

Knowledge, Attitude, and Practice of Pregnant Women Regarding the Possible Effects of Obesity on Maternal and Fetal Health

Sahar Ali Sari (1)
 Yahia Mater Al-Khaldi (1)
 Amal Mohammed Surrati (2)
 Ajaeb Meshal Alharbi (3)

(1) Family Medicine Consultant, Ministry of Health, Abha, Saudi Arabia,
 (2) Associate Professor, Family & Community Medicine Department, College of Medicine, Taibah University, Saudi Arabia
 (3) Consultant Family Medicine, Madina Health Affairs, Ministry of Health, Saudi Arabia

Corresponding author

Dr. Sahar Ali Sari
 Email: dr.sari.s@hotmail.com

Received: July 2022 Accepted: August 2022; Published: September 1, 2022.

Citation: Sahar Ali Sari et al. Knowledge, Attitude, and Practice of Pregnant Women Regarding the Possible Effects of Obesity on Maternal and Fetal Health. World Family Medicine. 2022; 20(9): 110-116. DOI: 10.5742/MEWFM.2022.9525144

Abstract

Background: Obesity is a common health problem among females in reproductive age. Obesity is associated with fetal and maternal complications. The aim of this study is to assess the knowledge, attitude and practice of pregnant women regarding obesity and its negative impact on maternal and fetal health.

Methods: This study was conducted among 218 pregnant women who attended one primary care center in Abha City, KSA during 2018. The participants were interviewed during their visit to the antenatal clinic using a valid questionnaire which included many questions exploring the knowledge, attitude and practice regarding obesity during pregnancy. Data were entered and analyzed through SPSS. Relevant statistical tests were used accordingly, p-values were considered significant if less than 5%.

Results: The prevalence rates of overweight and obesity were 37.6% and 24% respectively; more than half of the participants did not know the expected average weight increase during pregnancy and more than half were unable to classify their actual weight correctly. Knowledge regarding harmful effect of obesity on maternal and fetal health during pregnancy was poor. Pregnant women also have false beliefs about dietary habits and physical activities which may lead to gaining of extra weight during pregnancy and worsen the outcomes.

Conclusion: The prevalence rates of overweight and obesity among many pregnant women were high. Knowledge related to obesity and its maternal and fetal risk were inadequate. False beliefs regarding lifestyle during pregnancy were evident. A preconception structured health education program to upgrade knowledge, change attitude, improve practice and to correct misbeliefs regarding obesity during pregnancy, is mandatory.

Keywords: obesity, overweight, Knowledge, Attitude, Practice, Pregnancy.

Introduction

Overweight and obesity are hot public health issues in Saudi Arabia. The increasing prevalence of obesity represents a cost burden on the community and healthcare system (1). Globally, the incidence of obesity is increasing (2). In the United States, 28.7% of women were obese (3). In Saudi Arabia, one study showed that 20.5% of single females were overweight, 9.12% were obese and 0.97% had morbid obesity, while prevalence of overweight was 43.0% and for obesity and morbid obesity were 29% and 3.75%, respectively (4).

Maternal obesity and excessive gestational weight gain in particular have been linked to many obstetrics complications, including preeclampsia, fetal macrosomia and increased cesarean delivery (5). Also, maternal obesity is considered as a modifiable factor in stillbirth in developed countries (6). In Al-Hassa Region, Saudi Arabia, overweight and obese women were at increased risk for pregnancy outcome related complications (7).

To the best of our current knowledge, published studies regarding the knowledge of pregnant women, concerning weight status and its effect on maternal and fetal health during pregnancy is limited. Only one study discussed this issue and concluded that improving the knowledge of pregnant women about obesity and gestational weight gain may lead to improving perinatal outcomes in pregnant women (8). However, pregnant women should be aware of their weight and the extent of weight gain during pregnancy since underestimation of their weight leads to more weight gain in pregnancy (9).

The objective of this study was to assess the knowledge, attitude and practice of pregnant women regarding obesity and its negative impact on maternal and fetal health.

Methodology

This cross-sectional study was conducted in AlNumais primary healthcare center, which was selected by simple random sampling. It lies in Abha City, Aseer region, Saudi Arabia, and it currently serves 7,083 citizens, including 502 females in their reproductive age, who represent about 7% of the total registered population at Al-Numais PHCC.

