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An Awareness and Experiences of Pregnant Women towards Antenatal Weight Management at a Maternity Hospital in Najran City, KSA

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Abstract

Background: One of health priorities for women during pregnancy is the attainment of healthy weight both in the antenatal and postpartum periods. This study is aiming to evaluate pregnant women awareness and experiences towards the management of obesity and weight gain during pregnancy.

Method: This was a cross-sectional study (n=416) conducted over 3 months in 2017 of pregnant women attending antenatal clinics at a maternity hospital, Najran city, KSA. An interviewer administered, questionnaire was used.

Findings: Results were shown 58.7% of participants (n=244) had low awareness for management of obesity and weight gain during pregnancy, with the highest level of awareness regarding management objectives and strategies (77.2%), while the lowest level of awareness folic acid (44%). In addition, 90.4% (n=376) showed poor experience in counselling about obesity management in pregnancy. Four risk factors were shown to be important indicators of awareness and experience of participants with largest being an occupation (Adjusted OR=2.7, p=0.001), nationality (Adjusted OR=2.4, p=0.015), regular follow up (Adjusted OR=1.7, p=0.049) and education level (Adjusted OR=1.3, p=0.009).

Conclusion: Study findings are consistent with earlier findings indicating that low level of awareness for management of bodyweight during pregnancy in addition to bad experience in counselling about recommended guidelines for that may explain up to some extent why women are not being served appropriately regarding bodyweight and its health risks in the antenatal care.

Keywords: Pregnancy; Caesarean section; Family planning; Bariatric surgery; Nutrition

Introduction

Obesity has become a worldwide epidemic health condition with estimates suggesting that over 50% of women enter pregnancy with a BMI in excess of 25 kg/m^2 [1]. It is evident that a combination of poor dietary choices, an increase in sedentary time and reduction in physical activity are all contributors to the development of overweight and obesity. One of health priorities for women during the childbearing stage is to implement interventions (e.g. having a healthy diet and undertaking enough moderate-to-vigorous physical activity) that aim to support attainment of healthy weight both during the antenatal and postpartum periods. With this in mind, current research has reviewed 44 randomized controlled trials (7278 women) where interventions including diet, physical activity or both were evaluated for their influence on maternal weight during pregnancy.

Results indicate that all were significantly effective in reducing gestational weight gain (GWG) compared with the control group [2]. A recent systematic review of the literature evaluated the adequacy and effectiveness of the methodological designs implemented in dietary intervention trials for obesity in pregnancy. Thirteen randomized controlled trials were identified where reduced gestational weight gain was observed in nine studies and a number of studies demonstrated improved dietary behaviour in response to diet and/or lifestyle interventions [3].

During the year 2010-2011, a retrospective study conducted in Al-Khobar city, Eastern Saudi Arabia, recommended that health education sessions should be conducted to all females with particular attention to pregnant women regarding hazards associated with overweight, obesity and the different methods of its control, with special emphasis on lifestyle modification [4]. However, many national studies addressed the prevalence of overweight and obesity in pregnancy and estimated the accompanied complications. As far as the researcher explored no local study focusing on weight managing during pregnancy, therefore this study aim to examine that issue in order to fill the gap between the guidelines and real practice.

Objectives

General objective

To evaluate the awareness and explore experience of pregnant women at maternity hospital, Najran city, KSA, concerning the management of obesity and weight gain during pregnancy.

Specific objectives

- To measure the level of awareness of pregnant women regarding the goals and strategies in treating obesity and weight gain during pregnancy.
- To measure the level of awareness of pregnant women regarding the nutrition guidance in treating obesity and weight gain during pregnancy.
- To measure the level of awareness of pregnant women regarding the exercise guidance in treating obesity and weight gain during pregnancy.
- To measure the level of awareness of pregnant women regarding the folic acid guidance in treating obesity and weight gain during pregnancy.
- To explore the experiences of pregnant women about counseling in treating obesity and weight gain during pregnancy.
- To identify the relevant factors that might affect the awareness and experiences of pregnant women toward the managing of obesity and weight gain during pregnancy.

