequently reported symptoms are urinary problems, insomnia, heart problems and loss of libido. These finding are consistent with the studies done by Khan and Hallad (2006), Nisar and Sahoo (2010), Nisar et al. (2012) and Oldenhav et al. (1993).

**Maintenance of Health**

Menopause coincides with the onset of ageing. And because menopause is a natural universal biological event in the life of a woman, some medical experts conclude that most women do not require treatment for menopausal symptoms. Rather they see perimenopause as an opportunity for counselling on exercise, diet, nutrition, stress reduction, and other lifestyle changes that can minimize future health problems (Ray, 2009). In order to prevent menopause related morbidities and to improve the quality of postmenopausal life, promoting life style changes through exercises and
regulating the diet to maintain the ideal body weight is recommended by medical experts. Also because the rate of bone loss accelerates during the early postmenopausal years, medical opinion suggests intake of calcium and Vitamin D supplements (Veigas et al., 2014). A calcium supplementation of 1000 mg per day attenuates bone loss in post menopausal women (Celotti and Bignamini, 1999).

In the present study an attempt was made to see whether the women were conscious of maintaining good health by doing exercises and consuming health supplements. The regular physical exercise includes walks, free hand exercise and yoga. The study revealed that 19.9% of the working women do not do any exercise at all compared to 15.2% of the non working women. The highest percentage of women among both the working and non working groups, exercise only occasionally. Women who practise exercise regularly are 24.4% among the working women and 36.0% among the non working women. The Chi-square test reveals that the two groups of women differ statistically with regard to performance of regular exercise. It is apparent that more non working women exercise than their working counterparts. This can be due to the time constraint faced by the working women who have to invest time for both their homes and jobs.

Regular consumption of health supplements is not very popular in the present study sample. But it is significantly consumed by working women than non working women. Women who regularly consume health supplements are only 11.4% among the working and 5.2% among the non working groups. 33.6% of the working women do not consume any supplements compared to 82.8% of the non working women. It can be assumed that this difference is perceptible because working women are more aware and financially independent than their non working counterparts.

**Postmenopausal health and some factors**

As women age, their health is influenced by factors such as career, diet, physical activity level, the socioeconomic status and environment (Veigas et al., 2014). Studies show that socio-demographic factors like age, education and occupation of both spouses, marital status, family type, parity, menopausal status, duration in menopausal years, use of oral contraceptives, foetal loss and breast feeding of the last child are found to be responsible for the impairment of menopause-
specific quality of life of middle-aged women (Ray et al., 2014; Avis et al., 2003; Gold et al., 2000; Fallahzadeh, 2010; Som and Ray, 2012). Research (Flint 1974) indicates that whether a woman views menopause as a medical issue or an expected life change is correlated with her socio-economic status. The measurable social parameters which can affect menopause include medical interventions, attitudes about aging, birth control policy, smoking practices, diet preferences, patterns of breastfeeding, and the socially appropriate timing of motherhood (Mishra, 2011).

In the present study, an attempt has been made to see the relation of certain biological and social characteristics of the women with their perception of present health status and nutritional status.

**Age at menopause and present health condition**

In developing countries, the age of 40 years is frequently used as an arbitrary cut off point below which menopause is said to be premature (Ray, 2009). It is interesting to note that contrary to some studies, in the present study among the women who attained menopause before 40 years of age, the percentage of women having good health is 33.3% in both the working and non working group. None of the 9 working women and only 1 of the 6 non working who attained premature menopause reported that they were not well. Although it is probable that they have said that are in good or fair health because they were in worse health during their perimenopausal period.

Among the women who attained menopause after 49 years of age, 90.0% of the non working women reported to be not well compared to 25.6% of the working women. None of the non working women who attained menopause after 49 years reported to be in good health.

Some studies have observed that women with lower BMI had an earlier menopause (Willet et al., 1983; Shreman et al., 1981; Nagata et al., 1998; Aloysio et al., 1988), some other studies (Van Noord et al., 1997; Ozdemier and Col, 2004; Neslishan et al., 1998) have not found any relation between BMI and age at menopause.

In the present study, among both the working and non working groups, the highest percentages (36.7% and 47.5% respectively) of women who are overweight
attained menopause after 49 years. This is in agreement with some studies that have observed that women with higher BMI attain menopause at a later age (Lindquist et al., 1979; Singal et al., 1982; Willet et al., 1983; Leidy 1996, Whelan et al., 1990).

**Education and postmenopausal health**

In a study conducted by Som et al (2012) in urban West Bengal, it was found that menopause-specific quality of life of women becomes improved with the rise in educational attainment of both spouses. The studies of Papini et al., (2002) and Seivert and Epinosa-Hernandez (2003), opine that better educated women are more optimistic towards menopause as they are more aware of their health conditions and better equipped to take care of themselves.

In the present study, it is observed that no illiterate working women perceive themselves to be not well compared to 42.1% of the non working women. When we look at the highest category of educational status that is over PG, 19.7% of the working women compared to 74.4% of the non working are reportedly not well. So, non working women, both illiterate and highly educated, are more likely to report to be not well. This corroborates to the some studies (Som et al., 2012) that reports that non working women are found to have poorer quality of life compared to working women.

When husband’s education is considered, none of the working women with illiterate husbands said that they were not well compared to 37.5% non working women. 15.8% of the working women compared to 75.9% of the non working women whose husbands are of PG level said to be unwell. None of the working women whose husbands are of PG level said to be in good health compared to only 13.8% of the non working women. Non working women even with higher educated husbands seem to have a negative attitude towards their health. It seems likely that they do not have strong social support and have a poorer quality of life.

