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Attitudes and Behavior of Pregnant Omani Women towards Gestational Weight Gain and Exercise during Pregnancy: A survey study.

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Abstract

Objective: The purpose of this study was to evaluate the attitude of pregnant Omani women toward their current weight, healthy weight gain and exercise during pregnancy. And to investigate their views on what they might consider as helpful resources to prevent excessive gestational weight gain.

Methods: A cross sectional study was conducted in Sultan Qaboos University Hospital (SQUH) between October and December 2016. One hundred and eighty pregnant Omani women between 19 to 45 years of age were recruited. A questionnaire was used to collect the data. Statistical analysis using Pearson's chi-square test was conducted to evaluate the association between the study variables and Body Mass Index (BMI) group.

Results: The prevalence of obesity among the study sample was 37%. Out of the obese group, 58% felt uncomfortable about their weight (P value <0.05). Most pregnant Omani women stopped exercising when they got pregnant. Only 34% of women in this sample exercised during pregnancy. Significant associations were found between the concern about potential weight gain and BMI group (P value =0.05). Fourteen percent of the women gained excessive weight but did not lose it after delivering previous babies and majority of them were classified as obese (p value <0.05). Feeling tired and lack of time were the main reasons reported for not exercising during pregnancy.

Conclusion: The results suggest that attitude of pregnant Omani women is reasonable toward weight gain and exercise during pregnancy. However, only few of them exercised during pregnancy, which highlights the fact that practicing physical activities were inadequate.

Keywords: Omani women, Pregnancy, Attitude, Exercise, Excessive gestational weight gain, weight, BMI, body mass index.



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Introduction

Pregnancy is a critical period in life during which rapid weight gain is likely to occur (1). Excessive gestational weight is the most common factor for high-risk pregnancy outcomes and it is prevalent worldwide. Maternal obesity is significantly associated with increasing age, parity, black ethnic group and deprivation (2). It causes short- and long-term complications for both neonate and mother. Furthermore, obesity makes it difficult for obstetricians and midwives to practice their jobs (3). Potential errors and technical difficulties could occur in the diagnosis and visualization of fetus anomalies in the prenatal ultrasound scan (4).

Maternal obesity in associated with increase in the risk of gestational diabetes, preeclampsia, postpartum hemorrhage, macrosomia and miscarriage. A high risk of both elective and emergency cesarean section is frequently observed in very obese women compared with women of normal weight (5, 6). In addition, postpartum infections are more prevalent among obese women and is directly associated with operative delivery (5). Furthermore, childhood obesity is another consequence of maternal obesity due to lactation failure seen in obese women. Therefore, they are less likely to maintain breastfeeding for long durations, which results in formula feeding (7).

The Institute of Medicine (IOM) encourages women to follow healthy diets and increase their physical activity during pregnancy. Guidelines are proposed by the IOM for the proper gaining of gestational weight. Regarding pre-pregnancy Body Mass Index (BMI), it is recommended that women with low BMI (<19.8) gain 12.7-18 kg, 11.5-16 kg for those with normal BMI (19.8-26.0), 7-11.5 kg for overweight women with (BMI > 26.0 - 29.0) and 5.0-9.1kg for obese (BMI>30.0) (1).

With regards to exercise during pregnancy, exercise has many benefits for the mother and her fetus and carries minimal or no risks. Women who exercise are found to have stronger muscles and less likely to develop gestational hypertension compared to inactive women. They have easier deliveries, fewer cesarean sections and recover faster postpartum (8). Physical activities like walking, swimming and biking have been considered as safe if practiced moderately (9). However, some exercises like scuba diving carries risks of fetal malformation and gas embolism induced by decompression (10). The American College of Obstetricians and Gynecologists



(ACOG) published recommendations and contraindications for practicing exercise during pregnancy. All women with uncomplicated pregnancy are encouraged to exercise. However, high-risk activities such as those at high altitudes or activities that may cause falling or abdominal trauma should be avoided (11).

The guidance of health care givers influences the behaviors of pregnant women and it can alter their weights (12). In a case-control study that examined the efficacy of intervention on the gestational weight gain based on socioeconomic state, it was found that 52% of low-income women who did not receive advice gained more than recommended weight. However, 33% of those who got the advice gained excessive weight. Nevertheless, there was no significant difference between cases and controls among the high-income group (13). Moreover, dietary and lifestyle interventions are found to be the most effective in the reduction of maternal weight gain and it is associated with improvements in the pregnancy outcomes (14). Whereas, there are many barriers that clinicians may face in providing primary care to obese pregnant women and preventing the excessive weight gain. Some of which are due to constricted time for counseling and lack of professional training (15).