Methodology

This study is a cross-sectional, interviewer administered, questionnaire-based survey, conducts from June to August 2017 in Najran city, which is a city in south-western Saudi Arabia. It is the capital of Najran Province. Designated a new town; its population has risen to 569332 persons in 2016, 253868 of them are women, around 67.6% of them in 15-64 year age group and 58.8% are married [5]. The antenatal health services are provided through different sectors with high preference and overutilization to Maternity and Children's Hospital, Najran where we conduct our study. The study population is all pregnant women attended antenatal clinic (ANC), the sampling frame is all pregnant women attended ANC in Najran Maternity & Children's Hospital during the study period, which were able to communicate and granted permission to participate in the study.

We enrol all listed in ANC register as simple random sampling, while the sample size determined (n=416) in taking account a 5% allowable error value (margin of error), 95% confidence level in addition to the prevalence of obesity and overweight in pregnancy in similar studies around 52% [4,6-9]. Researcher develops the questionnaire that has been pretested before using. It consists of two parts, part one is focusing on demographics, medical and gestational variables, part two is focusing on awareness and experiences toward the management of obesity and weight gain during pregnancy. While dependent variable is awareness and experiences towards the management of obesity and weight gain during pregnancy, and independent variables are all the demographic, medical, gestational characteristics (age, nationality, educational status, occupation, medical/surgical/psychiatric illness, medications, parity, caesarean section, miscarriage, gestational age, risk categories, family planning, antenatal care, weight in (pre-pregnancy/3 months) and clinician action toward weight (pre-pregnancy/3 months), awareness about management of obesity and weight gain during pregnancy (goals and strategies, nutrition guidance, exercise guidance, folic acid guidance), experience towards management of obesity and weight gain during pregnancy (receiving counselling, discussion about weight gain during pregnancy and readiness for healthy change, advise about obesity and its associated health risks that can be improved with good lifestyle habits, assessment for obesity and its related health risks during pregnancy and assisting for management obesity and weight gain during pregnancy).

The questionnaires content and relevance have been tested and evaluated for their appropriateness; reliability and average time needed to administer the questionnaire by pre-test have been conducted on 24 of the study population who did not include in the main study. Where the internal consistency was tested using Kurder Richardson 20 (KR-20) due to the dichotomous nature of the answers scores (Yes/No or do not know). KR-20 for all domains ranged from 0.71 for folic acid guidance to 0.86 for management goals and strategies, the tool stability was tested using test-retest reliability as measured by intra-class correlation coefficients (ICC) which ranged from 0.87 for experience to 0.99 for management goals and strategies. Content validity evaluated on reviewing all scale items by three different experts, any conflicts were treated using discussion or voting, and any suggested modifications were done. Construct validity validated using the simplest method using simple correlation coefficient and all items were highly correlated with its overall score (convergent validity) and poorly correlated with other domains totals (discriminant validity), correlation coefficients ranged from 0.38 to 0.95.

The questions in the questionnaire were prepared in a structured way in English and then translated into Arabic and again back to English by language professionals in each language, to see its consistency. One day training has been given to data collectors, in a face-to-face delivery mode; an interviewer is physically present to ask the questionnaire questions and to facilitate the respondent in answering them. Then, corrections have been made accordingly before the actual data collection time. After data was collected, it was checked for their completeness, coded and fed to statistical software IBM SPSS version 20. The given graphs were constructed using Microsoft Excel software.

All statistical analysis was done using two-tailed tests and an alpha error of 0.05. A P-value ≤ 0.05 was considered to be statistically significant. Regarding scoring system, the correct answer was given a score of one point otherwise, zero score was given. The items discrete scores of dimension and the total score was calculated by summing the scores given for its responses.

All scores were transformed into score percentage as:

Score %=(The observed score/The maximum score) × 100

Then score percentage (%) was categorized into poor awareness if the participant had core percentage (%) <60% and good awareness if score percentage (%) ≥ 60%.

Descriptive statistics

Frequencies and percentage were used to describe the frequency of each category for categorical data. Mean with standard deviation was used to describe scale data. Chi-square test/Mont Carlo exact test and Fishers exact test were used to test for association between awareness level and sample characteristics if there were many small expected values. Multiple logistic regression analysis was used to identify which of the studied factors can determine the participant level of awareness and on adjusting all other factors.

