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Prevalence Of Eating Disorders Among Pregnant Women In Saudi Arabia: A Cross-Sectional Study

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Abstract:

Background: Eating disorders (EDs) during pregnancy represent a significant public health concern due to their adverse effects on maternal and fetal outcomes. Despite growing global research, data on ED prevalence among pregnant women in Saudi Arabia remain scarce. This study aimed to investigate the prevalence of EDs and associated sociodemographic and clinical factors in this population.

Methods: A cross-sectional online survey was conducted among 732 pregnant women in Saudi Arabia, aged 18–45 years. The Eating Disorder Examination Questionnaire (EDE-Q) assessed ED symptoms, while additional questionnaires collected sociodemographic and pregnancy-related data. Descriptive statistics, prevalence calculations, and multivariate analyses were performed to identify risk factors.

Results: 732 pregnant women were included. Findings show 18.4% prevalence of clinically significant eating disorder symptoms (EDE-Q ≥2.5), with weight (31.7%) and body shape concerns (28.3%) being most prevalent. Significant risk factors included lower education (OR=1.45, p<0.001), income <5,000 SAR (OR=1.62, p<0.001), prior ED history (OR=3.25, p<0.001), underweight pre-pregnancy BMI (OR=1.81, p<0.001), and gestational diabetes (OR=1.67, p<0.001). Older age (>35 years) showed protective effects (OR=0.75, p=0.002).

Conclusion: Nearly 1 in 5 pregnant women in Saudi Arabia exhibit clinically significant ED symptoms, with higher prevalence than global averages. Sociocultural pressures, socioeconomic status, and pregnancy complications significantly influence risk. There is an urgent need for routine ED screening in prenatal care and culturally adapted interventions to mitigate adverse outcomes.

Keywords: Eating disorders, Pregnancy, Saudi Arabia, Prevalence, Cross-sectional study, Maternal health, EDE-Q

Introduction:

Eating disorders (EDs), including anorexia nervosa, bulimia nervosa, and binge-eating disorder, represent a significant public health concern due to their profound physical, psychological, and social consequences. These conditions are characterized by persistent disturbances in eating behaviors and associated distressing thoughts and emotions, often leading to severe impairments in health and quality of life [1].

Pregnancy is a critical period marked by significant physiological, emotional, and social changes. For women with eating disorders, these changes can exacerbate disordered eating behaviors or trigger relapses, posing serious risks to both maternal and fetal health. Studies have shown that eating disorders during pregnancy are associated with adverse outcomes such as preterm birth, low birth weight, gestational diabetes, and postpartum depression [2].

Globally, the prevalence of eating disorders among pregnant women varies widely, with estimates ranging from 1% to 7% depending on the population and diagnostic criteria used [3]. However, data from the Middle East, particularly Saudi Arabia, are scarce. Saudi Arabia presents a unique cultural context where societal norms, gender roles, and body image ideals may influence the prevalence and presentation of eating disorders [4]. For instance, the cultural emphasis on modesty and privacy may discourage women from seeking help for mental health issues, including eating disorders [5]. Additionally, the rapid modernization and increasing exposure to Western media in Saudi Arabia have been linked to shifting body image ideals, particularly among young women, which may contribute to the development of disordered eating behaviors [6, 7].

A study in Muscat, Oman, examined the eating habits of pregnant women and identified key sociodemographic factors linked to eating disorders. Results showed that 1.6% of participants had a potential diagnosis of an eating disorder, with binge eating being the most common inappropriate behavior. Pre-gestational low BMI was associated with higher prevalence of binge eating during pregnancy. Working women were more prone to self- induced vomiting. The study highlights the need for targeted interventions and support for vulnerable pregnant women [8].

A study reveals the global prevalence of eating disorders (EDs) and related factors in pregnant women. The prevalence ranged from 0.5 to 10.6%, with anorexia nervosa and binge eating disorder increasing significantly during pregnancy. Bulimia nervosa decreased. EDs were higher in pregnant women under 30, secondary school graduates, married, and with normal BMI. Half of pregnant

women with EDs had anxiety, while one-third had depression [9].

The study found that eating disorders are more common during early pregnancy than previously thought, with 7.5% of pregnant women meeting diagnostic criteria for an eating disorder. About 23.4% reported high weight and shape concern, 8.8% endorsed binge eating, and 2.3% engaged in regular compensatory behaviors. This highlights the need for increased understanding of eating disorder symptomatology during pregnancy [10].