<u>Objective</u>

The aim of this study was to evaluate the attitude of pregnant Omani women toward their current weight in relation to their BMI, healthy weight gain and exercise during pregnancy. It aims to determine the percentage of women who have regular exercise before pregnancy and during pregnancy and to investigate their views on the available resources that encourage healthy lifestyle and exercise during pregnancy. The outcomes of this study will able to assist in developing national programmes and improve the facilities that are provided by health care workers, community and the government. Moreover, adapting to these measures will result in improvement in women's health leading to better maternal and fetal outcome.

<u>Methodology</u>

A descriptive cross sectional study was conducted in the department of Obstetrics and Gynecology (OBGYN) in The Sultan Qaboos University Hospital (SQUH) between October and December 2016. Consent was obtained from 180 pregnant Omani women and they were asked to participate by filling a questionnaire entitled "Attitudes and Behavior of Pregnant Omani Women toward Gestational Weight Gain and Exercise during Pregnancy ".

The research ethics committee at the College of Medicine and Health Sciences in Sultan Qaboos University approved the study. The questionnaire requested information on the women's age, weight, height, education, occupation, stage of pregnancy, and family income, exercise during pregnancy and barriers to exercising during pregnancy. Women who were unable to give informed consentwere excluded. All participants provided written informed consent. They were aged between 19 - 45 years at any trimester during their pregnancy and were literate.



A pilot study was done which included 10 completed questionnaires to determine any errors that may indicate difficulties with any aspect in the questions and modifications were done accordingly.

The Statistical Package for Social Science (SPSS version 22) was used for the purpose of data analysis. Responses were reported descriptively and Chi square test was used to test associationbetween variables and differences in response according to BMI group. The continuous variables (age, weight, height, gestational age ...etc) were analyzed by obtaining the mean and the standard deviation.

<u>Results</u>

The sociodemographic and obstetric characteristics of 180 pregnant Omani women is displayed in table 1. The mean age of the participants was 31 years old and the standard deviation was \pm 5.1. The youngest participant was 19 and the oldest age was 45 years old. The mean gestational age was 27 weeks. About sixty two percent were in the third trimester of pregnancy. Majority of the women (79.8%) had previous pregnancies. None of the women in this study were illiterate and 52.2% reported having university education. Forty Four per cent (44.4%) were employed and the average monthly family income was between 1000-2000 Rials for most of the participants.

The set of questions was designed to review the knowledge and perception of the respondents regarding exercise during pregnancy and their participation in regular exercises. There were a total of 180 women in this study. Information on height and/or weight was not recorded in 22 individuals (12.2%), so the BMI was not calculated for this group. The remainder 158 women were divided into two categories according to their BMI (classified into obese and non-obese). More than half (51.1%, n=92) of the women were non-obese with BMI less than 30, and 36.7% (n=66) of the study group were obese with BMI more than or equal to 30, the remainder with missing data.

Majority of the women (64%) who did not feel comfortable with their weight were from the obese group (p value < 0.05). Figure 2 illustrates the view of pregnant women on their current weight. Interestingly, 28% of those who agreed with the statement of being comfortable with their weight were obese.

When asked about their views on potential weight gain in the current pregnancy, twenty individuals of the study population (11.1%) expressed their worries about gaining excessive weight. However, 49 out of 180 women (27%) were not concerned about gaining weight and the majority of those were noted in the non-obese group (p value <0.05). About 6% of the women in this study gained a lot of weight and did not lose it after delivery of previous babies and almost all of these women were obese (p value <0.05). Table 2 illustrates the opinions on current weight and potential gestational weight gain.



Women were also askedwhether they practice physical exercise before and during pregnancy. The majority of women (66.1%) used to practice physical exercise before pregnancy and the relationship between exercising before pregnancy and BMI group was significant (p value = 0.001). Almost 54% of non-obese and 82% of the obese group exercised prior to pregnancy. However, only 33.9% of the participants continued to exercise during the pregnancy with similar findings of 32.2% and 33.3% in the non-obese and obese groups respectively (P=1.00).

Almost all of those who exercise during pregnancy preferred walking (98.2%). Swimming ranked second with 8.2%, and aerobics with 4.9%. Other forms of exercise were mentioned by two respondents, which were volleyball and skipping (3.3%).

The women were also asked about the barriers that prevented them from practicing during pregnancy. The major barriers to exercising reported by women were lack of time (32%) and the feeling of tiredness (41%). However 18% believed that exercise is harmful to the fetus. Four per cent of the participant who did not exercise during pregnancy was due to history of recurrent miscarriages and back pain.

