ORIGINAL ARTICLE

Development of Practice Guidelines for Peripartum Depression in Primary Healthcare

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Abstract

Background: Peripartum depression significantly impacts maternal health but often goes undiagnosed and untreated.

Objective: This study aims to develop practice guidelines for addressing peripartum depression in Primary Healthcare (PHC) settings in Egypt.

Methods: A qualitative study was conducted from October 2020 to August 2021. The Delphi technique was employed, engaging 13 experts in psychiatry and family medicine from Egyptian universities, the Ministry of Health and Population, WHO, and the World Organization of Family Doctors. Three email-based Delphi rounds were conducted.

Results: Key recommendations included: 1) Prevention: Health education on exercise, telephone peer support for antenatal depression, and family therapy for postpartum depression. 2) Screening: Use the Patient Health Questionnaire II every trimester for pregnant women and the Edinburgh Postpartum Depression Scale at well-child visits during the first postpartum year. 3) Diagnosis: Employ the Beck Depression Inventory II for antenatal depression and the Postpartum Depression Screening Scale for postnatal cases. 4) Treatment: Cognitive Behavioral Therapy (CBT) for mild cases; CBT with sertraline (half-dose for antenatal, full-dose for postnatal) for moderate cases; no hormonal therapy for postpartum depression. 5) Referral: For severe cases, comorbidities, suicidal thoughts, psychosis, or substance abuse.

Conclusion: These guidelines should be implemented across PHC facilities in Egypt with comprehensive training for family physicians to ensure effective application.

Keywords: *Peripartum depression, guidelines, primary healthcare, Delphi technique, qualitative research.*

INTRODUCTION

According to the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-V), an antenatal and postpartum major depressive episode (MDE) is diagnosed when a persistent sad mood or loss of interest/pleasure lasts for at least 2 weeks, accompanied by at least four additional symptoms (or three if both core symptoms are present). These symptoms include: 1) Significant weight change (loss or gain) when not dieting; 2) Insomnia or hypersomnia nearly every day; 3) Fatigue or loss of energy nearly every day: 4) Feelings of worthlessness or excessive/inappropriate guilt nearly every day; 5) Diminished ability to think, concentrate, or make decisions nearly every day; 6) Psychomotor agitation or retardation nearly every day or 7) Recurrent thoughts of death, suicidal ideation, or suicide attempt. For antenatal depression, symptoms emerge during pregnancy, while postpartum depression begins within the first four weeks postpartum [1].

A cross-sectional study evaluated the prevalence of antepartum depression among 216 consenting women. Data were collected using a structured interview questionnaire covering socio-demographic and economic factors, obstetric history, and neonatal information. The Edinburg postnatal depressive Scale assessed both the prevalence and severity of depression. The findings showed that 24% of the women experienced moderate antepartum depression [2].

Another cross-sectional study was conducted in three randomly selected primary healthcare centers in Suez governorate, Egypt. The Arabic version of the Edinburgh Postnatal Depression Scale (EPDS) screened for postpartum depression symptoms. Among the 237 postpartum mothers who participated, the estimated prevalence of postpartum depression was 26.6% [3].

Numerous risk factors contribute to perinatal depression, including psychological, socioeconomic, genetic, marital, biological, and obstetric factors. These encompass adverse life events, lifestyle choices, and socioeconomic status. Key predictors of peripartum depression are current or past experiences of sexual abuse, inadequate social support, a personal or family history of depression, and genetic predisposition [4, 5].

Pregnant women with depression face numerous challenges, such as inadequate nutrition leading to insufficient weight gain, missed prenatal appointments, poor overall health, and conditions like preeclampsia

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or gestational diabetes. They may also engage in risky behaviors like substance abuse, smoking, and alcohol consumption, which can harm both mother and fetus. Additionally, these women are more likely to undergo elective operative deliveries and may exhibit poor maternal-fetal attachment [6, 7].