Results

All participants (n=416) completed questionnaire interview, with response rate 100%. Descriptive analysis of participants data (N=416)

reveals that most are Saudi and ranged in age from 20 to 35. The majority were free of disease with notice (n=10, 2.4%) had been bariatric surgery. For most, the current pregnancy was a first for 23.6% and 13.5% labelled them in high-risk pregnancy. More than a third had a history of caesarean section and miscarriage (socio-demographic characteristics of all the interview participants can be found in Appendix A, with medical and obstetric details in Appendix B) (Tables 1-3 and Figure 1).

Domains	Poor		Good	
	No	Percentage (%)	No	Percentage (%)
Total Awareness Score	244	58.70%	172	41.30%
Management goals and strategies	62	14.90%	354	85.10%
Nutrition guidance	281	67.50%	135	32.50%
Exercise guidance	131	31.50%	285	68.50%
Folic acid guidance	257	61.80%	159	38.20%
Experience Score	376	90.40%	40	9.60%
Poor: Score % <60%		Good: Score % ≥ 60%		

Table 1: Awareness and experience level for management of obesity and weight gain during pregnancy of pregnant women attending Maternity and Children Hospital in Najran city, KSA during 2017.

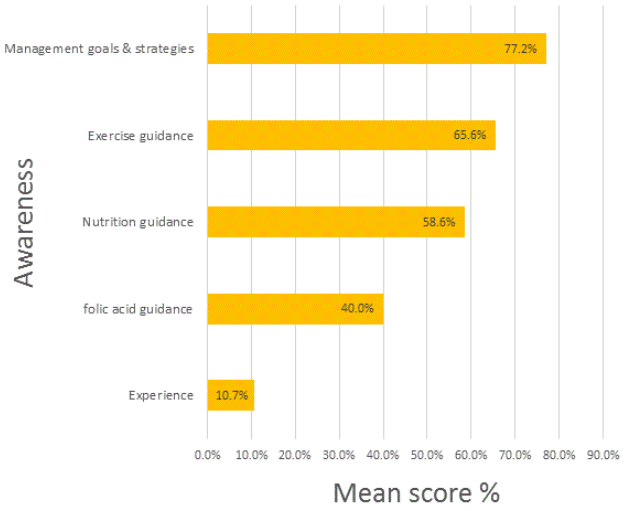

Figure 1: Average awareness and experience level for management of obesity and weight gain during pregnancy of pregnant women attending Maternity and Children Hospital in Najran city, KSA during 2017.

Variables		No	Percentage (%)
Antenatal care	Regular	324	77.90%
	Irregular	92	22.10%
Number of visits	1-4	161	38.70%
	5-11	255	61.30%
Health provider	One	177	42.50%
	Multiple	239	57.50%
Place of antenatal care	PHC	25	6.00%
	Maternity hospital	151	36.30%
	Private sector	2	0.50%
	Others	238	57.20%
Weight in pre-pregnancy/3 months	Normal	295	70.90%
	Abnormal	75	18.00%
	Don't know	46	11.10%
Clinician action towards weight (Pre-pregnancy/3 months)	Nothing	371	89.20%
	Reassurance	17	4.10%
	Counselling for weight loss	28	6.70%

Table 2: Antenatal care for pregnant women attending Maternity and Children Hospital in Najran city, KSA during 2017.