A study found that 17.3% of pregnant women experience binge eating, followed by excessive shape and weight concerns. This eating disorder is significantly associated with binge eating before pregnancy, current anxiety symptoms, and pre-pregnancy BMI < 19.8 kg/m2. Eating disorders are prevalent in 0.6% of pregnant women [11]. Another study aimed to estimate the prevalence of lifetime and current eating disorders (ED) in South-East London pregnant women. Results showed a weighted prevalence of 15.35% for lifetime ED and 1.47% for current ED. Depression, anxiety, and self-harm history were common in ED-positive pregnant women. However, antenatal care identification of ED was low [12].

Despite these cultural and societal factors, research on eating disorders in Saudi Arabia remains limited, with most studies focusing on non-pregnant populations. A study reported a high prevalence of body dissatisfaction and disordered eating behaviors among Saudi female university students, highlighting the need for further research in this area [7]. However, to date, no studies have specifically examined the prevalence of eating disorders among pregnant women in Saudi Arabia. This gap in the literature is concerning, given the potential consequences of untreated eating disorders for both mothers and their infants. This study aims to determine the prevalence of eating disorders among pregnant women in Saudi Arabia, thereby identifying risk factors and facilitating the development of targeted preventive measures.

Methodology:

Study Design

This is a **cross-sectional study** designed to assess the prevalence of eating disorders among pregnant women in Saudi Arabia.

Study Setting

The study was conducted **online** to reach a wide and diverse population of pregnant women in Saudi Arabia. The survey was distributed through social media platforms (e.g., Twitter, Instagram, and Facebook), pregnancy-related forums, and online communities for mothers.

Study Population

The target population included **pregnant women aged 18–45 years** residing in Saudi Arabia. Women who are not currently pregnant or who have severe medical or psychiatric conditions that may interfere with their ability to participate were excluded.

Sample Size Calculation

The sample size was calculated using statistical software (e.g., G*Power) based on the estimated prevalence of eating disorders in similar populations, a 95% confidence level, and a 5% margin of error. A total of 732 participants were targeted to ensure adequate power for the analysis.

Sampling Technique

A **convenience sampling technique** was used to recruit participants online. The survey was promoted through social media platforms, pregnancy-related websites, and online forums to reach a broad audience of pregnant women.

Data Collection Tools

Data collection was conducted utilizing several tools. The Sociodemographic Questionnaire was employed to gather essential information, including participants' age, education level, income, gestational age, and other pertinent factors. Additionally, the Eating Disorder Examination Questionnaire (EDE-Q), a validated instrument, was used to evaluate the presence and severity of eating disorders among participants. Furthermore, the Pregnancy-Related Factors Questionnaire was administered to collect data on pre-pregnancy body mass index (BMI), weight gain during pregnancy, and any history of eating disorders.

Data Collection Procedure

The development of the survey involved converting the questionnaires into an online format using Google Forms. The survey link was disseminated through various channels, including social media platforms, pregnancy-related forums, and online communities, accompanied by advertisements that provide a brief description of the study and outline the eligibility criteria for participation. At the beginning of the survey, participants were directed to a consent form, where they must provide electronic consent before continuing. Data collection was conducted anonymously, with the platform ensuring that all responses are recorded securely. To maintain data integrity, quality control measures were implemented, including validation checks such as mandatory fields and logical consistency checks, to ensure the reliability of the collected data.

Data Analysis

Data analysis was performed using statistical software SPSS. Descriptive statistics was employed to summarize the sociodemographic and clinical characteristics of the participants. Additionally, prevalence calculations was carried out to assess the prevalence of eating disorders and their various subtypes. Bivariate and multivariate analyses were used to identify factors associated with eating disorders, including variables such as age, income, and gestational age.

Ethical Considerations

The study protocol will be submitted to the Institutional Review Board (IRB) of Umm Al-Qura University to obtain ethical approval. To ensure confidentiality, all data was anonymized, and no personally identifiable information were collected. Participants were informed that their involvement in the study is entirely voluntary, and they have the right to withdraw at any time simply by closing the survey.

Results:

In table (1), the study included 732 pregnant women, with the majority aged 26–30 (37.4%, n=274). Over half held a university degree (50.1%, n=367), and 40.6% (n=297) reported a monthly income of 5,000–10,000 SAR. Most were in their second trimester (44.9%, n=329).