The sample size of participants for the current study was determined to be 218 according to Dahiru et al. (10), with $Z=1.96$, an assumed prevalence among the study sample of 50%, and a 0.05 margin of error.

A study questionnaire was adapted from a previous study that was conducted in a maternity hospital in Australia (8). The questionnaire consisted of four parts as follows:

- The first part contained 12 questions about simple demographic information, a question to the pregnant women to classify themselves as they perceive as being underweight, normal weight, overweight or very overweight

and then they were asked about their knowledge regarding the proper healthy weight gain during pregnancy for themselves.

- The second part contained 17 questions that focused on the risk of excessive gestational weight gain on the pregnancy outcome and on the baby.

- The third part was about dietary and exercises practice during pregnancy.

- The fourth part contained 16 questions about dietary practices and safe methods to gain weight during pregnancy.

The Australian guide to healthy eating (11) and the Institute of Medicine (IOM) guidelines for weight gain during pregnancy (12) were taken as standards for evaluating the responses of participants as "True" or "False". Participants' levels of knowledge were considered as "good" if their total percentage score was $\geq 60\%$.

After completion of the questionnaire, all women were given information on their body mass index (BMI) and the recommended weight gain during pregnancy.

Before start of data collection, the study questionnaire was piloted on 10 pregnant women whose data were excluded from the study. Research ethical approval from the Regional Committee of Research Ethics was obtained under the following number (REC#2018-06-14) and then the investigators conducted direct interviews with consecutively selected participants.

Data were analyzed using the appropriate descriptive and inferential statistical tests using the Statistical Package for Social Sciences (IBM, SPSS) version 22.

Results

This study included 218 participants, whose personal profile is shown in Table (1). Their mean age was 28.7 ± 5.5 years (range 17-40 years). Most participants (61.9%) were multigravida. Participants' mean gestational age at the time of the interview was 22 weeks. Moreover, almost half of participants (47.2%) were university educated.

Figure (1) shows that most participants (76.1%) did not know the normal weight gain during pregnancy.

Table (2) shows that 39% and 24.3% were overweight or obese, respectively. Regarding body image, 31.7% described themselves to have ideal weight while 48.6% and 3.2% described themselves as overweight or obese, respectively. Most participants of normal weight and overweight women correctly identified themselves as such (52.2% and 64.7%).

Table (3) depicts participants' knowledge regarding the negative effects of maternal obesity on their health and on fetal health. More than half of the participants could correctly identify the negative effect of obesity on maternal health; such as back pain (52.3%), difficulties in movement (56%) and lower limb edema (54.1%).

However, their knowledge about other risks was poor. Moreover, knowledge regarding the negative effect of obesity on fetal health was poor in most of the items. Their mean knowledge score regarding the negative effects of obesity on maternal and fetal health were poor (3.7 and 1.4 points, respectively).

Table (4) shows lifestyles of pregnant women during pregnancy. Regarding the number of meals eaten per day, 8.7% had one meal per day, 33% had two meals, while 56.4% had three meals daily. Only 15.6% of participants

perform regular exercise, mainly walking (14.7%), <3 times daily (13.3%), while the others did not perform physical activity due to several barriers, mainly fear of abortion, having no time or suitable place (45%, 19.7% and 10.1%, respectively).

Table (5) shows participants' responses regarding their dietary approach and behavior to control weight during pregnancy, as compared with experts' answers. Most participants had misbeliefs which may lead to gaining extra weight during pregnancy.

Table 1: Personal characteristics of participants

Personal characteristics	No.	%
Age		
• <25 years	68	31.2
• 25-35 years	110	50.5
• >35 years	40	18.3
• Age (Mean±SD)	28.7±5.5 years	
• Age (range)	17-40 years	
Gravidity		
• Primigravida	83	38.1
• Multigravida	135	61.9
Educational level		
• Less than university educated	115	52.8
• University educated	103	47.2
Knowledge regarding expected weight gain during pregnancy		
• Correct	26	11.9
• Incorrect	26	11.9
• Do not know	166	76.1

