Obesity is relatively new in our human evolutionary history. Until the start of the Neolithic age some 10,000 years ago when farming lifestyles became prevalent, diets were based on foods caught and gathered, such as lean meat, nuts, and fibrous plants (Brewis 2011). The only readily available drink was water. Since walking was the only way to go around, people naturally exercised on a daily basis. Most of the world’s people lived predominantly on those food items that they could grow or collect relatively nearby their homesteads. The possibilities of being overweight and obesity in such an environment is rare.

However, the new millennium has signalled an important transition for our species with more people becoming overweight and obese (Mendez et al. 2005; Brewis 2011). In several of the developing nations across the world, including Africa, a continent usually associated with incidences of starvation and widespread malnutrition, the prevalence of overweight and obesity is increasing (Berman 2009; Brewis 2011). Currently, the most rapid increases in adult overweight and obesity are occurring in middle-income countries like China and India (Monteiro et al. 2004). Such a rapid increase in obesity reflects the speediness of socio-economic development, nutrition transition, urbanization and modernization (Sobal and Stunkard 1989; Brownell 2002; Popkin 2004). Adding to these factors are motorized transport, dependence on television for leisure, and less physical activity culminating in relatively sedentary lifestyles (Hill and Peters 1998; Bell et al. 2002; Erlichman et al. 2002). Taken together, these trends explain, at a broad level, the increasing number of people now being overweight and obesity worldwide.

Likewise, Imphal, the capital city of Manipur, a small state in Northeast India has begun to experience tremendous changes. Urbanization has accelerated, and so has the socio-economic status of many of its inhabitants improved significantly. Such a transition has, over the years, resulted in changes among Meitei population in terms of occupation, economy, food consumption, dietary intake, physical activity levels
and overall lifestyles. Prevalence of overweight and obesity among Meitei population differs by age and sex in the present study, which is akin to other studies (Balarajan and Villamor 2009; Matijasevich et al. 2009). The increasing prevalence of obesity among adult men and women in the present study could be attributed to the increasing accumulation of fats, as there is a progressive increase in fat and decrease in fat-free mass with advancing age (Molarious et al. 2000). Consequently, at any given weight, older people, on average have substantially more body fat than younger ones. However, it can also be due to relatively lesser involvement in physical activities and increasingly sedentary lifestyles among the elderly peoples. Higher prevalence of obesity among women in the present research could also be traced through biological differences with women typically depositing more fat tissue than lean tissue when they gain weight (James et al. 2001). Furthermore, women are more likely to become obese at a number of stages in the life course: during pregnancy, after childbirth, during the menopause and at retirement (Ferraro et al. 2003).

Patterns of overweight and obesity have emerged across different socio-economic groups and the relationship has been shown inconsistent in various studies in both developed and developing countries. Prevalence of obesity is significantly associated with high-income in both the sexes in the present study. Higher frequency of obesity among the high-income families in the present study is consistent with other studies from the developing countries (Monteiro et al. 2004). The possible explanation could be the differences in the influence of income on people’s dietary pattern, physical activity and overall lifestyles (Goyal et al. 2010). Diets and lifestyles are apparently the major contributors to weight problems and vary with different socio-economic conditions especially in countries like India that is undergoing rapid economic growth as well as a nutritional transition (Kleges et al. 1995). Further, rapid economic and social development has caused rapid changes in dietary pattern, physical activity, overall lifestyles and prevalence of obesity (Popkin and Gordon-Larson 2004). Furthermore, rich and wealthy persons are more likely to be obese especially in developing countries as they have enough resources at their disposal to eat well all the time (Sobal and Stunkard 1989; Brewis 2011). On the other hand, motorized transportation and labour saving household devices introduced by technological and socioeconomic development resulted in marked reduction of
physical activities (Song 2006). Such a transition could have major impact among the rich and wealthy families as they can afford it more readily than poor. This could be one reason explaining why the members of the higher income family are more overweight and obesity in the present study.

