

Assessment of knowledge and attitude toward postpartum depression among Saudi women aged 18 and above in Al-Ahsa, Eastern Province, Saudi Arabia

Fai Khalid Alhussain *, Lama Abdullatif AlJafari, Abdullatif Mahmoud Aljaafari, May Ahmed Bo khuwah, Razan Mansour Alzahrani, Saja Khalifah AlSaqr, Jumanah Abdulrahman Alessa and Hamad Abdulaziz AlSubaie

Department of Family Medicine, King Abdulaziz Hospital for national Guard in AlAhsa, Saudi Arabia.

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Abstract

Background: Postpartum depression (PPD) is a common and serious mental health condition occurring after childbirth, with important consequences for mothers, infants, and families. Despite its public health relevance, awareness, and attitudes toward PPD remain variable across different populations.

Aim: This study aimed to assess knowledge and attitudes toward PPD among Saudi women in Al-Ahsa and to identify associated sociodemographic and obstetric factors.

Methods: A cross-sectional study was conducted among 378 Saudi women aged ≥ 18 years in Al-Ahsa, Eastern Province, Saudi Arabia, between March and May. Participants were recruited using a convenience sampling technique through online platforms. Data were collected using a structured, self-administered questionnaire covering sociodemographic characteristics, knowledge of PPD, and attitudes toward PPD.

Results: Out of 378 participants, 298 (78.8%) had good knowledge of PPD, while 80 (21.2%) had poor knowledge. Regarding attitudes, 287 (75.9%) demonstrated a positive attitude, 68 (18.0%) were neutral, and 23 (6.1%) had a negative attitude. High awareness was observed for key risk factors, including domestic violence (320, 84.7%), lack of social support (317, 83.9%), and stress (316, 83.6%). Commonly recognized symptoms included intense sadness (318, 84.1%), social withdrawal (315, 83.3%), and suicidal thoughts (292, 77.2%). In multivariable analysis, age ≥ 40 years was associated with lower odds of good knowledge (AOR = 0.28, 95% CI: 0.07-1.00, $p = 0.049$), while employment increased odds (AOR = 1.85, 95% CI: 1.02-3.36, $p = 0.04$). Women with 1-3 pregnancies had higher odds of good knowledge (AOR = 2.41, 95% CI: 1.59-6.81, $p = 0.049$), whereas those with >5 children had lower odds (AOR = 0.52, 95% CI: 0.26-0.99, $p = 0.048$).

Conclusion: Women in Al-Ahsa demonstrated generally good knowledge and positive attitudes toward PPD, although gaps in specific risk factor awareness and persistent stigma-related beliefs remain.

Keywords: Postpartum Depression; Knowledge; Attitudes; Women; Al-Ahsa; Saudi Arabia

1. Introduction

Postpartum depression (PPD) is a common and clinically significant mood disorder that occurs after childbirth, typically within the first year postpartum [1, 2]. It is characterized by persistent low mood, loss of interest, fatigue, sleep disturbances, and, in severe cases, thoughts of self-harm [3]. Unlike the transient "baby blues," PPD is more severe, longer-lasting, and can negatively affect maternal functioning, infant development, and family well-being. Early

* Corresponding author: Fai Khalid Alhussain

identification and appropriate management are therefore essential to reduce its short- and long-term consequences [4, 5].

Globally, postpartum depression is considered a major public health concern, with prevalence estimates varying widely across populations due to differences in diagnostic tools, cultural factors, and study settings. Globally, postpartum depression affects approximately 10 to 20% of women, making it one of the most prevalent complications of childbirth [6]. Systematic reviews reported that PPD affects a substantial proportion of postpartum women worldwide, making it one of the most common complications of childbirth [7]. The World Health Organization also assessed maternal mental health as a key component of reproductive health due to its impact on both mothers and children [8].

The development of postpartum depression is multifactorial. Several biological, psychological, and social factors have been associated with increased risk, including a history of depression, exposure to stressful life events, lack of social support, financial difficulties, and complications in the newborn [9-11]. In addition to risk factors, awareness of symptoms and attitudes toward mental health play an important role in early recognition and help-seeking behavior. Poor knowledge and negative attitudes may delay diagnosis and reduce access to appropriate care [12].