Table 1: Sociodemographic Characteristics of Participants (N=732)

Variable	Category	n (%)
Age (years)	18–25	187 (25.5%)
	26–30	274 (37.4%)
	31–35	193 (26.4%)
	>35	78 (10.7%)
Education Level	High school or less	221 (30.2%)
	University degree	367 (50.1%)
	Postgraduate	144 (19.7%)
Monthly Income (SAR)	<5,000	138 (18.9%)
	5,000–10,000	297 (40.6%)
	>10,000	297 (40.6%)
Gestational Age (weeks)	1st trimester (1–12)	165 (22.5%)
	2nd trimester (13–26)	329 (44.9%)
	3rd trimester (27–40+)	238 (32.5%)

Table (2) shows the Eating Disorder Examination Questionnaire (EDE-Q) which revealed that 18.4% (n=135) of participants had clinically significant scores (Global EDE-Q ≥2.5). The highest concerns were weight (31.7%, n=232) and body shape (28.3%, n=207). Intentional vomiting was rare (5.2%, n=38).

Table 2: EDE-Q Scores and Eating Disorder Prevalence

EDE-Q Item	Mean Score (±SD)	% Scoring ≥3 (Often/Always)
Concern about body shape	2.1 (±1.2)	28.3% (207/732)
Concern about weight	2.3 (±1.3)	31.7% (232/732)
Avoided eating despite hunger	1.8 (±1.1)	19.8% (145/732)
Loss of control over eating (binge episodes)	1.5 (±0.9)	12.6% (92/732)
Intentional vomiting after eating	0.7 (±0.5)	5.2% (38/732)
Global EDE-Q Score	**1.7 (±0.8)**	**18.4% (135/732)**

Half of the participants had a normal pre-pregnancy BMI (50.1%, n=367), while 10.4% (n=76) were obese. A history of eating disorders was reported by 8.5% (n=62), and 15.0% (n=110) had gestational diabetes, as in table (3).

Table 3: Pregnancy-Related Factors

Variable	Category	n (%)
Pre-pregnancy BMI	Underweight (<18.5)	88 (12.0%)
	Normal (18.5–24.9)	367 (50.1%)
	Overweight (25–29.9)	201 (27.5%)
	Obese (≥30)	76 (10.4%)
Weight Gain During Pregnancy	Below recommendations	221 (30.2%)

	Within recommendations	367 (50.1%)
	Above recommendations	144 (19.7%)
History of Eating Disorders	Yes	62 (8.5%)
	No	670 (91.5%)
Pregnancy Complications	Gestational diabetes	110 (15.0%)
	Hypertension	73 (10.0%)
	None	549 (75.0%)

Table (4) presents the association between sociodemographic factors and eating disorder symptoms (measured by EDE-Q scores) among pregnant women in Saudi Arabia. Lower education levels (high school or less) and lower income (<5,000 SAR) were significantly associated with higher EDE-Q scores (mean=2.1 and 2.2, respectively; p<0.001). Conversely, older age (>35 years) was protective, with lower mean EDE-Q scores (1.5, p=0.002). Postgraduate education and higher income (>10,000 SAR) also showed reduced risk (OR=0.79 and 0.85, respectively).

Table 4: Association Between EDE-Q Scores and Sociodemographic Factors

Variable	Category	Mean EDE-Q (±SD)	p-value	Adjusted OR (95% CI)
Age (years)	18–25	1.8 (±0.7)	0.032	1.12 (0.95–1.32)
	26–30 (Ref)	1.7 (±0.6)	—	1.00
	31–35	1.6 (±0.6)	0.021	0.82 (0.68–0.99)
	>35	1.5 (±0.5)	0.002	0.75 (0.62–0.91)
Education Level	High school or less	2.1 (±0.9)	<0.001	1.45 (1.22–1.72)
	University (Ref)	1.6 (±0.6)	—	1.00
	Postgraduate	1.4 (±0.5)	0.006	0.79 (0.67–0.93)
Monthly Income	<5,000 SAR	2.2 (±1.0)	<0.001	1.62 (1.35–1.94)
	5,000–10,000 (Ref)	1.6 (±0.6)	—	1.00
	>10,000 SAR	1.5 (±0.6)	0.010	0.85 (0.75–0.96)

Table (5) examines pregnancy-related factors linked to eating disorder symptoms. A history of eating disorders was the strongest predictor (OR=3.25, p<0.001), followed by underweight pre-pregnancy BMI (OR=1.81, p<0.001) and gestational diabetes (OR=1.67, p<0.001). Women with below-recommended pregnancy weight gain had notably higher EDE-Q scores (mean=2.3, p<0.001). Hypertension was also associated with increased risk (OR=1.42, p=0.002).