Responses regarding resources did not differ by BMI. All of the resources suggested in the questionnaire such as advice from medical practitioners were considered by most of the respondents as helpful. Eighty seven percent (87.2%) agreed that attending a clinic to get targeted advice would help in preventing excessive gestational weight gain.

With regards to access to sport and practicing physical activity in preventing excessive gestational weight gain also showed high agreement (64%). However, 30% were unsure about it.

Healthy meals cooking were viewed as helpful to the majority (86.7%) and other resources such as Internet and mobile phone application advices as well as leaflets on healthy eating were also considered to be beneficial by more than half of the women.

Discussion

The findings from this study showed that pregnant Omani women have a reasonable attitude and behavior towards exercise during pregnancy. However, only few of them reported that they exercise during pregnancy, which highlights the fact that practice was not adequate.

In this study, some of the women did not have any concerns about gaining excessive weight in the current pregnancy. Around half of the women expected to gain some weight during pregnancy but they did not wish for it to be excessive. Whilst, others reported that they were very worried about gaining excessive weight during pregnancy. There was a significant difference between the responses of obese compared with non-obese women about their concerns (p value =0.05). We found obese women to be more uncomfortable with their current weight than non-obese women. Prior study carried amongst a diverse sample of women in New York showed that many of them were concerned about gaining weight and how their bodies will look after delivery (16). Another



similar study was conducted in the United Kingdom showed similar opinions compared to our study. Around 60% of the women had concerns, but 40 % did not express any concerns including those who had not lost weight gained from previous pregnancies (17). However, our findings were inconsistent with Weir et al.'s study which revealed that women usually matter less about their weight during pregnancy but, get motivated to lose it after delivery assuming that breastfeeding would help them to return to pre-pregnancy weight (18). This may be attributed to lack of information given to pregnant women about the importance of maintaining healthy weight during pregnancy.

Postpartum weight retention is greatly associated with gestational weight gain (19). About 6% of pregnant Omani women viewed they gained a lot of weight and did not lose it after having baby and this was significantly associated with their BMI (P value = 0.004). Obese women appeared to have a tendency to retain gestational weight after delivery more so than non-obese women. In contrast, 17% gained excessive weight and lost it after delivery, this finding was not significantly related to the BMI groups. Leslie, et al. showed that 9% of their study population retained weight after pregnancy (17). However, weight gain issues should be considered with great care.

With regards to exercise in this study, there is an agreement with many other studies conducted in different countries showing that few women exercise during pregnancy (20, 21). The association between practice of exercise before pregnancy and the BMI was statistically significant (P value = 0.001). In both groups, exercise before pregnancy was more than that during pregnancy. Almost half of the obese women stopped exercising during pregnancy as the percentage decreased from 82% to 33%. Our findings were consistent with Ribeiro and Milanez results (21), where 29% of the women had exercised or were exercising during pregnancy with the vast majority of them practiced walking. Although women are aware of benefits, they believe that rest and relaxation during pregnancy is more important than regular exercise in maintaining healthy lifestyle (22). In a study conducted in the United States, women were interviewed to assess their knowledge about obesity related risks during pregnancy. They showed greater knowledge about excessive gestational weight was associated with lower participant weight (23). This highlights the importance of educating the population about the benefits of exercise for pregnant women. Additionally, providing instruction about different types of appropriate exercise and avoiding unsafe practices during pregnancy increases compliance. Furthermore, encouraging individuals who previously exercise to continue practicing after delivery.

Obesity in Oman has increased markedly in the past few years. In 2000, the prevalence of overweight and obesity combined has reached 51% of the Omani population (24). Exercise is viewed as a key component for healthy pregnancy in women of all weight ranges. In this study, the main reasons for not exercising were tiredness followed by lack of time, which are common barriers that were also found in similar studies (20, 21). In Duncombe, et al study, "being too busy" was the first reason for not exercising and "tiredness" was the second (20). Non-exercise related signs and symptoms were reported mostly in the later stage of pregnancy such as body soreness, leg cramps, shortness of breath, gastrointestinal upset. These were seen



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as barriers to exercise by women in that same study. Therefore, as pregnancy progresses, women tend to decrease the duration and intensity of exercise during pregnancy (20, 22, 25). In addition, working women exercised less, mainly because they are too busy or not getting time off work (17). So, further studies are needed to help women overcome these common barriers.

Previous studies showed inadequate advice given by health care providers on physical activity and lack of communication between women and their midwives (18, 26). Advice and intervention by doctors on excessive gestational weight gain is an effective action to decrease postpartum weight retention (13). Majority of women in our study (87.2%) agreed that attending a clinic to get targeted advice would benefit and help in preventing excessive gestational weight gain. However, the results were different in a similar study, where only 14% of the study population thought that attending a clinic for individualized advice would be helpful (17). In a randomized controlled trial that studied the effect of lifestyle intervention on gestational weight gain, improvement in some dietary habits were beneficial. The total body fat was reduced in all women to the recommended level with increase in calcium, fruit and vegetable intake (27). Thus, the capabilities of midwives in advice and intervention should not be underestimated.