In Saudi Arabia, maternal mental health has gained increasing attention in recent years; however, public awareness and understanding of postpartum depression are still unsatisfactory. In Saudi Arabia, postpartum depression has gained increasing research attention over the past decade. Studies conducted in Riyadh, Jeddah, Qassim, Hail, and the Eastern Province have reported prevalence rates ranging from 13% to over 38% [13-16]. Alarming high prevalence was reported in the Jazan region, where more than 70% of participants screened positive for depressive symptoms, possibly reflecting cultural normalization and reliance on self-reported measures [17]. Cultural beliefs, stigma, and limited mental health literacy may influence how women perceive and respond to depressive symptoms after childbirth. Assessing knowledge and attitudes in different regions of the Kingdom is important to guide health education and targeted interventions. Therefore, this study aimed to assess the knowledge and attitudes regarding postpartum depression among Saudi women aged 18 years and above in Al-Ahsa, Eastern Province, Saudi Arabia, and to identify sociodemographic factors associated with them.

2. Materials and Methods

A cross-sectional study design was used to assess knowledge and attitudes toward postpartum depression among Saudi women living in Al-Ahsa, Eastern Province, Saudi Arabia. Data were collected over two months from March to May. Al-Ahsa was selected as the study setting due to its diverse population, including both urban and semi-urban communities, which helped in reaching women from different backgrounds aged 18 years and above. The study included Saudi women aged 18 years and older living in Al-Ahsa, regardless of marital status, who agreed to take part and provided informed consent. Women with a known psychiatric illness not related to postpartum depression were excluded, as well as those who could not complete the questionnaire because of language or cognitive difficulties. The sample size was calculated using the Raosoft® sample size calculator with a 95% confidence level, 5% margin of error, and 50% response distribution. The minimum required sample size was 377 participants, and this number was met in the final sample. A convenience sampling method was used. The questionnaire was distributed online through social media platforms, healthcare-related pages, and community groups to reach as many eligible participants as possible. Data were collected using a structured self-administered questionnaire that was adapted from previously validated studies conducted in Saudi Arabia. The questionnaire included three sections: sociodemographic and obstetric characteristics, knowledge about postpartum depression, and attitudes toward postpartum depression. Before starting the main data collection, Content validity was ensured through review of relevant literature and evaluation by experts in the field to confirm that the items were appropriate and covered the study objectives. Minor modifications were made to improve clarity and contextual relevance to the local population. A pilot study was conducted before the main data collection to test the tool, and reliability analysis showed acceptable internal consistency, with Cronbach's alpha values of 0.75 for the knowledge section and 0.71 for the attitude section.

2.1. Data analysis

Data were analyzed using IBM SPSS Statistics for Windows, Version 28.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to summarize participants' sociodemographic and obstetric characteristics, knowledge items, and attitude responses. Categorical variables were presented using frequencies and proportions, while continuous variables were summarized using means and standard deviations.

The overall knowledge score was computed by assigning one point for each correct response, with total scores summed for each participant. Knowledge levels were then categorized into "poor" and "good" based on a cutoff point of 60% of

the total attainable score, with scores below 60% classified as poor knowledge and scores of 60% and above classified as good knowledge. For attitude assessment, composite mean scores were calculated for each participant based on the Likert-scale responses. The overall attitude score was then categorized into three levels using predefined cutoffs: 1.00–1.66 indicating a negative attitude, 1.67–2.33 indicating a neutral attitude, and 2.34–3.00 indicating a positive attitude.

Inferential statistics were used to examine associations between categorical variables. The chi-square test (Pearson's chi-square) and Fisher's exact test were used as appropriate. Variables found to be significant in bivariate analysis were entered into a multivariable logistic regression model to identify independent predictors of good knowledge, and adjusted odds ratios (AORs) with 95% confidence intervals (CIs) were reported. Statistical significance was set at a p-value < 0.05.

