BMC Women's Health

RESEARCH

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Exploring women's perception and attitude towards antidepressant use: a cross-sectional study

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Abstract

Background The World Health Organization reports that depression affects more than 280 million people globally. Women are approximately 50% more likely to experience depression compared to men. Depression during pregnancy leads to deterioration of the mother's and the fetus's health. We aim to explore women's perceptions and attitudes toward using antidepressants and to identify the factors that influence decision-making regarding antidepressant use.

Method A cross-sectional survey, employing a convenience sampling method, was conducted on a university campus in Riyadh, Saudi Arabia. The survey was developed by the investigators and validated by health practitioners. Answers were reported using a 5-point Likert scale. The responses were summed up to give a total score for each respondent. Respondents who scored above or equal 75% of the total score was considered positive perception or favorable attitude. Binary logistic regression analysis was used to identify factors influencing participants' perception and attitude toward taking antidepressants.

Results A total of 991 subjects were surveyed. The majority of women had negative perceptions and favorable attitudes towards using antidepressants during pregnancy reaching 64%. While women with positive perceptions and favorable attitudes represented about 20% of the study subjects. Participants reported that social stigma, religious beliefs, and fear of addiction significantly influenced their attitudes toward antidepressant use.

Conclusions This study explores women's perceptions of depression and antidepressant use, revealing that a significant proportion of Saudi women have a negative perception. The research emphasizes the need for tailored awareness programs to promote informed decision-making regarding antidepressant usage among Saudi women.

Keywords Perception, Antidepressants, Pregnancy, Beliefs, Medication adherence, Patient's attitude

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Introduction

Depression is a common mental illness affecting around 5% of adults worldwide with approximately 280 million individuals suffering from it globally [1]. This condition can severely impact a person's work life and relationships [1]. According to a systematic analysis of the Global Burden of Disease (GBD) study conducted in 2019, mental disorders remain among the top ten leading causes of burden worldwide [2]. Notably, women are approximately 50% more likely to experience depression compared to men [1], with previous studies consistently reporting gender differences that place women at a higher risk of developing depression than men [3–5]. A systematic review and meta-analysis conducted between 2019 and 2021 in Saudi Arabia investigated the prevalence of mental illness and found that the prevalence of depression among Saudi Arabian adults was 30% [6]. This study identified several important risk factors, including female gender, age, presence of chronic health conditions, and history of psychiatric illness [6]. A cross-sectional study conducted at a large primary health care center in Riyadh, Saudi Arabia reported that almost 50% of its visitors were affected by depression, with a higher incidence among women [7]. Moreover, according to the Saudi National Mental Health Survey, the lifetime prevalence of depression was approximately 3% among Saudi males, whereas it was about 9% among Saudi females [8]. Recent studies have reported varying prevalence rates of depression among Saudi women, with figures ranging from 20.5 to 48.2% [9–11].

These findings highlight the increased risk of depression among females in Saudi Arabia. The literature repeatedly reports an increasing number of cases of depression occurring during pregnancy [12–15]. Depression during pregnancy is one of the strongest predictors of postpartum depression [16], affecting more than 10% of pregnant and postpartum women [1]. Among Saudi pregnant women, the prevalence rates range from 2.5 to 26.9% [17, 18]. Depression during pregnancy may affect both the mother and the fetus negatively, exposing the fetus to complications such as premature birth, low birth weight and fetus growth retardation [19, 20]. Moreover, it may increase the risk of complications such as nausea, vomiting, preeclampsia, and hospitalization [21, 22]. These complications may even progress if depression is left untreated [20]. A systematic review found a high prevalence of depression during pregnancy that was associated with adverse birth outcomes [2]. Women who discontinue antidepressants before pregnancy have a 68% risk of becoming depressed, 50% by the first trimester, and 90% by the second trimester [23]. Furthermore, discontinuing antidepressants during pregnancy can lead to the deterioration of physical health and possibly result in suicidal thoughts [23–25]. It was reported that 70.3% of women who discontinued their antidepressant medications experienced adverse effects, and one-third became suicidal [24]. Therefore, the American College of Obstetricians and Gynaecologists and the American College of Psychology recommended early screening and diagnosis of depression during pregnancy to prevent unfavorable consequences for both the mother and the fetus [15, 25, 26]. Addressing mental health issues and treatment options in Saudi Arabia is sometimes challenging due to cultural and religious beliefs and fear of the stigma about the diagnosis and treatment [27, 28]. Moreover, it was reported that approximately 8.9% of Saudis who experience severe mental health illnesses seek out a non-medical or religious healer for treatment [29]. Given the overall increasing prevalence of depression in Saudi Arabia [30], along with the increased risk associated with being female and the high prevalence of depression during pregnancy [21, 25, 26], as well as the challenges associated with treatment and diagnosis of mental disorders in Saudi Arabia [28], this emphasizes the need to understand women's perception and attitude toward antidepressant use during pregnancy and non-pregnancy. This cross-sectional study aims to assess women's perceptions and attitudes toward using antidepressants during pregnancy and non-pregnancy. Perception, represents the participant's understanding and knowledge of depression and antidepressants generally and during pregnancy. Attitude encompasses the participant's actions and behaviors toward depression and antidepressants, generally and during pregnancy. Antidepressant use, refers to using, recommending, and considering antidepressants [31, 32]. In addition, we aim to identify cultural and non-cultural factors that may influence the decision to use antidepressants and the attitude toward dealing with depression during pregnancy and non-pregnancy. In our study, we considered cultural factors correlated with women's perceptions and attitudes toward depression, as mentioned in previous research [33]. These cultural factors include societal influences such as social stigma surrounding antidepressant use, cultural beliefs attributing depression to phenomena like the evil eye or black magic, cultural practices such as seeking solace in religion, and gender norms affecting attitudes toward depression during pregnancy. Additionally, we examined non-cultural factors, which include individual-level influences such as concerns about addiction to antidepressants.