Variables		Yes		No		Don't know	
		No	%	No	%	No	%
Management goals and strategies	Do you think the obesity in pregnancy is a significant risk factor for adverse maternal and infant outcomes?	320	76.90%	34	8.20%	62	14.90%
	Do you think the pregnancy is opportunity for the promotion of healthy lifestyle behaviours?	338	81.30%	49	11.80%	29	7.00%
	Do you think that encourage is important factor for healthy lifestyle	394	94.70%	13	3.10%	9	2.20%
	Do you think that one of aims for management of obesity in pregnancy is loss of excess in preconception weight?	334	80.30%	30	7.20%	52	12.50%
	Do you think that one of aims for management of obesity in pregnancy is prevention the excess in gestational weight gain?	162	38.90%	183	44.00%	71	17.10%
	Do you know the recommended weight gain in obese pregnant women is 5-9 kg?	188	45.20%	55	13.20%	173	41.60%
	Do you think that providing counselling in nutrition & physical activity regarding obesity in pregnancy is recommended?	401	96.40%	5	1.20%	10	2.40%
	Do you think the drugs for obesity are not safe in pregnancy?	355	85.30%	22	5.30%	39	9.40%
	Do you think the obesity surgeries are not safe in pregnancy?	294	70.70%	25	6.00%	97	23.30%
	Do you think the herbal preparations for obesity are safe in pregnancy?	360	86.50%	24	5.80%	32	7.70%
	Do you think monitoring of weight throughout pregnancy and providing feedback on progress toward the goal are recommended?	385	92.50%	26	6.30%	5	1.20%
Nutrition guidance	Do you think that in first 3 months; a continuing same intake of total daily energy is recommended for obese pregnant?	86	20.70%	176	42.30%	154	37.00%
	Do you think that after first 3 months, an increasing daily calories by 400 calories is recommended for obese pregnant?	89	21.40%	82	19.70%	245	58.90%
	Do you think that keep balanced healthy food in pregnancy is recommended?	408	98.10%	6	1.40%	2	0.50%
	Do you think that consuming essential micronutrients -rich diets such as calcium, iron, folic acid and vitamin D in pregnancy is recommended?	392	94.20%	8	1.90%	16	3.80%
Exercise	Do you think that in the absence of either medical or obstetric complications the exercise is encouraged in pregnancy?	293	70.40%	93	22.40%	30	7.20%
	Do you think that physical activity for 30 minutes for most, if not all, days of the week is recommended?	307	73.80%	75	18.00%	34	8.20%
	Do you think that moderate intensity activities in pregnancy is recommended	219	52.60%	160	38.50%	37	8.90%
Folic acid guidance	Do you think that benefit of folic acid to prevent neural tube defect?	76	18.30%	46	11.10%	294	70.70%
	Do you think that obese pregnant at moderate risk of neural tube defect?	274	65.90%	10	2.40%	132	31.70%
	Do you think that take a higher dose (5 mg) of folic acid is recommended for obese pregnant?	107	25.70%	60	14.40%	249	59.90%
	Do you think that start to take a folic acid 3months before pregnancy is recommended?	193	46.40%	67	16.10%	156	37.50%
	Do you think that continue to take a folic acid throughout pregnancy is recommended for obese pregnant?	189	45.40%	91	21.90%	136	32.70%
Experience	I have been received counseling in the obesity and weight gain during pregnancy	69	16.60%	347	83.40%	0	0.00%
	I have been discussed about weight gain during pregnancy and readiness for healthy change	66	15.90%	350	84.10%	0	0.00%
	I have been advised about obesity and its associated health risks that can be improved with good lifestyle habits.	70	16.80%	346	83.20%	0	0.00%
	I have been assessed for obesity and its related health risks during pregnancy	55	13.20%	361	86.80%	0	0.00%

	I have been assisted for managing obesity and weight gain during pregnancy	31	7.50%	385	92.50%	0	0.00%

Table 3: Descriptive of dimensions of awareness and experience towards the management of obesity and weight gain during pregnancy of pregnant women attending Maternity and Children Hospital in Najran city, KSA during 2017.

In consideration of predictors of an awareness and experience regarding the management of obesity and weight gain during pregnancy, a multiple regression predicting an awareness and experience regarding the management of obesity and weight gain during pregnancy was conducted and statistics are provided in Table 4.

Predictor	S.E.	P	Adjusted OR	95% C.I for OR	
				Lower	Upper
Age	0.253	0.589	1.146	0.699	1.88
Nationality	0.351	0.015	2.354	1.183	4.685
Education level	0.114	0.009	1.348	1.078	1.685
Working	0.305	0.001	2.7	1.51	3.65
Medical history	0.838	0.072	4.511	0.873	23.306
Parity	0.197	0.134	1.343	0.913	1.976
Gestational age	0.167	0.94	1.1	0.711	1.62
High risk	0.331	0.864	1.2	0.494	1.808
Planned pregnancy	0.227	0.656	1.106	0.709	1.726
Regular ANC	0.273	0.049	1.7	1.1	2.71
Abnormal pre-pregnancy weight	0.169	0.8	1.044	0.749	1.453
Constant	1.805	0.581	0.369	-	-

Table 4: Results of multiple stepwise logistic regression for predictors of an awareness and experience regarding the managing of obesity and weight gain during pregnancy for pregnant women attending Maternity and Children Hospital in Najran city, KSA during 2017 [SE: Standard error; OR: Odds Ratio; C.I: Confidence interval].