3. Results

The study included 378 females (Table 1). Regarding age distribution, 17 participants (4.5%) were aged <20 years, 82 (21.7%) were aged 20-29 years, 99 (26.2%) were aged 30-39 years, and 180 (47.6%) were aged 40 years or older. Regarding educational level, 24 participants (6.3%) had below-secondary education, 48 (12.7%) had secondary education, 268 (70.9%) had university education, and 38 (10.1%) had postgraduate degrees. In terms of employment status, 169 participants (44.7%) were housewives, 27 (7.1%) were students, and 182 (48.1%) were employees. Regarding marital status, 85 participants (22.5%) were single, 251 (66.4%) were married, and 42 (11.1%) were divorced or widowed. For obstetric characteristics, 13 participants (4.4%) were nulligravida, 90 (30.7%) had 1-3 pregnancies, 92 (31.4%) had 4-5 pregnancies, and 98 (33.4%) had more than 5 pregnancies, with a mean number of pregnancies of 4.5 ± 2.4 . Regarding the number of living children, 111 participants (39.6%) had 1-3 children, 95 (33.9%) had 4-5 children, and 74 (26.4%) had more than 5 children, with a mean of 4.2 ± 1.9 children. Previous diagnosis of depression was reported by 53 participants (14.0%), while 250 (66.1%) reported no previous diagnosis, and 75 (19.8%) did not know. Regarding current conception status, 28 participants (7.4%) had given birth during the last 12 months, 23 (6.1%) were currently pregnant, and 327 (86.5%) reported none of these conditions.

Table 1 Sociodemographic and Obstetric Characteristics of the Study Participants, Al-Ahsa, Saudi Arabia (N = 378)

Variable	No%
Age in years	
<20	17 (4.5%)
20–29	82 (21.7%)
30–39	99 (26.2%)
40+	180 (47.6%)
Educational level	
Below secondary	24 (6.3%)
Secondary education	48 (12.7%)
University education	268 (70.9%)
Post-graduate degree	38 (10.1%)
Employment status	
Housewife	169 (44.7%)
Student	27 (7.1%)
Employee	182 (48.1%)
Marital status	
Single	85 (22.5%)
Married	251 (66.4%)
Divorced/widowed	42 (11.1%)
Number of pregnancies	
Nulligravida	13 (4.4%)

1–3 pregnancies	90 (30.7%)
4–5 pregnancies	92 (31.4%)
>5 pregnancies	98 (33.4%)
Mean $\pm$ SD	4.5 $\pm$ 2.4
Number of living children	
1–3	111 (39.6%)
4–5	95 (33.9%)
>5	74 (26.4%)
Mean $\pm$ SD	4.2 $\pm$ 1.9
Previously diagnosed with depression	
Yes	53 (14.0%)
No	250 (66.1%)
I don't know	75 (19.8%)
Current conception status	
Gave birth during the last 12 months	28 (7.4%)
Currently pregnant	23 (6.1%)
None of these	327 (86.5%)

In Table 2, most women correctly identified several risk factors and symptoms of postpartum depression. A previous history of depression was recognized by 224 participants (59.3%), stress or life problems by 316 (83.6%), lack of family or husband support by 317 (83.9%), newborn health problems by 302 (79.9%), domestic violence by 320 (84.7%), and financial stress by 275 (72.8%). Regarding symptoms, intense sadness was identified by 318 participants (84.1%), difficulty sleeping by 263 (69.6%), fatigue or loss of energy by 273 (72.2%), loss of desire to talk to others by 315 (83.3%), difficulty bonding with the baby by 278 (73.5%), irritability or nervousness by 249 (65.9%), and thoughts of death or self-harm by 292 (77.2%). Responses of "I don't know" ranged from 10.1% to 34.7% across the items.

Figure 1 shows that among women in Al-Ahsa, Saudi Arabia, 298 (78.8%) had a good overall knowledge level regarding postpartum depression, while 80 (21.2%) had poor knowledge.