Methods

Study design and setting

This institution-based cross-sectional survey was conducted at a women's university in Riyadh, Saudi Arabia. The survey was distributed between November 2018 to January 2019. The university campus holds 15 colleges along with other affiliated facilities and amenities,

including a university hospital, housing, schools, gyms, a simulation center, a research center, and a central library.

Study participants

A self-administered electronic questionnaire that was distributed to all females aged 18 and above who were either working or studying at the university, including academic and administrative staff, students, and security guards, as well as individuals at other university-affiliated facilities. Females aged less than 18 years old were not included in the study. The questionnaire was administered physically on the university campus through digital tablets. Respondents were afforded privacy throughout the process. A convenient sampling method was adopted to distribute the survey. The total number of the university staff was approximately 44,274, including 38,557 students, 3,555 Administrative staff, and 2,162 Academic staff. A web-based software (openepi.com) was used to calculate the sample size with an anticipated frequency of 50% and a margin of error of ±5 (45 −55%), 95% confidence interval. The needed sample size was estimated to be 382 participants to best represent the population.

Study survey

The questionnaire was developed by the investigators based on the review of the literature [35, 43, 44, 49, 50] and incorporating insights from a psychiatrist. Questions were translated into Arabic and reviewed by a group of experts on the research to achieve phase and content validity. Moreover, two rounds of piloting were carried out. The first translated version was piloted with 25 participants, including students from health and non-health backgrounds, to assess comprehension. This larger sample size allowed for a broader evaluation. Modification focused on simplifying and clarifying the wording of survey statements based on participant feedback. The revised questionnaire was piloted again to assess comprehension. After piloting with 4 participants, clarity was confirmed. An additional 6 participants completed the pilot to solidify this conclusion. The questionnaire contained four main sections starting with 11 demographic questions followed by 25 perception questions, eight attitude questions, and five questions assessing associated factors influencing participants' perception and attitude towards taking antidepressants. Questionnaire answers were reported using a 5-point Likert scale. To assess internal consistency, we calculated Cronbach's alpha for each section. The perception section yielded a strong score of 0.9, indicating the questions effectively measure a single underlying concept of perception related to depression. The attitude section's alpha of 0.7 is acceptable but on the lower end of the range. This suggests good, but potentially improvable, internal consistency within the questions [34].

Determining positive and negative perceptions, and favorable and unfavorable attitudes

A 5-point Likert scale questions ranged from strongly agree, agree, I don't know, disagree, and strongly disagree. The scoring system used concerning subjects' responses is as follows: (Strongly agree=5), (agree=4), (Neither agree nor disagree=3), (disagree=2), and (strongly disagree=1). The responses were summed up to give a total score for each respondent. Only responses corresponding to options 1, 2, 4 and 5 on the Likert scale were considered for the total score of each subject. Responses to option 3 were assigned a score of zero. Based similar studies [35–40], a cut-off point of 75% was applied. Participants scoring at or above 75% were considered to have a positive perception or a favorable attitude. Conversely, participants scoring below 75% were categorized as having a negative perception or an unfavorable attitude toward using antidepressants.

Statistical analysis

We used Microsoft Excel (version 16.54) for descriptive data and SPSS (version 29.0) for comparative analysis. The Shapiro-Wilk test was conducted on the data to assess its fit to a normal distribution. Likert scale responses were reported as a mean and standard deviation. In addition, nominal data were reported using frequency. The questionnaire consisted of 25 statements addressing perception and 8 statements addressing attitude. Additionally, 4 items were reverse-coded in the perception section, while 3 items were reverse-coded in the attitude section. Responses were scored on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). To determine the cutoff points for categorizing perception and attitude, we calculated the 75th percentile of the lower limit of correct answers. For perception, respondents scoring 69 and above were considered to have a good perception, whereas those scoring 68 and below were classified as having a bad perception. Similarly, for attitude, respondents scoring 20 and above were categorized as having a good attitude, while those scoring 19 and below were classified as having a bad attitude. Binary Logistic Regression analysis was used to explore potential relationships between study factors and participants' perceptions and attitudes toward depression and antidepressant use. An investigation on both negative/positive perceptions and favorable/unfavorable attitudes correlated with demographic, cultural, and non-cultural factors.

All data were handled and stored anonymously through the Research Electronic Data Capture software. *P*-value of ≤0.05 was considered statistically significant.

Results

Nine hundred ninety-one respondents were reached. However, a total of 966 respondents were included. The remaining 25 respondents were excluded (6 did not meet the inclusion criteria) and (19 incomplete and duplicated responses) to end up with a total of 966 respondents. The characteristics of respondents who completed the questionnaire are presented in Table 1.