Discussion

Many local studies estimated the prevalence of overweight and obesity, and found the overweight and obesity are common (>52%) among pregnant women in Saudi Arabia [4,6-9]. This study shows the most of the pregnant women have poor satisfaction level of awareness for management of obesity and weight gain during pregnancy in addition to bad experience in counselling about recommended guidelines for that (58.7% and 90.4% perceptively). These reasons (women awareness and counselling practicing) may explain up to some extent the dissociation between scientific guidelines and a real practice. Similar to international studies suggest that few women receive directed pre-conception health programs and interventions and research has found the reasons for this to be limited awareness of current pregnancy weight gain guidelines, belief that such counselling is ineffective, or awkwardness about raising the issue of weight and weight gain with women. One of them was largest Australian survey (n=2338) conducted over in 2015 of pregnant women attending antenatal clinics at four maternity hospitals, examining knowledge of expected weight gain in pregnancy, understanding of risks associated with excess GWG. It revealed only half the cohort (51.0%) understood the potential impact of excess GWG [10].

In our study a pregnant women express their experience in counselling about these guidelines, small percentage (16.8%) has been received counselling and discussed about weight gain during pregnancy and readiness for healthy change. Only 7.5% (n=31) has been assisted for that and 89.2% (n=371) had not been received any good action from caregivers towards their weight in pre-pregnancy and in first 3 months of pregnancy. Likewise in the recent cross-section study finding in the UK-the MAGIC study (MAnaging weiGht In pregnanCy) that sought to examine women's self-reported experiences of usual-care antenatal weight management in early pregnancy. In considering the sample (n=193) is not wholly representative of the population, 50.3% of participants (n=97) could be classified as overweight or obese and 69.4% of highest weight women (≥ 30 kg/m^2) did not report receiving advice about weight [11].

The increasing prevalence of preconception overweight and obesity and excessive gestational weight gain is recognized as significant risk factor for adverse maternal and infant outcomes. The risks may involve the pregnancy, birth, and later life for both the woman and her infant. As well as an increase in the risk of diabetes and cardiovascular disease in later life has also been reported among women with excessive pregnancy weight gain [1].

In order to overcome the main risk factors for maternal obesity (i.e., sedentary lifestyles and unhealthy diet intake), lifestyles Interventions targeting maternal obesity are a health priority. We might consider pregnancy a chance to reverse the threat to opportunity for the promotion of healthy lifestyle behaviours, as many women are concerned about the health of their babies and are in frequent contact with prenatal care providers as well as to minimize other comorbidities.

This study reveals that 76.9% (n-320) know that obesity has an adverse effect on pregnancy outcome, the majority (above 80%) think a pregnancy is an opportunity for the promotion of healthy lifestyle behaviours and encourage is an important factor for that with the importance of providing counselling in nutrition and physical activity. Although the avoidance of excess gestational weight gain is a high-value aim in the management of obesity in pregnancy, around 38.9% of pregnant in this study agree with that and 45.2% know the recommended gestational weight gain in obese pregnant women.

Management of maternal obesity prior to and during pregnancy is crucial care. This includes dietary measures and encouraging the modest increase in exercise. Ideally, the mother should achieve closer to an ideal body mass index prior to pregnancy using lifestyle intervention (e.g. routine physical activity (in those without contraindications); providing nutritional guidance and caloric literacy, maintain a food diary and physical activity log and tracking gestational weight gain) [12] but possibly with pharmacological therapy or bariatric surgery. The ideal weight gain for an obese mother is less than the ideal weight gain for non-obese mother [13]. Institute of Medicine recommendation for optimal weight gain during pregnancy recommended total weight gain range (13 to 18 kg) for underweight (BMI<18.5 kg per m^2), (11 to 16 kg) for normal weight (BMI 18.5 to 24.9 kg per m^2), (7 to 11 kg) for overweight (BMI 25.0 to 29.9 kg per m^2) and (5 kg to 9 kg) for obese (BMI ≥ 30.0 kg per m^2) [14].