Most of the studies report that married people tend to be more often overweight and obese than those who remained unmarried; however, important variations exist according to gender and ethnicity (Sobal et al. 2009). Regardless, married men and women, in general, have a higher BMI and are more likely to be overweight and obese than their never married peers. Likewise, the higher frequency of overweight and obesity is found among the married adult men and women in the present study. Further, the overall frequency of both overweight and obesity shows to be significantly higher among the married men and women. The significantly high occurrence of overweight and obesity in the present research is consistent with another study (Tur et al. 2005). The possible explanation could be traced through several factors such as role of the married individuals to the family, parent’s involvement in the food preparation and reduction in the habitual physical activities (Hayes and Ross 1987). Further, the presence of children in a family may expose parents to snacks foods, which can lead to overweight and obesity (Sobal et al. 1992). This may reflect greater parental duties and in turn less time for physical activities and perhaps lower motivation for thinness after finding a spouse (Sobal et al. 1992). Habitual physical activity on the other hand associated with marital status suggests that married men and women have lower estimated daily levels of physical activities and do less physical activities in leisure time (Venters et al. 1986). Besides the differences in food habits and levels of physical activities between the married and unmarried, it is often suggested that the positive emotional well being of being married may influence fatness through increased appetite (Waite 1995).

Understanding how the level of education and obesity interact, therefore, is of particularly important. The pattern of obesity appears to be different with regard to educational attainment. Numerous studies have reported a strong inverse association between obesity and educational level (Wardle and Griffith 2001). However, there are also figures that show an increase in prevalence of obesity during the last decade of
the 20th century among the high-educated men and women (Visscher et al. 2002; Aekplakorn et al. 2007). Present research shows higher prevalence of overweight and obesity among higher education despite certain variation. The overall result shows higher frequency of overweight among those who studied up to primary education and obesity among those who studied up to graduate level among men. However, among women, the frequency of both overweight and obesity is higher among those who studied up to graduate and above education. The result further indicates that the overweight and obesity shows a gradual increase along with the increase in the levels of education from the secondary schooling onwards in both the sexes.

The positive association of obesity with education in the present research could be explained through several direct and indirect factors. The higher educated people spend most of their time on reading, writing, and on a computer, which results in lifestyles that are more sedentary. This could lead to the relative decrease in physical activity among the educated people (Cutler et al. 2003). Further, with the increasing awareness and importance of education in the present world, more and more people are well educated, which is unlike the prevalent trend in the past (Cheeseman and Bauman 2000). Such a changing educational composition of the population during the time of this upward trend in obesity could also be the reason for the higher occurrence of obesity among higher educated people.

Occupational physical activity is the key determinant of daily energy expenditure and weight gain (Bell et al. 2001). Prevalence of overweight and obesity in association with occupation shows contradictory results among the adolescents and the adults. Among the adolescent boys and girls, overweight and obesity are found only among the students. However, the prevalence of both overweight and obesity shows to be significantly higher among the government employees in both the adult men and women. The overall results further indicated that the frequencies of overweight and obesity are significantly higher among the government employees in both the sexes. Relatively sedentary lifestyles and more sitting hours among the government employees when compared to other occupations could be an explanatory factor for such a high occurrence of obesity in the present study. Furthermore, there is marked shift in occupations that require moderate intensity of physical activity to
occupations that are now involves more sitting and sedentary behaviour (Church et al. 2011). Such a decrease in occupational related activity coupled with increasing sedentary lifestyles could result in the increase in mean weight (Brownson et al. 2005). Furthermore, with the ever-increasing urbanization and technological development, and the related social and economic transformation, most of the occupational work can now be performed with minimum physical activities (Monda et al. 2008). On the other hand, diet and other personal lifestyle behaviours that influence body weight such as walking for transport, alcohol consumption and smoking are rarely considered to be related to occupation (Allman-Farinelli et al. 2010). Such a transition leading to increasing relative sedentism could be the reason for high occurrence of obesity among the government employees, as it has also been showed in another (Brown et al. 2003). It is unrealistic to expect that this trend will decrease in upcoming years, and adults will continue to be integrated into more sedentary jobs, while jobs that were once more labour-intensive will become more sedentary (Monda et al. 2008).

Physical activity is a key factor in maintaining healthy weight status because of its potentially major impact on body composition, metabolism, and increasing energy expenditure (Nowicka and Flodmark 2007). Present research shows a negative association between the prevalence of obesity and physical activity in both the sexes, which is consistent with other findings (Atlantis et al. 2006). Inactive physical activity may lead to more sedentary lifestyles and finally unhealthy weight gains due to the accumulation of unwanted fat depositions in the body. However, the higher amounts of physical activities might see larger reductions in body fat, but that physical activities, even if slightly below the recommended levels, can effectively reduce body fat (Atlantis et al. 2006). The built environment and political situation are of particular interest for decreasing physical activities among the Meitei population. Increasing land use for development, traffic density, restricted sport grounds and parks provide restrictions of physical activity promoting behaviour (Blake and Macinko 2008). Another situation in Manipur is the prevailing insurgency problems, kidnapping, neighbourhood crimes etc. This status quo could also be a reason for the relatively decrease in physical activity by restricting people to the confines of the home
environment. Such a restriction could lead to more sedentary lifestyles, which in turn, lead to the development of obesity in due course of time.

