

## REVIEW PAPER

# Maternal Obesity and Public Health

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### Abstract

Obesity has become an important public health globally. Being obese in reproductive period causes many problems related to both the baby and the mother. The risks associated with needs to be focus of public attention. Woman must first be aware of their body health and impacts of weight on this. Than after perception of their status they need to be given the consultation regarding their knowledge level, attitudes about their nutrition, breast feeding, preconception measures to be taken for their pre and postpartum health. In this review we intended to recognise the effects of obesity in this particular group of patients.

**Key words:** maternal obesity, public health, pregnancy, postpartum period, fetal health

### Introduction

Obesity has become an important public health problem because of changes in socioeconomic conditions and eating habits (Apay et al, 2010; Şener et al, 2011) World Health organization (WHO) has determined obesity as a global health burden of 21<sup>st</sup> century and addressed the predominance of occurrence in woman compared to man (Kabaran & Samur, 2010; World Health Organization ,2000). According to WHO; 400 million of obese persons and 1.6 billion mildly obese persons are present and; by 2015 these toll will increase to 700 million and 1,6 billion persons; respectively (World Health Organization, 2000 ). The Turkish Diabetes Epidemiology Study (TURDEP) revealed that the obesity prevalence was %22,3 in the year 2000 (Daşikan et al, 2009; Satman et al, 2002). In turkey like the global trend obesity increases in reproductive age woman and the pregnancy with a prevalence of 1,8-25,3% in pregnant woman (Apay et al, 2010; Daşikan et al. 2009; Şener et al, 2011; Yanikkerem et al, 2012).The obesity in reproductive period and being overweight in woman before conception causes many problems during and after gestational period. These in turn may be related to fatal and maternal diseases (Sirimi et al, 2010; Şener et al, 2011). That's why obesity is encountered as an important health problem.

### Maternal Obesity and Definition

Body mass index (BMI) is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m<sup>2</sup>).

The WHO definition is:

- BMI greater than or equal to 25 is overweight
- BMI greater than or equal to 30 is obesity.

BMI provides the most useful population-level measure of overweight and obesity as it is the same for both sexes and for all ages of adults. However, it should be considered a rough guide because it may not correspond to the same degree of fatness in different individuals.

### Risks Associated with Maternal Obesity

Maternal obesity is a condition that effects both the fetal growth, newborn health and the health of the mother during gestation and pre and postpartum period (Ece et al 2014; Felisbino et al 2014; Malti et al 2014; Vasudevan et al 2011). Maternal over- weight and obesity have identified increased risk of antenatal, intrapartum, and postpartum complications, including gestational diabetes, pre-eclampsia, caesarean delivery, shoulder dystocia, and neonatal

intensive care unit admissions (Madan et al, 2009).

The complications of obesity in pregnancy may lead to lifelong maternal as well as neonatal complications such as cardiovascular disease pregnancy complications such as gestational diabetes, hypertension and preeclampsia and affects foetal growth (Shaikh et al, 2010 ; Tenenbaum & Hod 2013). Maternal obesity due to its nature has the potential to create problems related to mother, fetus, the new born, and the family and be important public health problems. That's why it needs to be under the focus of physicians, nurses and dieticians and other health care providers. It is a condition that causes an increase in health expenditures. The health complications of obesity in pregnancy create a significant burden on the personnel and finances of the NHS (Birdsall et al, 2009). It has been estimated that obese mothers spend on average 4.83 more days in hospital than those of normal weight and their care costs are fivefold higher. The cost of caring for their infants is also higher as there is a 3.5-fold increase in the possibility of requiring admission to neonatal intensive care unit (Galtier et al, 2000). As Morgan said in his paper; from a public health viewpoint it is important to ascertain which risk factor, overweight/obesity or low physical activity levels, has the greatest relative contribution to delivery and perinatal outcomes in order to inform future targeted policies and interventions (Morgan et al, 2014). The type of delivery was associated with maternal physical activity level and not BMI. Perinatal outcomes (large for gestational age only) were determined by maternal BMI (Morgan et al, 2014). Chen et al. examined 1988 US National Maternal and Infant Health Survey data in their study (Chen et al, 2009). Compared with normal weight women (pre pregnancy BMI=18.5–24.9 kg/m<sup>2</sup>) who gained 0.30 to 0.44 kg/wk during pregnancy, obese women had increased risk of neonatal death and overall infant death. In his study; maternal obesity was associated with neonatal death from pregnancy complications or disorders relating to short gestation and unspecified low birth weight. In wealthy countries, approximately 1 in 3 women of childbearing age are obese (Doak et al, 2012; Flegal et al, 2010). Maternal obesity is an important obstacle for mother health in clinical obstetric. It is common, clinically important, and costly. In Europe, approximately 1