Around 67.5% (n=281) in this study have poor awareness regarding nutrition guidance and 85.3%, 70.7% think the drugs and surgery for obesity are not safe in pregnancy respectively, but 86.5% think the herbal for obesity are safe in pregnancy. Although 65.9% think that obese pregnant at moderate risk of neural tube defect as it proved in recent guidelines [15], only 18.3% and 25.7% know the role of folic acid and the recommended dose in the management of obesity and weight gain during pregnancy, respectively. This is an example of many an interventions and procedures that may not well clarified for the client.

As there are numerous effective interventions for women who are overweight or obese, a systematic review found that medically supervised programs are more expensive and have higher rates of attrition, but are associated with greater weight loss (15% to 25%), compared with other types of commercial diets programs [16]. In Belgium, one randomized controlled trial design study evaluated the effect of lifestyle intervention in helping obese pregnant women limit their weight gain during pregnancy and improving their psychological comfort. Of the 235 eligible obese pregnant women randomized to a control group, a brochure group receiving written information on healthy lifestyle and an experimental group receiving lifestyle intervention sessions by a midwife trained in motivational lifestyle intervention. It concluded that a targeted lifestyle intervention programme based on the principles of motivational interviewing reduces gestational weight gain (GWG) and levels of anxiety in obese pregnant women [17].

However, for more effective antenatal interventions, the literature stated some strategies - including: engage prenatal care providers to develop consistent messages, train and prepare prenatal care providers to counsel women about healthy weight gain in pregnancy and address weight bias attitudes among prenatal care providers and motivational dialogue between pregnant women and prenatal care providers is needed before and throughout pregnancy [12]. In the USA, at the University of Illinois at Chicago investigate perceptions of minority pregnant women and providers about obesity and gestational weight gain (GWG). Sixteen obese pregnant women and 19 prenatal care providers participated in focus groups about prenatal care of body weight. Although, women were interested in learning about nutrition and reported self-encouragement, providers expressed discomfort-discussing GWG and they noted the challenges they faced during prenatal care including time constraints, cultural myths, and system issues. Providers considered a group setting with social support an ideal environment to address health behaviours in obese women [18]. Arguably, a shortage in medical staff, overcrowded clinical practice and complex health providing systems rather than doctor-patient dialogue should be taking account.

Four risk factors emerged from multiple logistic regression analysis are significant predictors. Employed women have good awareness and experience (Adjusted OR=2.7, p=0.001), Saudi woman have good awareness and experience more than two folds than non-Saudi (Adjusted OR=2.4, p=0.015), women enrolled in regular ANC have good awareness and experience in comparison with those have irregular follow up (Adjusted OR=1.7, p=0.049) as well as those get high level of education (Adjusted OR=1.3, p=0.009). The probable justification of the contribution of previous independent predictors for good awareness and experience among pregnant women attending Maternity and Children Hospital in Najran city towards the management of obesity and weight gain during pregnancy, women who have high education level and employed are willing to compensate their medical demands. Moreover, citizenship preferences for free access to health service either health education or counselling sessions as well as the benefits of regular and accumulative antenatal care.

Conclusion

- The antenatal period offers a unique opportunity to counter the current unsatisfied management for obesity and weight gain where bodyweight should be an issue to be addressed during pregnancy
- Moreover, exploring why women are not being served appropriately regarding obesity and overweight in the antenatal care and the solutions for that are strongly proposed
- Further works are needed to move away from the current low level of awareness to better-informed society
- Build the capacity of practitioners to deliver evidenced based individualized weight-related counseling

Ethical Approval

An ethical approval letter has been acquired from the research committee in the college of medicine, Najran University prior to this study. Participant's anonymity has been maintained as participants have not been asked to provide their names and their confidentiality, on the other hand, has been kept as well by securing the collected data in a safe place and data has been presented in an aggregated form.

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Disclosure of Interests

The researcher is faculty member of college of medicine in Najran University. He received administrative support from family and community medicine department at college of medicine and Maternity and Children's Hospital in Najran city, while the budget is researcher dependent.

Author Contribution

All of work including-substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; and drafting the article or revising it critically for important intellectual content; and final approval of the version to be published; and accountability for all aspects of the work-was managed by the researcher and under his responsibility.

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