Time spent engage in watching television is thought to be one of the factors underlying the increasing prevalence of overweight and obesity observed in many populations around the world (Vincente-Rodriguez et al. 2008). However, there are also other studies that shows negative association between obesity and television time (Janssen et al. 2005; Burke et al. 2006), and some results have showed variations for gender (Crespo et al. 2001; Campagnolo et al. 2008). The association between the television time and obesity shows mixed results in the present study. Among adults, prevalence of overweight and obesity shows variation in both the sexes, and the differences are almost insignificant.

However, among the adolescent boys and girls the prevalence of both overweight and obesity is significantly associated with watching television. Overall frequency of overweight and obesity is shown to be higher among women who spend more time watching television whereas among men it shows little fluctuation. The positive association of overweight and obesity with television time among the adolescents in the present research is consistent with other studies (Lajunen et al. 2007; Lutfiyya et al. 2007). Watching television has been hypothesized to result in increasing body weight by displacing more physically active leisure interests thereby decreasing total energy expenditure (Robinson 2001). Another factor could be the dietary habits people tend to engage in while watching television (Rey-Lopez et al. 2008). In fact, one study reported that increase television viewing is associated with elevated consumption of high fat and high sugar foods resulting in increased daily energy intake (Manios et al. 2009). It seems reasonable that sedentary behaviours engaged with television time takes the place of physical activities, and therefore contribute to the development of overweight and obesity.

The association between sleeping hours and the prevalence of overweight and obesity is controversial. Recent studies have found that short sleep is associated with an elevated risk of obesity (Cappuccio et al. 2008; Patel and Hu 2008) whereas others found no evidence of an association between sleep duration and obesity (Gangwisch et al. 2005; Gottlieb et al. 2006). The association of obesity and sleeping time shows
mixed results among the adolescents and adults in the present study. However, the overall distribution of overweight and obesity is found to be higher among those who sleep for short duration in both the sexes. The study further indicates the risks of overweight/obesity among those who sleep relatively short in both the sexes. The negative association of obesity with short sleep duration in the present study is consistent with other studies (Cappuccio et al. 2008). Short sleep could promote higher BMI and obesity via a number of mechanisms. Restricted or short sleep alters secretion of hormone leptin and ghrelin that play an important role in the regulation of hunger and appetite (Spiegel et al. 2009; Magee et al. 2010b). With increase in general appetite and food intake, short sleep could lead to selection of calorie-dense foods in particular (Taheri 2006) and increased in fat intake (Shi et al. 2008) leading to weight gain. Another factor through which short sleep and obesity may be linked is physical activity (Shi et al. 2010). Sleep deprivation results in tiredness, fatigue and daytime sleep; this could contribute to reduced daytime activity and energy expenditure (Taheri 2006). There is also the possibility that overall energy expenditure is less among short sleepers than the normal sleepers due to daytime sleepiness and decrease physical activity (Dinges et al. 1997). Sedentary activity particularly television viewing, in addition to physical activity, may also be considered as a significant contributor to sleep deprivation especially in children (Taheri 2006). If short sleep results from late bedtimes, it is particularly likely to co-occur with increased TV viewing (Taheri 2006). This could be associated with the increase opportunity to eat, contributing to weight gain (Nedeltcheva et al. 2009). Individual working hours could be another factor indirectly associated with obesity and short sleep. Longer working hours reflect more stressful and demanding jobs that have the potential to disturb sleep (Gangwisch 2009). It is also possible that individuals who work long hours may have less time to engage in physical activity or may spend more time being sedentary (Di Milia and Mummery 2009).