Depression during pregnancy is linked to serious adverse outcomes, including Intrauterine Growth Restriction (IUGR), Preterm Birth (PTB), Low Birth Weight (LBW), and Stillbirth. These complications are comparable to the risks posed by gestational diabetes, preeclampsia, hypertension, substance abuse, and smoking during pregnancy. Furthermore, IUGR, PTB, and LBW can lead to long-term consequences on neonatal and childhood health, increasing mortality risks and negatively impacting neurodevelopment, potentially leading to cognitive, behavioral, and emotional difficulties in later life [8-10].

Perinatal maternal psychiatric disorders significantly impact offspring, leading to lower birth weight, compromised physical health, and neurodevelopmental delays. These delays manifest as impaired cognitive progress, delayed motor development, language acquisition difficulties, challenging infant temperament, and impaired social-emotional functioning [11-13].

To our knowledge, no specific practice guidelines for peripartum depression have been developed to date for primary healthcare centers in Egypt.

The primary healthcare (PHC) system in Egypt is currently undergoing restructuring, with the aim of achieving nationwide coverage through family medicine by 2032. Our main objective was to develop clinical guidelines for peripartum depression tailored to this evolving healthcare model, which could also serve as a framework for other developing countries.

METHODS

A qualitative study was conducted using Delphi technique [14]. The study duration was 12 months during the period from 15th October 2020 to 15th August 2021. Thirteen experts in psychiatry and family medicine from governmental universities, the Ministry of Health and Population (MOHP), the World Health Organization (WHO), and the World Organization of Family Doctors (WONCA) participated in consecutive Delphi rounds. Particiapnts were enrolled into the study with their consent. All 13 experts completed the first round (100% response rate), while 12 participated in the second (92% response rate). The third round, limited to two questions, involved only three experts. The development of the Egyptian practice guidelines for peripartum depression required the participation of 13 experts in Psychiatry and Family Medicine Specialties from different governmental universities, MOHP, WHO and WONCA through correspondence *via* e-mail.

The study duration was 12 months during the period from 15th October 2020 to 15th August 2021.

The Delphi Stages: The study was conducted through three phases:

Phase I: In this phase the basic principles and standards of the study were constructed through:

A. Literature review about different practice guidelines and evidence-based researches in different Arabian and foreign countries was conducted through searching:

1. The American Academy of Family Physicians' Guidelines (2016).
2. The National Institute for Clinical Excellence (NICE) Guidelines (2018).
3. The Canadian Network for Mood and Anxiety Treatments (CANMAT) Guidelines (2018).
4. Different Egyptian, Emirati and Saudi Researches.

B. A basic questionnaire model about Egyptian practice guidelines for peripartum depression was developed by a Demonstrator (WMK) at the Department of Family Medicine and a Professor (MFA) of the Department of Family Medicine, Ain Shams University. The questionnaire included 9 main standards (**Supplementary File 1**):

1. Preventive measures for antepartum and postpartum depression.
2. Screening tools for antepartum and postpartum depression.
3. Who is eligible for screening for antepartum and postpartum depression?
4. Timing of screening for antepartum and postpartum depression.
5. Diagnostic tool for antepartum and postpartum depression.
6. Evaluation for psychiatric comorbidities with antepartum and postpartum depression.
7. Treatment of mild and moderate cases of antepartum depression.
8. Treatment of mild and moderate cases of postpartum depression.
9. When to refer?

Phase II: The developed basic version of the guidelines was emailed to the selected 13 experts at psychiatry and family medicine specialties from different governmental universities, MOHP, WHO and WONCA in the first run Delphi, after 4 months their answers were received, revised, analyzed and tabulated. Consensus was defined as 100% agreement in the first round.

The second version was emailed to 13 experts after modification by removal of the concluded few items and the non-concluded items were reordered according to their agreement percentages and presented in the second run, after 2 months the experts' answers were received, revised, analyzed and tabulated reaching consensus regarding all the items. Consensus was

defined as the highest percentage of agreement reached in the second round.

The third version of the questionnaire was sent *via* email to three experts and included only two items. Although both items had previously been agreed upon, an unusual issue arose in that the selected screening questionnaire was longer than the diagnostic one. This discrepancy was addressed in the third round. After four weeks, the experts' responses were received, reviewed, analyzed, and tabulated. The two conflicting items were resolved. Consensus in this round was defined as agreement by at least 66.6% of the experts.