In general, during pregnancy women focus on healthy eating and seek for nutrition information more than physical activity (18, 28). In our study, majority of the women (86.7%) agreed that cooking healthy meals would help them in preventing excessive gestational weight gain. However, a striking number were unsure about the benefits of exercise and physical activity in maintaining healthy weights during pregnancy. Research is required to develop effective interventions that address physical exercise alongside nutrition including the specific dietary requirements of pregnancy.

A cross sectional study in the United Kingdom to explore pregnant women's sources of information regarding physical exercise, revealed that 96% of the study population received advice at least once during the pregnancy from different sources such as books, magazines, family or health professionals. However, none of them increased their activity during pregnancy. In that same study, most women relied on written sources to get advice (22). From our research, 86% of women agreed that reading leaflets advice on healthy eating during pregnancy would help them prevent excessive gestational weight gain and 24% unsure whether the online websites or mobile phone application would be beneficial.

<u>Limitations</u>

Data from this study was from a small sample population of 180 pregnant Omani ladies. It was conducted in only one tertiary health center in Oman. A larger sample of pregnant women is needed from all regions in Oman to ascertain our findings. The majority of the participants were college or university educated. Therefore, a more diverse sample is required. Moreover, self reported heights and weights is another drawback in this study.

Despite the limitations, our findings can help health care professionals realize the importance of interventions to provide the appropriate management.



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Conclusion

To conclude, pregnant Omani women's exercise performance during pregnancy was inadequate although all of them were educated women. This is likely due to lack of information given by the health practitioners.National programs about physical exercise during pregnancy and national guidelines for healthy gestational weight gain are needed in Oman. Further research is required to evaluate their knowledge of the recommended pregnancy weight gain range.

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Appendix:

| Characteristic | Frequency | Valid Percentage (%) | |
|----------------------------|-----------|----------------------|--|
| Age | | | |
| <25 | 20 | 11.2% | |
| 25-29 | 55 | 30.9% | |
| 30-35 | 64 | 36.0% | |
| 36-40 | 34 | 19.1% | |
| >40 | 5 | 2.8% | |
| Number of pregnancies | | | |
| None | 36 | 20.2% | |
| 1 | 38 | 21.3% | |
| 2 | 34 | 19.1% | |
| 3 | 21 | 11.8% | |
| More than 3 | 49 | 27.5% | |
| Stage of pregnancy | | | |
| First trimester | 22 | 12.4% | |
| Second trimester | 44 | 24.9% | |
| Third trimester | 111 | 62.7% | |
| Educational level | | | |
| Illiterate | 0 | 0% | |
| School | 61 | 35.9% | |
| University | 94 | 55.3% | |
| Post-university | 15 | 8.8% | |
| Occupation | | | |
| Employed | 93 | 51.7% | |
| Not employed | 80 | 44.4% | |
| Average family income (Ria | s) | | |
| <1000 | 63 | 39.1% | |



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| 1000-2000 | 75 | 46.6% |
|-----------|----|-------|
| >2000 | 23 | 14.3% |

Table 2: Opinions on current weight and potential gestational weightgain

| | Non-obese (BMI<30) n=92 | Obese (BMI>30) n=66 | P value |
|---|----------------------------|------------------------|---------|
| Views on potential weight gain in co | urrent pregnancy | | |
| Not concerned. | 34 (38.6%) | 15 (22.7%) | 0.055 |
| Expect to gain some weight. | 45(51.5%) | 37 (56.1%) | 0.658 |
| Really worried about gaining a lot of weight. | 8 (9.1%) | 12 (18.2%) | 0.157 |
| Other. | 1 (1.1%) | 2 (3%) | |
| Opinions concerning weight gain in | previous pregnancies | 5 | |
| Acceptable weight gain and returned to pre-pregnancy weight. | 40 (44%) | 19 (28.8%) | 0.077 |
| Acceptable weight gain but did not lose again after having baby. | 11(12.1%) | 16 (24.2%) | 0.075 |
| Gained a lot of weight but lost it after having baby. | 14 (16.5%) | 13 (19.7%) | 0.758 |
| Gained a lot of weight but did not lose it after having baby. | 1 (1.1%) | 9 (13.6%) | 0.004 |
| No previous pregnancies | 24 (26.4%) | 9 (13.6%) | |



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