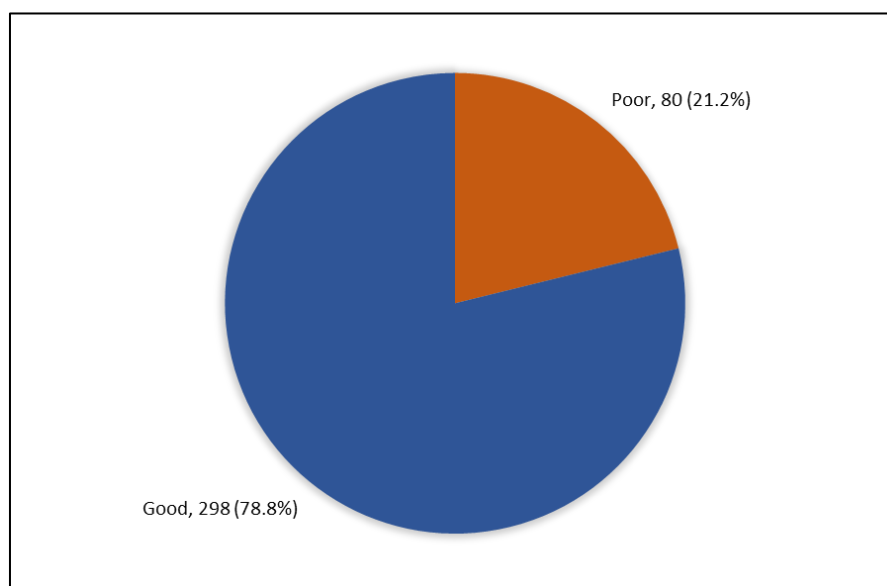


Figure 1 Overall Knowledge Level Regarding Postpartum Depression Among Study Women, Al-Ahsa, Saudi Arabia

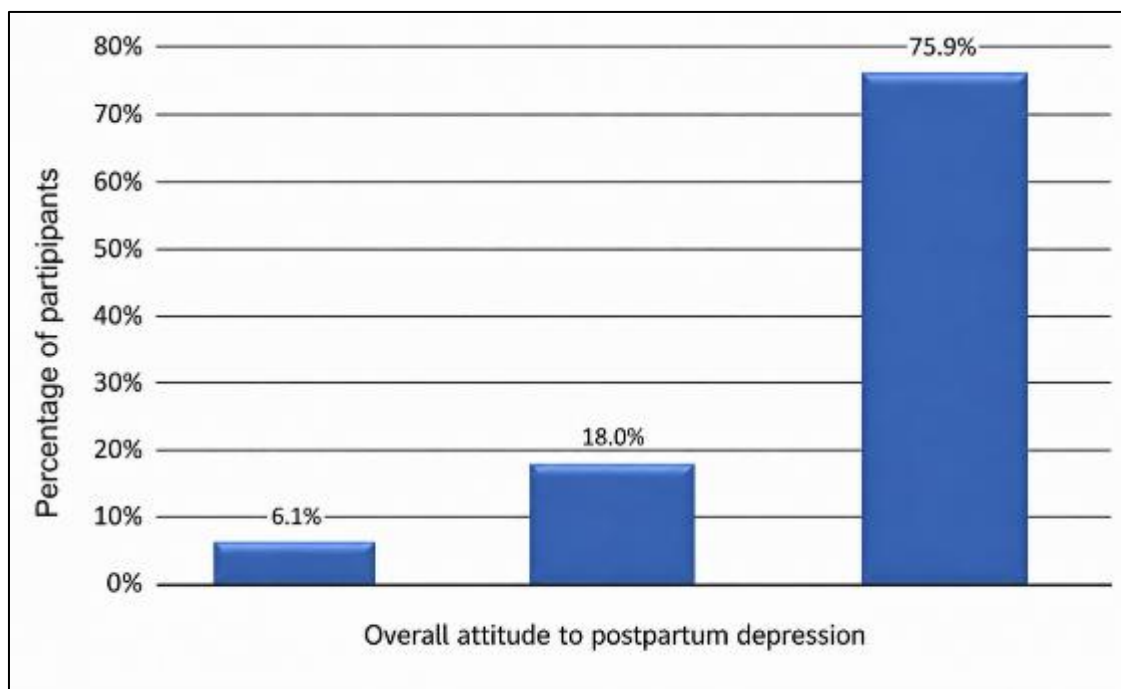
Table 2 Knowledge Regarding Risk Factors and Symptoms of Postpartum Depression Among Study Participants (N = 378)

Knowledge items	TRUE	FALSE	I don't know
Risk factors			
A previous history of depression increases the likelihood of developing postpartum depression.	224 (59.3%)	23 (6.1%)	131 (34.7%)
Exposure to stress or life problems may increase the likelihood of developing postpartum depression.	316 (83.6%)	13 (3.4%)	49 (13.0%)
Lack of support from the husband or family may increase the likelihood of developing postpartum depression.	317 (83.9%)	23 (6.1%)	38 (10.1%)
Having a health problem in the newborn may increase the risk of postpartum depression.	302 (79.9%)	16 (4.2%)	60 (15.9%)
Domestic violence may be a risk factor for postpartum depression.	320 (84.7%)	9 (2.4%)	49 (13.0%)
Financial stress may increase the likelihood of developing postpartum depression.	275 (72.8%)	36 (9.5%)	67 (17.7%)
Symptoms			
Feeling intense sadness is one of the symptoms of postpartum depression.	318 (84.1%)	10 (2.6%)	50 (13.2%)
Difficulty sleeping may be a symptom of postpartum depression.	263 (69.6%)	34 (9.0%)	81 (21.4%)
Feeling extremely tired or lacking energy may be a symptom of postpartum depression.	273 (72.2%)	29 (7.7%)	76 (20.1%)
Loss of desire to talk to others may be a symptom of postpartum depression.	315 (83.3%)	12 (3.2%)	51 (13.5%)
Difficulty forming an emotional bond with the baby may occur in postpartum depression.	278 (73.5%)	29 (7.7%)	71 (18.8%)
Irritability or nervousness may be a symptom of postpartum depression.	249 (65.9%)	26 (6.9%)	103 (27.2%)
Thoughts of death or self-harm may occur in severe cases of postpartum depression.	292 (77.2%)	15 (4.0%)	71 (18.8%)

