Midwifery (2005) **21**, 365–370

midwifery

www.elsevier.com/locate/midw

Pregnancy weight gain in Iranian women attending a cross-sectional study of public health centres in Rasht

Mohsen Maddah, PhD (Assistant Professor)

Department of Human Nutrition, School of Public Health, Guilan University of Medical Sciences, P.O. Box 41635-3197, Rasht, Iran

Received 13 August 2004; received in revised form 14 January 2005; accepted 8 February 2005

KEYWORDS
Health system;
Iran;
Low birth weight;
Pregnancy weight gain

Summary
Objective: to investigate pregnancy weight gain in a group of Iranian women who regularly attended urban public health centres for prenatal care in Rasht, Iran.
Design: an existing data study analysing routinely collected health-centre data.
Setting: six randomly selected health centres in urban areas in Rasht.
Participants: 704 pregnant women aged 26.1 $\pm$ 5.6 years who regularly attended health centres for prenatal care and delivered between June 2002 and May 2003.
Measurements: data on pre-pregnancy weight, height, total pregnancy weight gain, mother's age, smoking habit, parity, baby birth weight, mother's education and working status were extracted from the health records. The women were categorised based on their pre-pregnancy body mass index (BMI) as 'underweight', 'normal weight' and 'overweight' (and obese). Participants were also grouped on the basis of their years of schooling as 'low', 'intermediate' and 'high-education'; pregnancy weight gain was compared between groups and with recommended ranges.
Findings: weight gain below the lower cut-off recommended by the Institute of Medicine (IOM) were 64% and 67% in underweight and normal weight women, respectively. Baby birth weight and chance of low birth weight were negatively related to pre-pregnancy BMI and pregnancy weight gain. After controlling for the differences in parity, pre-pregnancy BMI, mothers' working status and age, highly educated women ($>$12 years schooling) gained more weight during pregnancy than women with an intermediate (5–12 years schooling) or lower level of education ($<$ 5 years schooling).

E-mail address: maddahm@yahoo.com.

0266-6138/$ - see front matter
doi:10.1016/j.midw.2005.02.004

Conclusion: this study indicated that a considerable proportion of underweight and normal weight women had pregnancy weight gain below the lower cut off recommended by the IOM. These findings suggest that, in terms of pregnancy weight gain, prenatal care in the present health system is unsatisfactory. It would seem that a more effective nutritional education programme, especially for less educated pregnant women, is necessary.

Introduction

Pregnancy is a crucial part of a woman's life, and has the potential to influence the growing fetus and the mother. It has been suggested that pregnancy weight gain within the 1990 Institute of Medicine (IOM) recommended ranges are associated with better pregnancy outcome than are weight gains outside these ranges (Parker and Abrams, 1992; Carmichael et al., 1997; Lederman et al., 1997). In the USA, 30–40% of women gain weight within the recommended ranges during their pregnancy (Hickey et al., 1997; Lahmann et al., 2000). Deviations in maternal weight gain depend on socio-cultural and biological factors. However, in Islamic countries, such as Iran, underlying social and cultural behaviours related to pregnancy weight gain are different from western countries. Although social pressures to conform to an ideal body image is an important issue in western countries (Lahmann et al., 2000; Molarius et al., 2000), Iranian women are less concerned about thinness and dieting (Maddah et al., 2003).

On the other hand, after the Islamic revolution in 1979, international sanctions, which included a strictly enforced trade embargo, worsened the economic situation in Iran. In the past two decades, low birth weight (LBW) accounted for 40% of infant mortality in Iran (Efteghari and Azordegan, 1991). A recently published report by the Iranian Ministry of Health shows that the rates of LBW in Iranian babies are 8 and 7% in rural and urban areas, respectively (Iranian Ministry of Health and Medical Education, 1992).

It is known that the risk of prenatal mortality for a LBW baby is much higher than that of a normal weight baby (Koblinsky, 1995; Mora and Nestel, 2000). LBW babies may experience poor growth and cognitive development (Mora and Nestel, 2000). Furthermore, LBW babies have more chance of developing a metabolic syndrome in adulthood (Godfrey and Barker, 2000).

Although anthropometry of mothers before pregnancy and weight gain during pregnancy have an important effect on pregnancy outcome, no data have been published on this issue in either Rasht, a city in the north of Iran, or in other areas in the country. This study, therefore, aimed to investigate pregnancy weight gain in relation to baby birth weight in a population of pregnant women who regularly attended the urban health centres for prenatal care in Rasht.

Method

In this study, routinely collected health-centre data for 704 pregnant women, along with their babies' birth weight, were collated and analysed from six health centres in urban areas in Rasht. In the present health-care system in Iran, a trained health worker interviews each pregnant woman attending the health centre, and uses a standard questionnaire to collect data on prenatal care and information relating to the mothers' age, parity, working status, level of education, smoking habit and last menstrual period. Body weight of the pregnant women is measured monthly to the nearest 0.1 kg, using a balanced-beam scale, wearing light clothing without shoes; height is measured to the nearest 0.5 cm under the same condition as the first visit for prenatal care. Pre-pregnancy weight is self-reported by pregnant women.

In this study, six health centres were randomly selected from the total 12 centres in the city. The ratio of working women and their level of education in the sample was the same as the general population in Rasht. The pregnant women in this study delivered between June 2002 and May 2003 (mean week of gestation was 39.1; 95% confidence interval 37.5–39.9). The women claimed to be non-smokers (smoking is not socially accepted for women in Iran). Pregnant teenagers (nine cases were below 18 years of age) were excluded from the study, as they were still at high school.

The participants were grouped according to their pre-pregnancy body mass index (BMI) (weight [kg]/height^2 [m]), and according to IOM recommendations for total pregnancy weight gain. Recommended total weight gain in pregnant women by pre-pregnancy BMI (in kg/m^2) for low BMI ($<$ 19.8), normal BMI (19.8–26) and high BMI (29–29) are 12.5–18 kg, 11.5–16 kg and 7–11.7 kg, respectively