Nutrition is of critical importance in maintaining a positive energy balance and a healthy weight. Of the nutritional factors related to obesity, dietary fat intake is widely believed to be primary determinant of body fat (Bray and Popkin 1998). The consumption of non-vegetarian items like fish and meat shows a mixed pattern with BMI levels in both the sexes. The daily consumption of fish is significantly associated
with obesity in both the sexes. The result further indicates that the positive association between the frequent consumption of meat and obesity among men, whereas it is inversely significant among women, which is consistent with other studies (Stam-Moraga et al. 1999; Sherwood et al. 2000). The probable reasons for the higher percentage of overweight and obesity among the frequent consumers of meat could be due to the higher fat contents and high-energy density in meat leading to the accumulation of more adipose tissue in the body. High fat diets promote obesity by increasing energy intake, further increasing the likelihood of a positive energy balance and weight gain (Hill et al. 2000). Further, a positive association has been found between the daily consumption of other fatty items (cooking oils) and level of obesity. The consumption of other food items like egg, milk and fruit shows mixed patterns. Egg consumption shows negative association with prevalence of overweight and obesity in both the sexes. Furthermore, the risks of overweight/obesity are inversely associated with milk consumption in both men and women. Higher distribution of both overweight and obesity is found among weekly fruit consumers than the daily consumes in both the sexes. Fruits are generally low in fat, calories, and added sugar while having high concentrations of nutrients and fibre, which makes them a good choice for promoting a healthy diet and weight status (Lowry et al. 2008). The consumption of sweets and the prevalence of obesity are inversely associated in the present research. The consumption of fast food comes out as an important factor with a more profound influence among women in the present study. The prevalence of overweight and obesity is higher among the daily consumers of fast foods in both the sexes. Fast foods are characterized by high fat and calorie dense foods (Dumanovsky et al. 2009). Further, energy intakes are higher on days where subjects consumed fast food than on non-fast food days (Bowman and Vinyard 2004). The changing food environment in Manipur can be seen through the increasing consumption of processed foods, fast foods, and meals prepared by roadside vendors (Dkhar and Singh 2012). Other possibility for the association of obesity and fast foods is link through soft drinks consumption, which is often served along with fast foods (Dubois et al. 2007). Soft drinks are nutrient-light, high sugar content liquids that metabolize quickly and can lead to blood glucose swings (Novotny et al. 2004). These swings in blood
glucose may trigger hunger and increased energy intake, even in the presence of excess energy.

The distribution of blood pressure associated with overweight and obesity shows variation among the adolescents and adults. Among the adolescent boys and girls, both overweight and obesity are found only in association with the normal blood pressure. However, among the adult men and women, the prevalence of both overweight and obesity are significantly associated with high blood pressure. The result further shows that the overall frequency of overweight and obesity are also significantly associated with high blood pressure. The present finding is in agreement with several other studies that shows a positive correlation between elevated blood pressure and adiposity (Gupta et al. 2007; Kotchen et al. 2008). Obesity has a potential detrimental effect on blood pressure. Hyper-insulinemia and leptin release from adipose tissue play an important role in the development of high blood pressure in obese individuals. The higher percentage of fat might cause the thickening of the blood vessels that then disturb the normal flow of blood. This might also lead to the increase of blood pressure.

Studies have shown that increased risks of different morbidities are not only confined to obese people as healthy weight individuals are also at risk of comorbidities (Manson et al. 1995). However, the prevalence of obesity related health problems increases with both the increasing body mass index and the duration of obesity. The present study shows the proportion of normal, overweight and obese men and women by some specific morbidity conditions such as diabetes, hypertension, sleep apnea, cardiovascular, gallstone, back pain, arthritis and asthma. Higher proportions of the different types of self-reported morbidities are found among men and women having normal BMI than the overweight and obese men and women. However, some of the morbidity cases are found very high among the overweight and obese men and women. The study further indicated that the risks of overweight and obesity are profound among the adult men and women and the levels of obesity. Among the specific morbidities, gallstone is found to be predominant among obese men and women. Among men, gallstone is followed by osteoarthritis and cardiovascular, whereas among the obese women diabetics and back pain are also
significantly high. The obese people have produced high levels of cholesterol that leads to production of bile that contains more cholesterol than can be dissolve. When this happens, gallstones can form the un-dissolved cholesterol. The possible factor due to which obesity could cause osteoarthritis is that being obese increases the amount of force across a joint, which could induce cartilage breakdown simply on the basis of excess force, which then leads to osteoarthritis. Many research works have been conducted to explain why the overweight are more likely to develop type 2 diabetes. The possible explanation is that fat interferes with the body’s ability to process insulin and overweight people are at increased risk for the disease. Such interference in the insulin production could lead to the increased accumulation of glucose in the blood instead of being taken into the cells then cause type 2 diabetes. Obese and overweight people have found to be associated with increased risk for back pain. This is especially true for people with extra weight around their midsection as the extra weight pulls the pelvis forward, strains the low back and creates low back pain.