Reference to Table 3, women with postpartum depression need support from their families and society, as agreed by 332 participants (87.8%), while 23 (6.1%) were neutral and 23 (6.1%) disagreed. Postpartum depression is a real health condition that requires treatment, as agreed by 290 participants (76.7%), with 59 (15.6%) neutral and 29 (7.7%) disagreeing. The belief that women with postpartum depression cannot take care of their children was agreed by 270 participants (71.4%), while 75 (19.8%) were neutral, and 33 (8.7%) disagreed. Postpartum depression is common among women after childbirth, as agreed by 219 participants (57.9%), with 90 (23.8%) neutral and 69 (18.3%) disagreeing. Feeling shame and not telling anyone about postpartum depression was reported by 106 participants (28.0%), while 127 (33.6%) were neutral, and 145 (38.4%) disagreed. Generally, among the study women, 287 (75.9%) showed a positive attitude toward postpartum depression, 68 (18.0%) had a neutral attitude, and 23 (6.1%) showed a negative attitude (Figure 2).

Table 3 Attitudes Toward Postpartum Depression Among Study Women, Al-Ahsa, Saudi Arabia (N = 378)

Attitude items	Disagree	Neutral	Agree
I feel shame and do not tell anyone that I have PPD	145 (38.4%)	127 (33.6%)	106 (28.0%)
Women with postpartum depression cannot take care of their children	33 (8.7%)	75 (19.8%)	270 (71.4%)
Postpartum depression is a real health condition that requires treatment	29 (7.7%)	59 (15.6%)	290 (76.7%)
Postpartum depression is common among women after childbirth	69 (18.3%)	90 (23.8%)	219 (57.9%)
Women with postpartum depression need support from their families and society	23 (6.1%)	23 (6.1%)	332 (87.8%)

**Figure 2** Overall Attitude Toward Postpartum Depression Among Study Women (N = 378)

In Table 4, significant associations were observed between knowledge level and several variables. Age was significantly associated with knowledge level ($p = 0.003$), where the highest proportion of good knowledge was seen among women aged <20 years (94.1%), followed by those aged 30-39 years (87.9%), 20-29 years (81.7%), and 40+ years (71.1%), while poor knowledge was more frequent in the older age group (28.9% in ≥ 40 years). Employment status was also significantly associated with knowledge level ($p = 0.017$), with good knowledge reported among students (92.6%), employees (82.4%), and housewives (72.8%). Number of pregnancies showed a significant association with knowledge level ($p = 0.008$), where good knowledge was highest among women with 1-3 pregnancies (87.8%) and lowest among those with >5 pregnancies (67.3%). Similarly, the number of living children was significantly associated with knowledge level ($p = 0.016$), with good knowledge decreasing from 83.8% in women with 1-3 children to 66.2% among those with >5 children. In contrast, educational level ($p = 0.093$), marital status ($p = 0.283$), previous diagnosis of depression ($p = 0.370$), and current conception status ($p = 0.101$) were not significantly associated with knowledge level.