Table 1 Socio-demographic characteristics of participants ($n = 966$)

Characteristics	Results
Age in years, mean(SD)	23 ± 5.8
Age, n (%)	
18-25-year-old	794 (82.2)
26-35-year-old	112 (11.6)
36-45-year-old	55 (5.7)
46-65-year-old	5 (0.5)
University affiliation type, n (%)	
Student	804 (83.2)
Employee	162 (16.8)
Education level, n (%)	
School	18 (1.9)
Undergraduate	918 (95)
Postgraduate	30 (3.1)
Personal & family monthly income, n (%)	
< 6000 SR	202 (20.9)
6000–7000 SR	166 (17.2)
> 7000 SR	598 (61.9)
Marital status, n (%)	
Single	784 (81.2)
Married	164 (17)
Divorced	16 (1.7)
Widow	2 (0.2)
Education specialty, n (%)	
Health	165 (17.1)
Science	134 (13.9)
Human science	222 (23)
Other	433 (44.8)
History of psychological disorder diagnosis, n (%)	
Depression	50 (5.2)
Anxiety	49 (5.1)
Obsessive Compulsive Disorder	8 (0.8)
Post-traumatic disorder	5 (0.5)
Panic attack disorder	4 (0.4)
Bipolar disorder	3 (0.3)
Other	9 (0.9)
I don't have any mental disorder	838 (86.7)
History of Prescribed psychotropic medications, n (%)	
No	87 (68)
Yes	41 (32)
Class of psychotropic medications received, n (%)	
Antidepressant drugs	16 (39)
Anti-anxiety drugs	14 (34.1)
Antipsychotic drugs	1 (2.4)
Other	10 (24.4)
Admit the use of antidepressants during pregnancy, n (%)	
No	155 (16.1)
Yes	2 (0.2)
Never been pregnant	809 (83.7)

Most respondents were students, accounting for 83.2% while 16.8% were employees. The study included 2 participants (0.2%) who had taken antidepressants during pregnancy, 155 were previously pregnant (16.1%), and the remaining 809 participants had never been pregnant (83.7%).

Perception of depression and antidepressants during non-pregnancy

When participants were asked about their perception of depression, almost all study participants (95%) agreed that depression is a disease that needs to be diagnosed and treated, and (80%) agreed that depression has a long-term impact on a person's life. Moreover, 52% agreed that antidepressants have health and psychological benefits, and 50% agreed that antidepressants could improve the sleep cycle and a person's outlook on life. On the other hand, when participants were asked about other benefits of antidepressants, a significant percentage of participants were unaware that antidepressants could have benefits such as improved appetite (52%), increased energy (48%), improved memory and sharper thinking (41%), and pain relief (40%). Participants' perceptions of depression and antidepressants are presented in Table 2.

Perception of depression and antidepressants during pregnancy

Approximately, 59% of study participants believe depression can continue after delivery and progress to postpartum depression. In addition, 63% agreed that having depression during pregnancy may lead to suicidal thoughts. In contrast, a significant percentage of participants expressed uncertainty regarding the negative consequences of depression during pregnancy, including congenital fetus low birth weight (69%), nervous system defects (68%), miscarriage (60%) and malformations (58%). Perceptions of possible triggers of depression during pregnancy were assessed among study participants. The majority agreed that loneliness (76%), addiction to drugs or alcohol (75%), and stress (69%) could trigger depression during pregnancy. Moreover, a considerable percentage (68%) believe that weak religious beliefs can also trigger depression during pregnancy. Furthermore, 51% were unaware of the benefits of using antidepressants during pregnancy. When participants were asked about their perception of the adverse effects of antidepressant use during pregnancy, a significant percentage of participants were unaware of them, including miscarriage (77%) and the possibility of congenital malformation and low birth weight (55%). Table 3.

Table 2 Participants' perception of depression and antidepressants

Perception Statement		Likert scale	Percentage, *n* (%)	Mean, (SD)*
1	Depression is a disease that needs to be diagnosed and treated	Strongly agree	585 (61)	4.45 (4.05)
		Agree	325 (34)	
		Neither agree nor disagree	25 (3)	
		Disagree	22 (2)	
		Strongly disagree	9 (1)	
2	Depression has a long-term impact on a person's life and Family.	Strongly agree	349 (36)	3.99 (3.68)
		Agree	424 (44)	
		Neither agree nor disagree	138 (14)	
		Disagree	50 (5)	
		Strongly disagree	5 (1)	
3	Antidepressants have health and psychological benefits.	Strongly agree	154 (16)	3.21 (3.16)
		Agree	349 (36)	
		Neither agree nor disagree	314 (33)	
		Disagree	119 (12)	
		Strongly disagree	30 (3)	
4	Antidepressants relieve pain	Strongly agree	105 (11)	3.04 (3.01)
		Agree	318 (33)	
		Neither agree nor disagree	382 (40)	
		Disagree	128 (13)	
		Strongly disagree	33 (3)	
5	Antidepressants improve the sleep cycle	Strongly agree	125 (13)	3.16 (3.09)
		Agree	354 (37)	
		Neither agree nor disagree	340 (35)	
		Disagree	113 (12)	
		Strongly disagree	34 (4)	
6	Antidepressants improve appetite	Strongly agree	70 (7)	2.86 (2.82)
		Agree	229 (24)	
		Neither agree nor disagree	502 (52)	
		Disagree	129 (13)	
		Strongly disagree	36 (4)	
7	Antidepressants improve optimistic outlook and perception of life.	Strongly agree	111 (11)	3.01 (3.06)
		Agree	374 (39)	
		Neither agree nor disagree	287 (30)	
		Disagree	157 (16)	
		Strongly disagree	37 (4)	
8	Antidepressants improve memory and lead to sharper thinking	Strongly agree	79 (8)	2.82 (2.89)
		Agree	289 (30)	
		Neither agree nor disagree	394 (41)	
		Disagree	158 (16)	
		Strongly disagree	46 (5)	
9	Antidepressants give you more energy.	Strongly agree	65 (7)	2.61 (2.74)
		Agree	204 (21)	
		Neither agree nor disagree	462 (48)	
		Disagree	180 (19)	
		Strongly disagree	55 (6)	