Table 2: Body image as described by participants versus class of obesity

Personal body Image	Grades of obesity according to body mass index									
	Underweight		Normal		Overweight		Obese		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Skinny	11	84.6	20	29.9	4	4.7	1	1.9	36	16.5
Ideal	2	15.4	35	52.2	26	30.6	6	11.3	69	31.7
Overweight	0	0.0	11	16.4	55	64.7	40	75.5	106	48.6
Obese	0	0.0	1	1.5	0	0.0	6	11.3	7	3.2
Total	13	6.0	67	30.7	85	39.0	53	24.3	218	100.0

P<0.001

Figure 1: Participants' knowledge regarding physiological weight gain during pregnancy

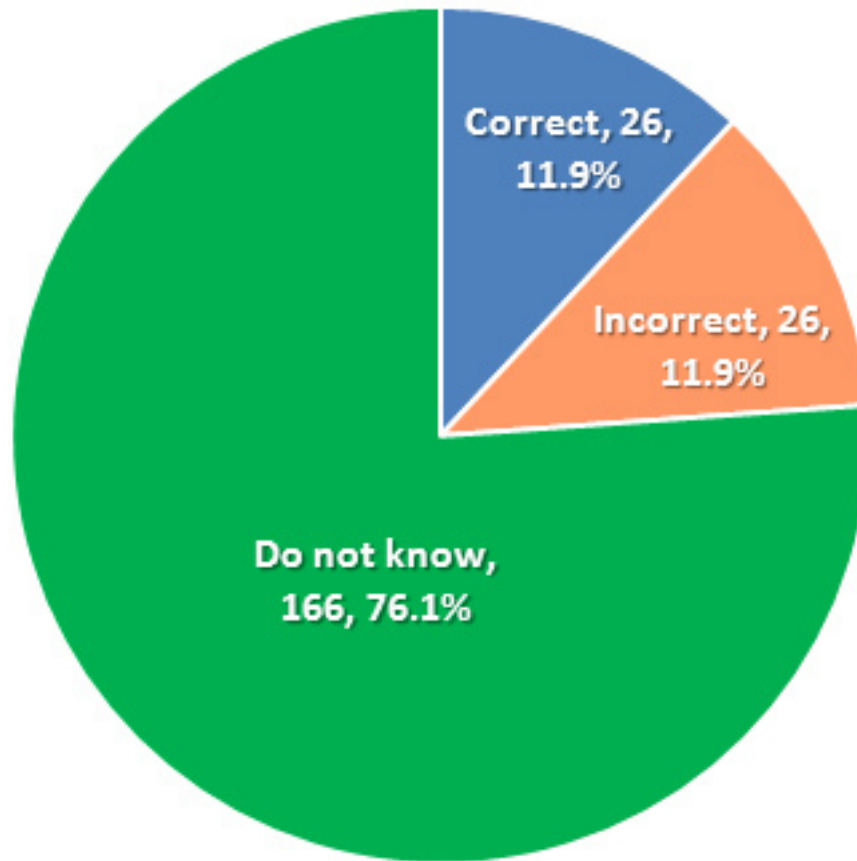


Table 3: Participants' knowledge regarding harmful effects of obesity on maternal and fetal health

Harmful Effects	Correct		Incorrect		Do not know	
	No.	%	No.	%	No.	%
Mother:						
• Increased blood pressure	82	37.6	45	20.6	91	41.7
• Gestational diabetes	96	44.0	55	25.2	67	30.7
• Pre-term labor	39	17.9	71	32.6	108	49.5
• Post-term labor	37	17.0	59	27.1	122	56.0
• Cesarean section	67	30.7	72	33.0	79	36.2
• Increased weight after labor	77	35.3	52	23.9	89	40.8
• Difficult breast feeding	50	22.9	75	34.4	93	42.7
• Back pain	114	52.3	48	22.0	56	25.7
• Difficult in movement	122	56.0	45	20.6	51	23.4
• Lower limb edema	118	54.1	46	21.1	54	24.8
Mean knowledge score (out of 10)	3.7±2.9					
Fetus:						
• Macrosomia	64	29.4	59	27.1	95	43.6
• birth trauma	29	13.3	69	31.7	120	55.0
• hypoglycemia	31	14.2	62	28.4	125	57.3
• Jaundice	46	21.1	51	23.4	121	55.5
• childhood obesity	48	22.0	55	25.2	115	52.8
• Fetal death	28	12.8	63	28.9	127	58.3
• Baby nursery	50	22.9	45	20.6	123	56.4
Mean knowledge score (out of 7)	1.4±1.9					