Table 4 Factors associated with Knowledge Level Regarding Postpartum Depression Among Study Women (N = 378)

Factors	Knowledge level		p-value
	Poor	Good	
Age in years			0.003*^
<20	1 (5.9%)	16 (94.1%)	
20–29	15 (18.3%)	67 (81.7%)	
30–39	12 (12.1%)	87 (87.9%)	
40+	52 (28.9%)	128 (71.1%)	
Educational level			0.093
Below secondary	9 (37.5%)	15 (62.5%)	
Secondary education	10 (20.8%)	38 (79.2%)	
University education	57 (21.3%)	211 (78.7%)	
Post-graduate degree	4 (10.5%)	34 (89.5%)	
Employment status			0.017*^
Housewife	46 (27.2%)	123 (72.8%)	
Student	2 (7.4%)	25 (92.6%)	
Employee	32 (17.6%)	150 (82.4%)	
Marital status			0.283
Single	14 (16.5%)	71 (83.5%)	
Married	54 (21.5%)	197 (78.5%)	
Divorced / widowed	12 (28.6%)	30 (71.4%)	
Number of pregnancies			0.008*
Nulligravida	4 (30.8%)	9 (69.2%)	
1–3 pregnancies	11 (12.2%)	79 (87.8%)	
4–5 pregnancies	19 (20.7%)	73 (79.3%)	
>5 pregnancies	32 (32.7%)	66 (67.3%)	
Number of living children			0.016*
1–3	18 (16.2%)	93 (83.8%)	
4–5	19 (20.0%)	76 (80.0%)	
>5	25 (33.8%)	49 (66.2%)	
Previously diagnosed with depression			0.370
Yes	10 (18.9%)	43 (81.1%)	
No	58 (23.2%)	192 (76.8%)	
I don't know	12 (16.0%)	63 (84.0%)	
Current conception status			0.101
Gave birth during the last 12 months	3 (10.7%)	25 (89.3%)	
Currently pregnant	2 (8.7%)	21 (91.3%)	
None of these	75 (22.9%)	252 (77.1%)	

P: Pearson X² test ^: Exact Probability test * P < 0.05 (significant)

Considering attitude (Table 5), age was significantly associated with attitude ($p = 0.046$), with positive attitudes reported in 52.9% of women aged <20 years, 82.9% in those aged 20-29 years, 82.8% in those aged 30-39 years, and 71.1% in those aged ≥ 40 years. Educational level showed a significant association ($p = 0.001$), with positive attitudes increasing from 33.3% among women with below secondary education to 68.8% (secondary), 79.9% (university), and

84.2% (postgraduate). Employment status was also significant ($p = 0.049$), with positive attitudes reported among employees (80.8%), housewives (73.4%), and students (59.3%). Marital status showed a significant association ($p = 0.001$), where positive attitudes were highest among married women (80.5%) and single women (77.6%), compared with divorced/widowed women (45.2%). Previous diagnosis of depression was significantly associated with attitude ($p = 0.001$), with positive attitudes reported in 80.8% of women without previous depression, 67.9% with previous depression, and 65.3% among those who did not know. Overall knowledge level was also significantly associated with attitude ($p = 0.001$), where positive attitudes were higher among women with good knowledge (82.2%) compared with those with poor knowledge (52.5%). In contrast, the number of pregnancies ($p = 0.284$), the number of living children ($p = 0.183$), and current conception status ($p = 0.397$) were not significantly associated with attitude.

Table 5 Factors Associated with The Overall Attitude Toward Postpartum Depression Among Study Participants (N = 378)

Factors	Overall Attitude			p-value
	Negative	Neutral	Positive	
Age in years				0.046*^
<20	2 (11.8%)	6 (35.3%)	9 (52.9%)	
20-29	2 (2.4%)	12 (14.6%)	68 (82.9%)	
30-39	5 (5.1%)	12 (12.1%)	82 (82.8%)	
40+	14 (7.8%)	38 (21.1%)	128 (71.1%)	
Educational level				0.001*^
Below secondary	10 (41.7%)	6 (25.0%)	8 (33.3%)	
Secondary education	3 (6.3%)	12 (25.0%)	33 (68.8%)	
University education	10 (3.7%)	44 (16.4%)	214 (79.9%)	
Post-graduate degree	0 (0.0%)	6 (15.8%)	32 (84.2%)	
Employment status				0.049*
Housewife	9 (5.3%)	36 (21.3%)	124 (73.4%)	
Student	2 (7.4%)	9 (33.3%)	16 (59.3%)	
Employee	12 (6.6%)	23 (12.6%)	147 (80.8%)	
Marital status				0.001*
Single	5 (5.9%)	14 (16.5%)	66 (77.6%)	
Married	11 (4.4%)	38 (15.1%)	202 (80.5%)	
Divorced / widow	7 (16.7%)	16 (38.1%)	19 (45.2%)	
Number of pregnancies				0.284^
Nulligravida	2 (15.4%)	3 (23.1%)	8 (61.5%)	
1-3 pregnancies	4 (4.4%)	13 (14.4%)	73 (81.1%)	
4-5 pregnancies	4 (4.3%)	15 (16.3%)	73 (79.3%)	
>5 pregnancies	8 (8.2%)	23 (23.5%)	67 (68.4%)	
Number of living children				0.183
1-3	5 (4.5%)	16 (14.4%)	90 (81.1%)	
4-5	4 (4.2%)	17 (17.9%)	74 (77.9%)	
>5	7 (9.5%)	18 (24.3%)	49 (66.2%)	
Previously diagnosed with depression				0.001*^
Yes	5 (9.4%)	12 (22.6%)	36 (67.9%)	
No	7 (2.8%)	41 (16.4%)	202 (80.8%)	
I don't know	11 (14.7%)	15 (20.0%)	49 (65.3%)	