*The answers to the correct perception statement were coded from (5 to 1), and wrong perception statements were reverse coded from (1 to 5). Mean & standard deviation are used to describe the subjects' answers to Likert-scale answers (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree)

Attitude toward depression and antidepressant use during pregnancy or non-preganacy

Most participants (90%) admitted referring to a psychatrist if they experienced depression symptoms during pregnancy. In comparison, 88% would refer to a psychosocial worker, and 19% would refer to family members or friends. In addition, 61% of participants reported that if they experienced negative thoughts during pregnancy, they were more likely to share them instead of keeping them to themselves. When participants were asked about their willingness to take antidepressants non-pregnant and during pregnancy if prescribed by the physician,

Table 3 Participants' perception of depression and antidepressants during pregnancy

Perception Statement		Likert scale	Percentage, *n* (%)		Mean, (SD)*
10	Depression during pregnancy might continue after delivery	Strongly agree	198	(20)	3.55 (3.31)
		Agree	377	(39)	
		Neither agree nor disagree	312	(32)	
		Disagree	69	(7)	
		Strongly disagree	10	(1)	
11	Depression during pregnancy may lead to suicidal thoughts	Strongly agree	226	(23)	3.68 (3.39)
		Agree	391	(40)	
		Neither agree nor disagree	287	(30)	
		Disagree	55	(6)	
		Strongly disagree	7	(1)	
12	If I have been diagnosed with depression during pregnancy, taking antidepressants is beneficial.	Strongly agree	68	(7)	2.71 (2.76)
		Agree	199	(21)	
		Neither agree nor disagree	495	(51)	
		Disagree	152	(16)	
		Strongly disagree	52	(5)	
13	Depression during pregnancy causes congenital fetus malformations.	Strongly agree	51	(5)	2.61 (2.65)
		Agree	157	(15)	
		Neither agree nor disagree	562	(58)	
		Disagree	143	(15)	
		Strongly disagree	53	(5)	
14	Depression during pregnancy causes infants to have low birth weight.	Strongly agree	50	(5)	2.91 (2.70)
		Agree	143	(15)	
		Neither agree nor disagree	664	(69)	
		Disagree	87	(9)	
		Strongly disagree	22	(2)	
15	Depression during pregnancy causes an infant's nervous system defect.	Strongly agree	54	(6)	2.55 (2.51)
		Agree	136	(14)	
		Neither agree nor disagree	654	(68)	
		Disagree	107	(11)	
		Strongly disagree	15	(5)	
16	Depression during pregnancy causes miscarriage	Strongly agree	62	(6)	2.86 (2.76)
		Agree	178	(18)	
		Neither agree nor disagree	582	(60)	
		Disagree	126	(13)	
		Strongly disagree	18	(2)	
17	Knowing the baby's gender would trigger depression while pregnant.	Strongly agree	75	(8)	2.59 (2.84)
		Agree	296	(31)	
		Neither agree nor disagree	316	(33)	
		Disagree	191	(20)	
		Strongly disagree	88	(9)	
18	Major illnesses would trigger depression while pregnant.	Strongly agree	93	(10)	3.14 (2.95)
		Agree	264	(27)	
		Neither agree nor disagree	506	(52)	
		Disagree	84	(9)	
		Strongly disagree	19	(2)	
19	A family history of depression would trigger depression while pregnant	Strongly agree	68	(7)	2.68 (2.82)
		Agree	260	(27)	
		Neither agree nor disagree	405	(42)	
		Disagree	180	(19)	
		Strongly disagree	53	(5)	

Table 3 (continued)