Among the working women whose husbands are illiterate, 80.0% are of them have normal weight and 20.0% are overweight compared to 100.0% of the non working women who are of normal weight. The non working women with higher educated husbands tend to be obese, which is not so among the working women. The non working women with higher educated husbands are likely to have better
economic condition and may have domestic help which reduces their physical activities. In some earlier studies also it is opined that a greater percentage of Indian women who are home makers do not access or time for daily exercise. With the culture of employing domestic help for household chores, the scope for physical activity to the woman is significantly curbed leading to obesity and related morbidities (Rao Sirivole and Eturi, 2014).

**Occupation and postmenopausal health**

The relationship between occupation and the level of menopausal symptoms is still a controversy. Studies conducted in Scotland, Vietnam and Thailand (Porter *et al.* 1996, Dang 1998, Cheewaroungroj, 2000) showed that occupational status was not associated with menopausal symptoms. This means that no matter whatever occupation they hold, it would not have an influence on menopausal symptoms. The findings in the study of Wilbur *et al.* (1998) showed that non professional women had more menopausal symptoms than professional women did.

Husband’s occupation is an important predictor of menopause-specific quality of life of urban living women than their own work participation (Basu and Sidh, 2008; Som and Ray, 2012). Studies reveal that menopause-specific quality of life per se is reported to be better among women whose husbands are in professional jobs (Som *et al.*, 2012).

In the present study, 23.7% working and 50.0% non working women whose husbands are in service said that are not well. The percentages of working women who said that they were in good health are high among those whose husbands are in business or self employed (51.5%), skilled labour (46.5%) and unskilled labour (41.7%) compared to 16.7% 16.1%, and 15.4% of the non working women with husbands in the same categories respectively.

Again when we consider nutritional status of women according to their husband’s occupational status, it is seen that more women, both of the working and non working groups, having retired/dependent husbands and in service are overweight.
Income and postmenopausal health

In a study conducted by Som et al. in 2012 it is revealed that rise in household economic condition results in to the betterment of menopause-specific quality of life of postmenopausal women.

In the present study more women of low income group reported to be in good health than the high income group of working women. Among the non working women the reverse is seen: the highest percentage of non working women belonging to the high income group said that they were not well. It may be that working women even of low income group are more economically independent and have better access to medical care and social support than their non working counterparts. Non working women belonging to high economic households have a poor menopause specific quality of life maybe because of low satisfaction and low self-esteem.

Birth control and postmenopausal health

Among the working women in the present study, 7.7% of those who did not adopt birth control methods said that they were not well compared to 19.4% of those who adopted birth control. 69.2% of the working women who did not adopt birth control were in good health compared to 20.1% of those who did adopt birth control. Among the non working women, 76.5% who did not adopt birth control and 55.8% of those who did were not well. While among the non working women who were in good health, the percentages does not vary much between those who adopted and did not adopt birth control methods (11.8% and 12.4% respectively). So, the working who adopted birth control had more negative attitude towards their present health condition. But the contrary is found to be true among the non working women more women who did not adopt birth control were unwell.

30.3% of the working women who accepted birth control methods compared to 15.4% of those who did not were overweight; 69.4% of those who accepted birth control methods compared to 76.9% of those who did not were of normal BMI.

Among the non working women, 29.4% of those who did not accept birth control were overweight compared to 35.6% of them who did adopt birth control.
Completed fertility and post menopausal health

Som et al. (2012) in their study on the postmenopausal women of urban West Bengal reported that reproductive history of women probably has a little role in determining menopause-specific quality of life of women.

Number of conceptions and postmenopausal health

In the present study, it is seen that a higher percentage of working women with more than four conceptions (44.0%) consider to be in good health compared to the non working women (9.3%). Among the non working women it is observed that with increasing number of conceptions, the percentages of women perceiving themselves to be not well also increases but the percentages decreases among the working women. The reverse is seen among the women who rate themselves to be in good health- with increasing number of conceptions the percentages of working women are higher while the percentages go lower in the non working women.

In the present study not much difference is observed in the nutritional status of women in relation to their number of conceptions, which supports the view of Som et al. (2012).

Number of live births and postmenopausal health

Like the relation between number of conceptions to postmenopausal health of women in the present study, the relation of number of live births to postmenopausal health also presents a similar picture. The percentages of working women who rate themselves to be not in good health decrease with increasing number of live births, but among non working women, the percentages of unwell increase with increasing numbers of live births. Again, when the women who perceive to be in good health are considered, the percentages of working women increase with increasing numbers of live births and vice versa among the non working women.

When the nutritional status of women having more than four live births is considered, it is seen that 22.0% of the non working women compared to 5.6% of the working women are overweight. And among the non working women who are obese, it is seen that the percentages increase with increasing numbers of live births.
Pregnancy wastage and postmenopausal health

Considering the working women with no pregnancy wastage, an equal number (19.3%) considered themselves to be not well and in good health. Slightly more than half (52.9%) of the working women with 1-3 pregnancy wastage regard themselves to be in fair health condition.

Among the non working women, a large majority- 57.3% and 55.6% respectively, with no pregnancy wastage and with 1-3 pregnancy wastage, regard themselves to be not well.

The nutritional status of both the working and non working women, regardless of their pregnancy wastage, is similar except for the fact that 2.1% of the non working women with no pregnancy loss are obese. No such strong relations have been seen in regard to both working and non working women of the present study.

The findings of the present study have also been discussed as far as possible by comparing with the findings of earlier studies of the same nature.