Current conception status				0.397
Gave birth during last 12 months	1 (3.6%)	6 (21.4%)	21 (75.0%)	
Currently pregnant	3 (13.0%)	6 (26.1%)	14 (60.9%)	
None of these	19 (5.8%)	56 (17.1%)	252 (77.1%)	
Overall knowledge level				0.001*
Poor	16 (20.0%)	22 (27.5%)	42 (52.5%)	
Good	7 (2.3%)	46 (15.4%)	245 (82.2%)	

P: Pearson X² test ^: Exact Probability test * P < 0.05 (significant)

In the multivariable logistic regression model (Table 6), several factors were independently associated with good knowledge of postpartum depression. Age ≥ 40 years was significantly associated with lower odds of good knowledge compared with women aged <20 years (AOR = 0.28, 95% CI: 0.07-1.00, p = 0.049). Employment status also showed a significant association, where employees had higher odds of good knowledge compared with housewives (AOR = 1.85, 95% CI: 1.02-3.36, p = 0.04). Regarding obstetric history, women with 1-3 pregnancies had significantly higher odds of good knowledge compared with nulligravida women (AOR = 2.41, 95% CI: 1.59-6.81, p = 0.049). In contrast, women with more than five children had significantly lower odds of good knowledge (AOR = 0.52, 95% CI: 0.26-0.99, p = 0.048). Other categories, including age 20-39 years and higher parity groups (4-5 pregnancies), were not statistically significant.

Table 6 Multivariable Logistic Regression Analysis of Factors Associated with Good Knowledge of Postpartum Depression Among Study Participants (N = 378)

Predictor	Adjusted OR	95% CI	p-value
Age (years)			
<20	1.0 (Ref)		
20–29	0.62	0.15–2.48	0.490
30–39	0.54	0.13–2.21	0.392
≥ 40	0.28	0.07–1.00	0.049*
Employment status			
Housewife	1.0 (Ref)		
Student	3.12	0.62–15.7	0.172
Employee	1.85	1.02–3.36	0.04*
Number of pregnancies			
Nulligravida	1.0 (Ref)		
1–3	2.41	1.59–6.81	0.049*
4–5	1.78	0.44–7.20	0.413
>5	0.69	0.18–2.65	0.590
Number of living children			
1–3	1.0 (Ref)		
4–5	0.88	0.45–1.71	0.711
>5	0.52	0.26–0.99	0.048*

OR: Odds Ratio CI: Confidence interval * P < 0.05 (significant)

4. Discussion

This study assessed the level of knowledge and attitudes toward postpartum depression (PPD) among Saudi women in Al-Ahsa, Eastern Province, and identified associated sociodemographic and obstetric factors. Overall, findings showed relatively high awareness, with the vast majority of women having good knowledge and also reporting a positive attitude toward PPD. These results indicate improving awareness in the community compared to earlier local studies that reported noticeably lower levels of knowledge and awareness (18-20). However, when compared with evidence from high-income countries, the results still indicate an area for improvement, as maternal mental health literacy tends to be more comprehensive in settings where structured public health education on perinatal mental health is well established (21, 22). Considering specific knowledge areas, participants showed a strong awareness of major psychosocial risk factors such as stress, lack of family or partner support, financial difficulties, and domestic violence. These findings are consistent with regional research showing that social stressors are the most commonly recognized contributors to PPD (23, 24). Participants were also relatively aware of core depressive symptoms such as persistent sadness, fatigue, sleep disturbance, and emotional withdrawal. Importantly, a considerable proportion recognized suicidal ideation as a severe symptom, which is encouraging from a public health perspective, as early recognition of risk symptoms is critical for timely intervention.