Perception Statement		Likert scale	Percentage, *n* (%)		Mean, (SD)*
20	Stressful events would trigger depression while pregnant	Strongly agree	198	(20)	3.73 (3.42)
		Agree	478	(49)	
		Neither agree nor disagree	236	(24)	
		Disagree	47	(5)	
		Strongly disagree	7	(1)	
21	Loneliness would trigger depression while pregnant	Strongly agree	264	(27)	3.84 (3.55)
		Agree	469	(49)	
		I don't know	174	(18)	
		Disagree	55	(6)	
		Strongly disagree	4	(0.4)	
22	Addiction (alcohol and/or drugs) would trigger depression while pregnant.	Strongly agree	396	(41)	4.06 (3.69)
		Agree	327	(34)	
		I don't know	214	(22)	
		Disagree	19	(2)	
		Strongly disagree	10	(1)	
23	Antidepressants can cause miscarriage.	Strongly agree	35	(4)	2.59 (2.4)
		Agree	122	(13)	
		Neither agree nor disagree	745	(77)	
		Disagree	52	(5)	
		Strongly disagree	12	(1)	
24	Antidepressants reduces the risk of future depression	Strongly agree	62	(6)	2.59 (2.78)
		Agree	249	(26)	
		Neither agree nor disagree	399	(41)	
		Disagree	205	(21)	
		Strongly disagree	51	(5)	
25	Antidepressants negatively affect the fetus (congenital malformation, low birth weight, etc.).	Strongly agree	117	(12)	1.80 (2.24)
		Agree	280	(29)	
		Neither agree nor disagree	535	(55)	
		Disagree	30	(3)	
		Strongly disagree	4	(0.4)	

interestingly, 72% were willing to take antidepressants when non-pregnant, while only 56% of participants were willing to take antidepressants during pregnancy. Table 4.

Selected factors influencing participants' perception and attitude towards taking antidepressants

Almost half of the study participants (53%) do not believe that depression is caused by envy, the evil eye, or magic. Moreover, 64% believe that getting close to God can treat depression. It was found that 66% agreed that social stigma is a reason they would not take antidepressants, and an equal percentage believed that antidepressants can cause addiction. Table 5.

When participants were asked about reasons to avoid taking antidepressants during pregnancy, the main reported reason was the fear of possible side effects of antidepressants on the fetus (83%), followed by concerns about the side effects of antidepressants on the mother (48%).

Overall perception and attitude

The overall perception and attitude of study subjects are illustrated in Fig. 1. It showed that 64% of the participants had negative perceptions and favorable attitudes toward taking antidepressants. When looking into patients with a favorable attitude, it was noticed that only 20% had a positive perception.

Factors mentioned in the literature that could trigger depression during pregnancy 9 were investigated, in addition to demographic information to identify if there is a relationship between these factors and the participants' negative perception and favorable attitude. None of the demographic characteristics were associated with negative perceptions or favorable attitudes. On the other hand, participants who believed that taking antidepressants can cause addiction and that getting close to God can treat depression, were more likely to have a negative perception towards taking antidepressants, [OR 5.26; 95% CI (2.013–13.746) p-value < 0.001] and [OR 4.113; 95% CI (1.801–9.392) p-value < 0.001] respectively. Figure 2.

Table 4 Participants' attitude toward depression and antidepressants during pregnancy or non-preganacy

Attitude statement	Likert scale	*n*, (%)	Mean (SD)*
I would refer to or consult a doctor if I experienced depression symptoms while pregnant.	Strongly agree	528 (55)	4.41 (3.95)
	Agree	339 (35)	
	Neither agree nor disagree	72 (7)	
	Disagree	22 (2)	
	Strongly disagree	5 (1)	
I would refer to or consult a social psychological worker if I experienced depression symptoms while pregnant.	Strongly agree	512 (53)	4.38 (3.93)
	Agree	341 (35)	
	Neither agree nor disagree	92 (10)	
	Disagree	19 (2)	
	Strongly disagree	2 (0.2)	
I would only refer to or consult a family member/friend rather than consulting a doctor if I experienced depression symptoms while pregnant	Strongly agree	53 (5)	3.53 (3.19)
	Agree	135 (14)	
	Neither agree nor disagree	195 (20)	
	Disagree	408 (42)	
	Strongly disagree	175 (18)	
I would keep my negative thoughts to myself if I experienced depression symptoms while pregnant.	Strongly agree	50 (5)	3.58 (3.24)
	Agree	150 (16)	
	Neither agree nor disagree	170 (18)	
	Disagree	380 (39)	
	Strongly disagree	216 (22)	
I would take antidepressants if my doctor prescribed it to me.	Strongly agree	273 (28)	3.88 (3.48)
	Agree	425 (44)	
	Neither agree nor disagree	173 (18)	
	Disagree	76 (8)	
	Strongly disagree	19 (2)	
I will take antidepressants while pregnant if my doctor prescribes it to me.	Strongly agree	213 (22)	3.56 (3.21)
	Agree	326 (34)	
	Neither agree nor disagree	254 (26)	
	Disagree	137 (14)	
	Strongly disagree	36 (4)	
I prefer to get behavioral therapy (Counseling sessions) while pregnant over antidepressant medication even if my doctor prescribed it to me.	Strongly agree	21 (2)	4.05 (3.66)
	Agree	64 (7)	
	Neither agree nor disagree	167 (17)	
	Disagree	304 (31)	
	Strongly disagree	410 (42)	
I would suggest antidepressants to my relatives and friends if they are suffering from depression symptoms while pregnant after consulting a doctor.	Strongly agree	287 (30)	3.66 (3.34)
	Agree	296 (31)	
	Neither agree nor disagree	205 (21)	
	Disagree	128 (13)	
	Strongly disagree	50 (5)	

*The answers to the correct attitude statement were coded from (5 to 1), and wrong Attitude statements were reverse coded from (1 to 5), mean & standard deviation are used to describe the subjects' answers to Likert-scale answers (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree)

In regards to factors associated with participants' favorable attitude, both participants who agreed or disagreed that "depression is caused by envy or eye or magic" were associated with favorable attitude, [OR 3.567;95% CI (1.424–8.934) *p*-value (0. 007)], [OR: 2.356; 95% CI (1.316–4.218) *p*-value (0.004)] respectively. Moreover, participants who did not believe that weak religious beliefs would trigger depression while pregnant were more likely to have a favorable attitude toward taking antidepressants [OR 3.596;95% CI (1.034–12.502) *p*-value (0.044)]. Figure 3.