Table 4: Patterns of participants' lifestyle

Patterns of lifestyle	No.	%
Number of meals per day		
• One	19	8.7
• Two	72	33.0
• Three	123	56.4
• More than three	4	1.8
Practice of exercise during pregnancy	34	15.6
• Walking	32	14.7
• Swimming	4	1.8
• Yoga	2	0.9
Frequency of exercise per week		
• ≤3	29	13.3
• 4-5	5	2.3
• >5	1	0.5
Barriers against performing physical activity		
• Fear of abortion	98	45.0
• No time	43	19.7
• No suitable place	22	10.1
• Lack of knowledge on benefits of physical activity	14	6.4
• Disease barriers	9	4.1

Table 5: Participant' beliefs about safe and effective management of weight gain during pregnancy

Beliefs	Expert Opinion	Correct answers	
		No.	%
Dietary behavior			
• Skip meals	No	111	50.9
• Remove fat from meat	Yes	168	77.1
• Finish everything on your plate	No	73	33.5
• Stop eating after 8:00 pm	No	95	43.6
Dietary approaches			
• Choose low fat milk and dairy products	Yes	153	70.2
• Eat less cakes and chocolate	Yes	177	81.2
• Eat a gluten free diet	No	109	50.0
• Drink less soft drinks	Yes	196	89.9
• Drink more fruit juice	No	164	75.2
• Eat plenty of fruit and vegetables	Yes	170	78.0
• Eat less fast foods	Yes	183	83.9
• Eat less fried foods	Yes	182	83.5
• Eat low carbohydrate diets	No	61	28.0
Exercise			
• Exercise 3 or more times each week	Yes	126	57.8
• Avoid exercise	No	120	55.0

Discussion

The aim of this study was to explore the weight status and knowledge regarding the effect of obesity on the health of the mother and the fetus during pregnancy. This study found that the prevalence of overweight and obesity were 39% and 24.3%, respectively, which is lower than that reported among adult females in Aseer Region by Al-Saleem et al. (44%) (13) and Al-Asmari et al. (36%) (14). A similar figure was reported among Australian pregnant ladies (24%) (8), and lower than that found in Canada (10%) (15).

It was noted that participant pregnant women had low awareness regarding most of the complications associated with excess weight on maternal and fetal health. Such findings were similar to those reported in Australia by Shub et al. (8). This can be due to pregnant women not given sufficient appropriate health education during antenatal visits about obesity and its related problems. Better awareness of these complications could lead to good control in weight gain during pregnancy.

Other gaps of knowledge identified in this study were about weight gain during pregnancy, proper categorization of actual weight and weight management strategies, which may lead to ineffective interventions to control excessive weight gain during pregnancy.

Good knowledge about diet can help women to control weight gain during pregnancy. In our study, it was found that such knowledge was insufficient regarding dietary approach to control weight gain during pregnancy. This area was inadequately investigated as only one study was done in primary care that assessed the food habits in pregnant women relating to food craving and pica (16).

Despite the importance of physical activity for pregnant women, it was found that the majority of the participants were not doing even light and ordinary physical activities, such as walking, which may contribute to excess weight during pregnancy. In this regard, the most common barrier against physical activity during pregnancy was fear of losing the fetus. This finding indicates the urgent need to provide proper education about the importance of exercise and appropriate type and timing of physical activity for pregnant women. The other barriers were lack of time and lack of suitable place for performing exercise, which were commonly identified in previous studies (17,18).

This study found that most pregnant women had inappropriate dietary behaviors, such as intake of few meals (33% intake two meals and 9% intake one meal daily), which may affect the daily nutritional requirements during pregnancy. Other improper dietary behaviors included skipping meals, intake of many soft drinks, eating less fruit and vegetables, and excessive intake of simple carbohydrates. Therefore, it is suggested that pregnant women should receive adequate and specific nutritional counseling before pregnancy and during the initial antenatal visit in order to correct misconceptions in knowledge, behavior and practice related to diet.

Conclusion and recommendations

This study revealed that overweight and obesity among pregnant women in Aseer Region are high, most probably due to unhealthy lifestyles. Their knowledge regarding the harmful effects of obesity on maternal and fetal health is quite poor, and their practice of healthy lifestyles is suboptimal, which necessitates putting in more effort before and during pregnancy through well-structured and focused health education and promotion programs directed to females in their productive age.