Despite these strengths, important knowledge defects were still observed. Less than two-thirds of participants recognized a previous history of depression as a risk factor, even though it is one of the strongest predictors of PPD in clinical literature (25). In addition, symptoms such as irritability and sleep disturbance were less consistently identified, indicating that subtle or culturally normalized symptoms may be under-recognized. This aligns with qualitative findings from Saudi Arabia, which found that postpartum women and communities often attribute such symptoms to normal postpartum adjustment rather than mental illness (26).

However, stigma-related attitudes remain a concern. A prominent number of women expressed feelings of shame or reluctance to disclose depressive symptoms, while others were uncertain about disclosure. In addition, a considerable proportion believed that women with PPD may be unable to care for their children, revealing persistent misconceptions that may contribute to fear, delayed help-seeking, and social isolation. Similar stigma patterns have been reported across Gulf countries and remain a major barrier to mental health service utilization (27-29).

The analysis of associated factors revealed significant relationships between knowledge and several sociodemographic and obstetric variables. Younger age groups showed better knowledge compared with older women, and this association remained significant in multivariable analysis. This may reflect generational differences in access to digital information, exposure to health education campaigns, and use of social media platforms, which have become key sources of health awareness among younger populations in Saudi Arabia. Employment status also played an important role, as employed women demonstrated higher knowledge levels than housewives, possibly due to increased exposure to information, social interaction, and health-related communication in workplace settings. Obstetric experience also influenced knowledge, where women with 1-3 pregnancies showed higher knowledge compared with nulligravida women, likely due to increased exposure to antenatal care services and pregnancy-related health education. Interestingly, women with very high parity showed reduced knowledge, which may reflect cumulative socioeconomic burden, limited time for health engagement, or lower educational attainment in this subgroup.

A key finding of this study was the strong and significant association between knowledge and attitudes, indicating that women with better knowledge were more likely to hold positive attitudes toward PPD. This supports established health behavior models documenting that knowledge is a foundational component for shaping perceptions and attitudes toward illness and care-seeking behavior (30, 31). Educational level also showed a clear gradient with attitude, where higher education was associated with more positive perceptions, likely due to improved health literacy and reduced stigma-related beliefs.

Strengths and Limitations

This study benefits from a relatively large sample size and inclusion of women across different age groups, which enhances its descriptive value. It also provides a comprehensive assessment of both knowledge and attitudes toward postpartum depression using validated tools, alongside appropriate statistical analysis, including multivariable regression to control for confounding factors. However, the cross-sectional design limits the ability to infer causality between associated factors and outcomes. The use of a convenience sample from Al-Ahsa may restrict generalizability to other regions of Saudi Arabia. In addition, the study also did not assess actual help-seeking behavior, which may differ from reported attitudes. Furthermore, the relatively small proportion of women who were currently pregnant or recently postpartum limits specific insights into peripartum subgroups. Finally, the presence of a considerable

proportion of "I don't know" responses across knowledge items indicates remaining uncertainty in several key areas, with the need for more targeted education.

5. Conclusion and recommendations

In conclusion, Saudi women in Al-Ahsa showed generally good knowledge and positive attitudes toward postpartum depression, with strong recognition of key risk factors, symptoms, and the importance of support and treatment; however, unsatisfactory knowledge remained in specific areas, such as prior depression as a risk factor and some clinical symptoms, along with persistent stigma-related perceptions in a proportion of participants. Knowledge was significantly associated with age, employment status, and obstetric history, while attitudes were influenced by education level, marital status, and overall knowledge level, indicating clear sociodemographic variation in awareness and perceptions. Although findings are encouraging, they highlight the need for continued improvement in maternal mental health literacy. Therefore, strengthening targeted educational interventions within antenatal and postnatal care settings, alongside community awareness campaigns through primary healthcare services and media platforms, is recommended to improve early recognition, reduce stigma, and promote help-seeking behavior.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

Ethical approval for this study was obtained from the relevant institutional review board before data collection.

Statement of informed consent

Participation was entirely voluntary, and informed consent was obtained from all participants before enrollment. The study ensured confidentiality and anonymity by removing any personal identifiers from the dataset.

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