Discussion

This study investigated the perception of depression and attitude toward taking antidepressants during pregnancy and non-pregnancy. Understanding women's beliefs and opinions on this topic is crucial for providing appropriate healthcare support and guidance during these periods.

Table 5 Factors influencing participants' perception and attitude

Factor statements	Likert scale	*n*, (%)	Mean (SD)*
Depression is caused by (envy or eye or magic).	Strongly agree	36 (4)	2.43 (2.17)
	Agree	134 (14)	
	Neither agree nor disagree	280 (29)	
	Disagree	281 (29)	
	Strongly disagree	235 (24)	
Getting close to God treats depression.	Strongly agree	335 (35)	3.72 (3.42)
	Agree	281 (29)	
	Neither agree nor disagree	175 (18)	
	Disagree	100 (10)	
	Strongly disagree	75 (8)	
Social stigma is a reason I would not take antidepressants	Strongly agree	285 (30)	3.72 (3.39)
	Agree	346 (36)	
	Neither agree nor disagree	175 (18)	
	Disagree	109 (11)	
	Strongly disagree	51 (5)	
Weak religious beliefs would trigger depression while pregnant.	Strongly agree	320 (33)	3.78 (3.46)
	Agree	338 (35)	
	Neither agree nor disagree	169 (17)	
	Disagree	63 (7)	
	Strongly disagree	76 (8)	
Taking antidepressants may cause addiction.	Strongly agree	289 (30)	3.81 (3.43)
	Agree	345 (36)	
	Neither agree nor disagree	219 (23)	
	Disagree	89 (9)	
	Strongly disagree	27 (3)	

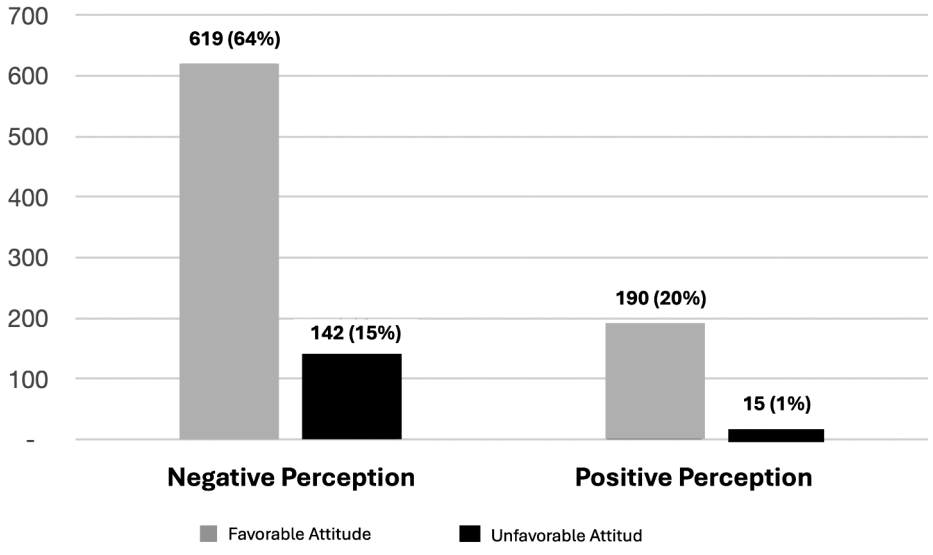

Fig. 1 The overall perception and attitudes of the participants

One key finding is that a significant percentage of participants were unaware that antidepressants could have benefits such as improved appetite, increased energy, improved memory and sharper thinking. This lack of awareness likely contributes to negative attitudes towards antidepressant use and could result in hesitancy or refusal to seek treatment [41]. When individuals do not understand the potential benefits of antidepressants, they may be less likely to adhere to prescribed treatments or to seek medical advice when experiencing symptoms of depression. This can lead to prolonged suffering and a decrease in overall quality of life [1]. Moreover, a significant percentage of participants expressed uncertainty regarding the negative consequences of depression