in 6 women who are seen for antenatal care is obese, and approximately 1 in 50 is morbidly obese (Turner, 2011). In general, increases in obesity-related diseases are projected to add \$48-66 billion a year to healthcare costs in the United States and £1.9-2 billion a year in the United Kingdom by 2030 (Wang et al, 2011).

### **The Burden caused by Maternal Obesity**

The financial costs with the fact that both the mother and child and probably the next and next generations are expected to be effected; makes this disease an important topic of public health.

In a study, Turner et al. (2013), interviewed mothers 9 months after delivery that was a part of a national cohort study of, and found that maternal obesity on univariable analysis was associated positively with lower household income, earlier completion of full-time education, smoking, African nationality, lower levels of breast-feeding, and increased parity. However, on multivariable analysis, maternal obesity was associated with both increased age and with parity in women who were more disadvantaged socioeconomically. And hence they concluded that public health interventions that are aimed at decreasing obesity levels after childbirth should prioritize women who are disadvantaged socioeconomically. It has been consistently reported that obesity presents an increased risk of mortality and morbidity for women and their infants during the childbearing continuum. For example, an earlier Triennial Review of Maternal Deaths (2003–2005) in the UK reported that approximately 28% of women who died were clinically obese (Confidential Enquiry into Maternal and Child Health, 2007). Maternal obesity is a significant public health challenge for maternity services including the doctors and midwives caring for the obese woman in labour (Singleton & Furber, 2014).

Rural women were more likely to have an unhealthy prepregnancy weight than urban women. However, rural residence was found to be protective against unhealthy GWG in overweight and obese women. Future research exploring reasons for these findings and confirmation of these results in other populations is necessary (Gallagher et al, 2013).

The risks associated with obesity have to be recognised by the patients. Obesity needs to be focus of public attention. This in turn probably

must be handled by the national or even global organisations. Woman must first be aware of their body health and impacts of weight on this.

Then after perception of their status they need to be given the consultation regarding their knowledge level, attitudes about their nutrition, breast feeding, preconception measures to be taken for their pre and postpartum health. Obesity increases the risk of adverse outcomes during pregnancy and birth and has significant cost implications for maternity services.

A study by Furness et al. explored the experiences and perceptions of pregnant women and midwives regarding existing support for weight management in pregnancy and their ideas for service development (Furness et al, 2011). They concluded that women needed advice regarding healthy lifestyles, diet and exercise in pregnancy to address a lack of knowledge and a tendency towards unhelpful self-talk messages.

#### **What can be done?**

Effective gestational weight management strategies important since they can diminish the above complications and reduce the risk of further development of obesity in mothers and their children (Sarwer et al, 2006). Since weight loss during pregnancy is not recommended, interventions during pregnancy focus on helping women gain the proper amount of weight based on their prepregnancy weight status. Since weight loss during pregnancy is not recommended, interventions during pregnancy focus on helping women gain the proper amount of weight based on their pre pregnancy weight status (Siega & Gray, 2013).

Interventions in pregnancy to manage weight result in a significant reduction in weight gain in pregnancy (evidence quality was moderate). Dietary interventions are the most effective type of intervention in pregnancy in reducing gestational weight gain and the risks of pre-eclampsia, gestational hypertension and shoulder dystocia. There is no evidence of harm as a result of the dietary and physical activity-based interventions in pregnancy (Thangaratnam et al, 2012). Health professional must use their knowledge for care of obese woman during and after gestation and be an adviser for supporting the healthy behaviour of the obese woman (Daşikan & Kavlak 2009).

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