References

1. James PT. Obesity: the worldwide epidemic. *Clinics in dermatology*. 2004;22 (4):276-80. doi: 10.1016/j.clindermatol.2004.01.010.
2. Organization WH. Obesity: preventing and managing the global epidemic: World Health Organization; 2000.
3. Flegal KM, Carroll MD, Kit BK, Ogden CL. Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999-2010. *JAMA*. 2012; 307 (5):491-7. Doi: 10.1001/jama.2012.39
4. Al-Malki J, Al-Jaser M, Warsy A. Overweight and obesity in Saudi females of childbearing age. *International journal of obesity*. 2003;27 (1):134-9. doi: 10.1038/sj.ijo.0802181.
5. Cedergren M. Effects of gestational weight gain and body mass index on obstetric outcome in Sweden. *International Journal of Gynecology & Obstetrics*. 2006;93 (3):269-74. DOI: 10.1016/j.ijgo.2006.03.002
6. Flenady V, Middleton P, Smith GC, Duke W, Erwich JJ, Khong TY, et al. Stillbirths: the way forward in high-income countries. *The Lancet*. 2011;377 (9778):1703-17. doi: 10.1016/S0140-6736(11)60064-0.
7. El-Gilany A-H, Hammad S. Body mass index and obstetric outcomes in pregnant in Saudi Arabia: a prospective cohort study. *Annals of Saudi medicine*. 2010;30 (5):376. doi: 10.4103/0256-4947.67075.
8. Shub A, Huning EY, Campbell KJ, McCarthy EA. Pregnant women's knowledge of weight, weight gain, complications of obesity and weight management strategies in pregnancy. *BMC research notes*. 2013;6 (1):278.
9. Herring SJ, Oken E, Haines J, Rich-Edwards JW, Rifas-Shiman SL, Gillman MW. Misperceived pre-pregnancy body weight status predicts excessive gestational weight gain: findings from a US cohort study. *BMC Pregnancy and Childbirth*. 2008;8 (1):54. doi: 10.1186/1471-2393-8-54.
10. Dahiru T, Aliyu A, Kene TS. Statistics in Medical Research: Misuse of Sampling and Sample Size Determination. *Annals of African Medicine* 2006; 5 (3): 158 – 161.
11. Kelleth E, Smith A, Schmerlaib Y. *Australian Guide to Healthy Eating*. Department of Health and Ageing; Commonwealth of Australia; ISBN 0 642 27257 3; 1998 [cited 20 November 2021].
12. Yaktine AL, Rasmussen KM. *Weight Gain During Pregnancy: Reexamining the Guidelines*: National Academies Press; 2009.

13. Al-Saleem S, Alshahrani A, Al-Khaldi YM. Obesity among patients attending primary care centers, Aseer Region, Saudi Arabia. 2013;1 (2):67. DOI: 10.4103/2347-2618.128632.
- 14-. Al-Asmari BA, Alsaleem SA, Al Shahrani AM, Al Khaldi YM, Alqahtani MM, Alhamdan TM. Weight status among pregnant women in Aseer region, Saudi Arabia. 2015; 3 (2):55. DOI: 10.4103/2347-2618.171957.
15. Gaudet LM, Gruslin A, Magee LA: Weight in pregnancy and its implications: what women report. *J Obstet Gynaecol Can* 2011, 33:227–234. DOI: 10.1016/s1701-2163(16)34823-x
16. Al-Kanhal MA, Bani IA. Food habits during pregnancy among Saudi women. *Int J Vitam Nutr Res* 1995; 65:206–210.
- 17-. Samara A, Nistrup A, Al-Rammah TY, Aro AR. Lack of facilities rather than sociocultural factors as the primary barrier to physical activity among female Saudi university students. *Int J Womens Health*. 2015;7:279-86. Published 2015 Mar 9. doi:10.2147/IJWH.S80680.
- 18-. Al-Otaibi HH. Measuring Stages of Change, Perceived Barriers and Self efficacy for Physical Activity in Saudi Arabia. *Asian Pacific Journal of Cancer Prevention* [Internet]. 2013;14 (2):1009–16. Available from: <http://dx.doi.org/10.7314/APJCP.2013.14.2.1009>.