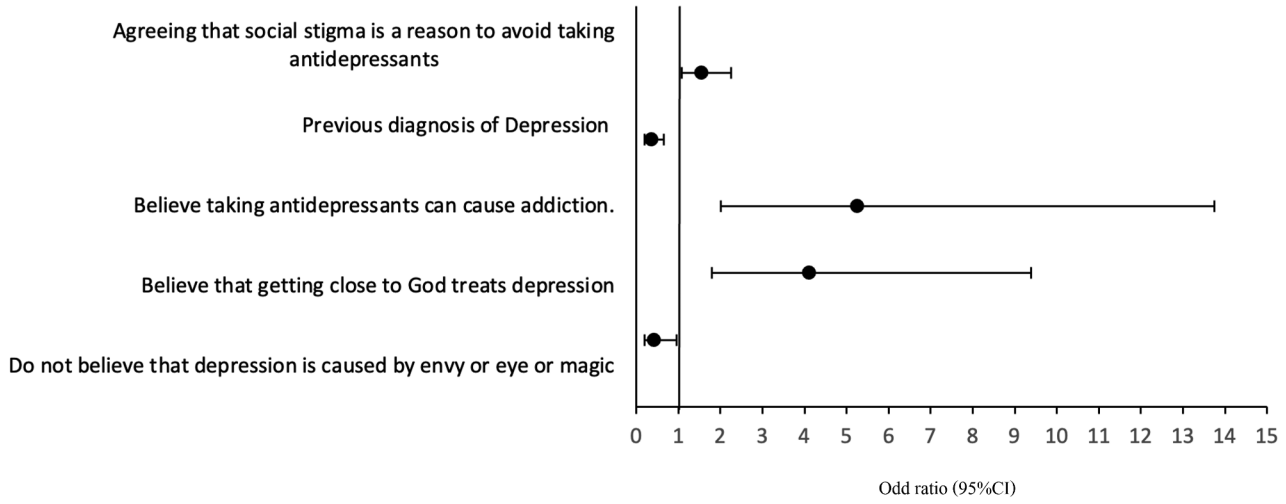

Fig. 2 Factors associated with participants' negative perception

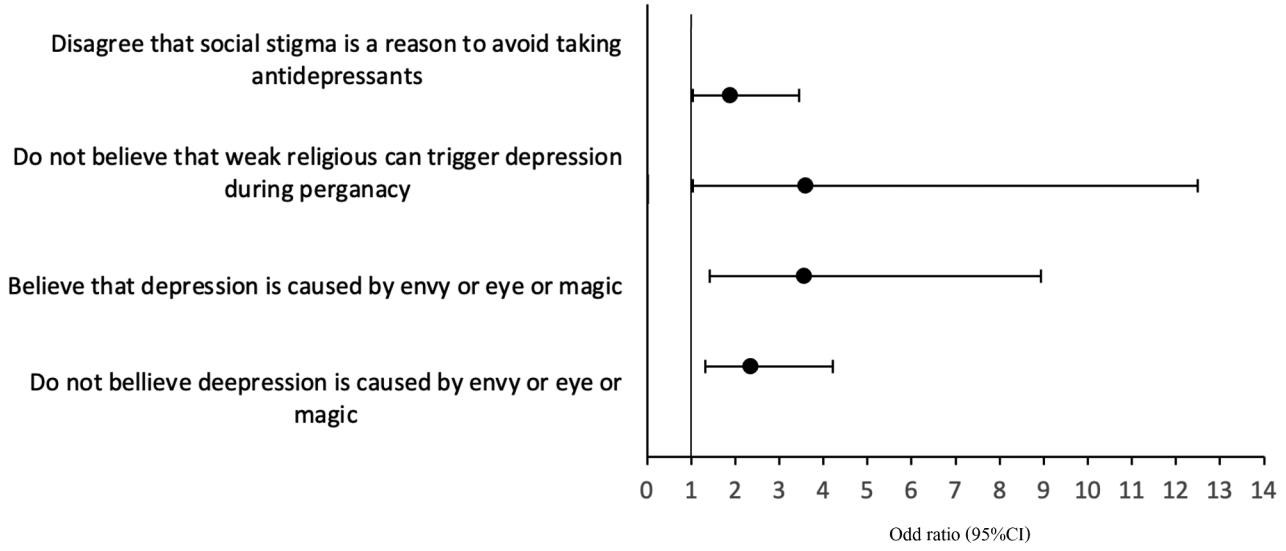

Fig. 3 Factors associated with participants' favorable attitude

during pregnancy, including congenital fetus low birth weight. This underlines the poor mental health knowledge awareness in the young female population. The lack of awareness about the risks associated with untreated depression during pregnancy can lead to poor health outcomes for both the mother and the fetus. Pregnant women who are unaware of these risks may not seek the necessary mental health care, potentially leading to adverse effects such as low birth weight, preterm birth, and developmental issues in the child [19–21]. Following the recommendation of the Saudi National Mental Health Survey, addressing this knowledge gap could play a vital role in reducing the unmet demand for mental health treatment in Saudi Arabia [27]. One of the most interesting findings in this study was that 52% of responders agreed that taking an antidepressant during non-pregnancy has health and psychological benefits, while only 28% believe that taking antidepressants during pregnancy may be beneficial. However, when responders were asked about their willingness to take an antidepressant if prescribed by the doctor, 72% were willing to take antidepressants when non-pregnant, while only 56% of participants were willing to take antidepressants during pregnancy, indicating that the physician had the most prominent role in this decision-making. A study by Eakley and Lyndon, (2022) reported that patients were at high levels of distress and uncertainty when deciding whether or not to use antidepressants during pregnancy. Restricted access to information or inadequate quality of information was linked to higher patient uncertainty in decision-making [42]. A study that was conducted at an obstetrician clinic in Saudi Arabia to investigate pregnant