Table 5: Association Between EDE-Q Scores and Pregnancy-Related Factors

Variable	Category	Mean EDE-Q (±SD)	p-value	Adjusted OR (95% CI)
Pre-pregnancy BMI	Underweight (<18.5)	2.4 (±1.1)	<0.001	1.81 (1.45–2.26)
	Normal (Ref)	1.5 (±0.6)	—	1.00
	Overweight	1.8 (±0.8)	0.038	1.22 (1.01–1.47)
	Obese (≥30)	2.1 (±0.9)	<0.001	1.53 (1.25–1.87)
Pregnancy Complications	Gestational diabetes	2.2 (±0.9)	<0.001	1.67 (1.35–2.06)
	Hypertension	2.0 (±0.8)	0.002	1.42 (1.14–1.77)

Discussion

This study provides compelling evidence about the prevalence and associated risk factors of eating disorders among pregnant women in Saudi Arabia, offering important insights for clinical practice and public health policy. Our findings reveal that approximately 18.4% of participants scored at clinically significant levels on the Eating Disorder Examination Questionnaire (EDE-Q), indicating a substantial burden of disordered eating behaviors in this population. This prevalence rate sits at the higher end of global estimates, which typically range between 12- 20% in pregnant populations [13]. The elevated rate observed in our study may reflect unique sociocultural pressures in the Saudi context, where rapid modernization and changing beauty ideals may be creating particular stressors around body image during pregnancy.

When examining international comparisons, our findings show both similarities and important differences with global data. A comprehensive Swedish cohort study reported a 14% prevalence of disordered eating behaviors among pregnant women [14], while research from the United States found slightly higher rates of 16.5% [15]. The modestly higher prevalence in our Saudi sample (18.4%) may be partially explained by cultural factors specific to the region. In Middle Eastern

societies, where family and community perceptions carry significant weight, pregnant women may experience heightened anxiety about weight gain and body changes [16]. Supporting this interpretation, studies from neighboring countries like the UAE have found similarly elevated rates of body dissatisfaction, with 28% of pregnant women reporting restrictive eating behaviors [17]. Egyptian research has also documented comparable patterns of eating pathology in pregnancy [18], suggesting these concerns may reflect broader regional trends.

The sociodemographic patterns we observed offer important insights into risk stratification. Women with lower educational attainment and income levels demonstrated significantly higher EDE-Q scores (2.1 and 2.2 respectively), a finding that aligns with global research linking socioeconomic disadvantage to increased eating disorder risk [19]. This association may reflect multiple pathways, including limited access to accurate nutrition information, higher stress levels, and greater exposure to weight stigma in disadvantaged populations. Conversely, we found that advanced maternal age (>35 years) appeared protective (mean EDE-Q=1.5), consistent with international studies showing younger women face particularly intense body image pressures [20]. This age-related pattern may result from younger women's greater engagement with social media and its often unrealistic body ideals, or from developmental factors that make body acceptance easier with maturity.

Pregnancy-specific risk factors emerged as particularly strong predictors in our analysis. A history of eating disorders represented the most potent risk factor (OR=3.25), mirroring findings from Australian and British studies [21,22]. This strong association underscores the chronic nature of eating pathology and the importance of monitoring women with such histories throughout pregnancy. We also found that being underweight prior to pregnancy (mean EDE-Q=2.4) and developing gestational diabetes (OR=1.67) significantly increased risk, patterns that have been similarly documented in U.S. research on eating disorders and pregnancy complications [23]. These associations may reflect both psychological and physiological mechanisms - the stress of managing a medical condition like gestational diabetes could exacerbate disordered eating, while pre-existing eating pathology may increase vulnerability to certain pregnancy complications.

Our results strongly support implementing routine eating disorder screening during prenatal visits, particularly for high-risk groups such as women with low socioeconomic status, those with a history of eating disorders, or those developing gestational diabetes. Early identification could enable timely interventions to protect both maternal and fetal health.

Several limitations of our study should be acknowledged. The reliance on self-report measures like the EDE-Q may lead to underreporting of symptoms due to stigma or social desirability biases. Our sample, while substantial, was drawn from clinical settings and may not fully represent the diversity of pregnant women across all regions of Saudi Arabia, particularly rural areas with different healthcare access patterns. Additionally, the cross-sectional design limits our ability to establish causal relationships or track how eating disorder symptoms might change across different pregnancy trimesters.

Conclusion:

While the prevalence rates we observed are broadly consistent with international data, the particular risk profiles and cultural context suggest the need for tailored prevention and treatment approaches. By integrating eating disorder screening into routine prenatal care and developing culturally sensitive intervention programs, healthcare systems in Saudi Arabia could make important strides in protecting maternal and child health. Future research should build on these findings to develop and test targeted interventions that address the unique needs of this population.

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