women's use, attitude, and medication knowledge found that women, during pregnancy, were more conservative and skeptical toward medication administration [43]. In our study, approximately 48% reported that the main reason for avoiding antidepressants during pregnancy was the fear of possible side effects of antidepressants on the fetus. Similarly, Mulder et al., found that 50% of women believed that using antidepressants increased their child's risk of developing a birth defect [44]. In this study, 64% of the participants had negative perceptions and favorable attitudes toward taking antidepressants. Participants' favorable attitude can be attributed to their reliance on following doctor's orders, consistent with previous study [42]. The role of physicians is crucial in shaping patients' attitudes toward antidepressant use. Physicians, as primary sources of medical information and authority figures, significantly influence patients' treatment decisions. When physicians effectively communicate the benefits and manage the potential side effects of antidepressants, patients are more likely to develop a favorable attitude towards their use, despite any initial negative perceptions [45–47].

We tested several factors that may influence women's decision to take antidepressants. Including the history of depression, the belief that depression is caused by envy or evil eye or magic, fear of stigma, fear of addiction, weak religious beliefs, and getting close to God. It was found that participants previously diagnosed with psychological illness were more likely than others to have a negative perception of depression and antidepressant use. This can be explained by that answers may have been based on their previous poor experience with diagnosis and treatment having no positive experience to recall and base their judgment on. A study found that patients who experienced little benefit from antidepressants were less likely to continue therapy [48]. This highlights the need to investigate whether there is a relationship between negative perception in previously diagnosed patients. In this study, participants who disagree that social stigma is a reason to avoid taking antidepressants were found to have a favorable attitude towards taking antidepressants than others. Similarly, a study found that stigma was negatively correlated to participants' attitudes toward seeking treatment, suggesting that the more participants sought psychological help, the less significant a role stigma played in influencing their decision [49]. It's important to note that the study primarily focused on assessing the widespread influence of stigma on treatment approaches and attitude towards seeking help, rather than examining stigma as a reason to stop or avoid treatment [49]. Moreover, all participants of our study were presumably religious and practicing Islam. Therefore, factors related to religion were assessed. The study found that participants who do not believe that weak religious beliefs would trigger depression were more likely to have favorable attitudes than others. Abolfotouh et al., reported that a third of study participants believe the cause of mental illness is God's punishment, and more than half believe that personal weakness is the cause of mental illness [50]. This can lead to isolation and internalizing the mental illness and consecutively feed into the poor awareness and public perception of mental health. Beliefs about mental health rooted in religious and cultural perspectives can lead to stigma and self-blame, making it difficult for individuals to seek help [51]. The study has several limitations, including being a single-centered cross-sectional study which may carry some recall or selection bias, and was done through convenient sampling. In addition, the study identifies factors influencing decision-making regarding antidepressant use but does not establish causality between these factors and attitudes. Moreover, due to the specific sample and location, the findings may not be generalizable to other populations or regions with different cultural and healthcare contexts. The study participants were mainly young females who were single and had never been pregnant, which may have influenced the responders' attitudes. Future research in this area should consider addressing these limitations, employing more diverse and representative samples and exploring additional influencing factors. Furthermore, conducting a qualitative study to gain a deeper understanding of women's perceptions and attitudes toward using antidepressants. Such studies can contribute to better-informed healthcare decisions and interventions for women experiencing depression. Moreover, investigating the impact of targeted educational interventions on improving awareness and attitudes towards antidepressant use among Saudi women would be valuable. Additionally, exploring the role of healthcare providers in shaping perceptions and attitudes towards antidepressants could provide further insights into effective strategies for promoting informed decision-making regarding mental health treatment during pregnancy. Such studies could help identify specific interventions and approaches to address misconceptions and enhance understanding among women in this population.

Conclusion

This study provides insights into women's perceptions and attitudes regarding the use of antidepressants during pregnancy. Participants demonstrated limited understanding of the positive effects of antidepressants, while many held negative perceptions towards their use. Factors such as previous psychological illness, perceptions of social stigma, and religious beliefs influenced attitudes towards antidepressant use. These insights can inform the development of tailored awareness programs aimed

at enhancing women's education and promoting a deeper understanding of the causes and treatment of depression.

Abbreviations

WHO World Health Organization
GBD Global Burden of Disease

Acknowledgements
This work was supported by Princess Nourah bint Abdulrahman University Researchers Supporting Project number (PNURSP2024R484), Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia.

Author contributions
All authors actively participated in and approved the study design. GB, YA, HA, RA, SA, and SMA contributed significantly to the design of the study. Data collection was undertaken by YA, HA, RA, and SA, with analysis performed by GB, YA and NAS. The final report and article were collaboratively written by GB, YA, HA, RA, SA, SMA, and NAS. All authors thoroughly reviewed and approved the final manuscript.

Funding
This work was supported by Princess Nourah bint Abdulrahman University Researchers Supporting Project number (PNURSP2024R484), Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia.

Data availability
The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
The study was conducted in accordance with the Declaration of Helsinki. It study was approved by the Institutional Review Board (IRB) of Princess Nourah bint Abdulrahman University (PNU) with IRB registration number 18–0322. Informed consent was obtained when the participant agreed to participate in the survey.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

Received: 10 December 2023 / Accepted: 22 July 2024
Published online: 12 August 2024

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