Phase III: By the third round of Delphi, all the items have been agreed and Egyptian practice guidelines for peripartum depression in primary health care have been developed, reviewed by 3 experts who were Assistant Professor of Family Medicine in Menoufia University, Family Medicine Consultant in Port Said New Health Insurance System and Consultant of Child and Adolescent Psychiatric Administration at General Secretariat of Mental Health and Addiction Treatment, separated for antepartum depression and postpartum depression and presented in a defined simple manner.

The study was conducted according to the standards of Ain Shams University (ASU) ethical and scientific committee.

Statistical Analysis

The collected data were revised, tabulated and presented as numbers and percentages.

RESULTS

Table **1** shows results of consecutive Delphi rounds. In the first round of Delphi, a unanimous consensus was reached on the effectiveness of physical activity and health education programs as preventive measures for antenatal and postnatal depression. However, consensus was not achieved regarding the screening tool, the eligible population for screening, the timing of screening, or the diagnostic tool. Nevertheless, a unanimous consensus was obtained for post-diagnosis evaluation for patients exhibiting psychotic features, active suicidal thoughts, or thoughts of harming their intrauterine fetus. However, consensus was not reached on the treatment options for mild and moderate cases of antenatal and postnatal depression. Additionally, unanimous consensus was reached on referral criteria for patients with severe depression, psychotic features, active suicidal thoughts, thoughts of harming their intrauterine foetus or newborns, and comorbid substance abuse. All items that did not receive approval were reorganized and presented in the second round based on their agreement percentages.

In the second round, in addition to the measures approved in the first round, half of the experts agreed on telephone-based peer support as a preventive measure for antenatal depression. Family therapy was supported by three out of four experts for preventing postnatal depression. The Patient Health Questionnaire-2 (PHQ-2) was endorsed by two-thirds of the experts as a screening tool for antenatal depression, while the Postpartum Depression Screening Scale (PDSS) received similar support for screening postpartum depression. Three out of four experts agreed on universal screening for all pregnant women and new mothers, with the same proportion supporting trimester-based screening during pregnancy. Additionally, more than half of the experts supported screening for new mothers at every visit to the well-child clinic during the first year after delivery. Regarding diagnostic tools, more than half of the experts supported the Beck Depression Inventory-II (BDI-II) for antenatal depression and the Edinburgh Postnatal Depression Scale (EPDS) for postnatal depression. Full consensus was reached on evaluating comorbid anxiety alongside the approved comorbidities from the first round. Three out of four experts supported cognitive-behavioural therapy (CBT), while nearly all experts did not endorse pharmacotherapy for mild cases of antenatal depression. However, a full consensus

Table 1: Delphi runs' results regarding the nine standards.

Standards	Round	Antenatal Depression	Postnatal Depression
Preventive measures	1st round Delphi:	Full consensus (100%) on physical activity and health education programs	Full consensus (100%) on physical activity, relaxing technique and health education programs
	2nd round Delphi:	Adding to the approved measures in the first round, half of the experts agreed on telephone-based peer support	Adding to the approved measures in the first round, family therapy was agreed by three out of four (75%) experts
Screening tools	1st round Delphi:	No consensus	No consensus
	2nd round Delphi:	Patient Health Questionnaire-2 (PHQ-2) was agreed by two thirds of the experts	Postpartum Depression Screening Scale (PDSS) was agreed by two thirds of the experts
	3rd round Delphi:		Full consensus (100%) on Edinburg Postpartum Depression Scale (EPDS)
Who is eligible for screening by PHC physician	1st round Delphi:	No consensus	No consensus
	2nd round Delphi:	Three out of four (75%) experts agreed on screening for all the pregnant women in the second round Delphi technique	Three out of four (75%) experts agreed on screening for all the women in the postpartum period
Timing of screening at antenatal clinic	1st round Delphi:	No consensus	No consensus
	2nd round Delphi:	Three out of four (75%) experts agreed on screening for pregnant women every trimester	More than half of the experts agreed on screening for new mothers every well child clinic visit in the first year after delivery

Standards	Round	Antenatal Depression	Postnatal Depression
Diagnostic tool	1st round Delphi:	No consensus	No consensus
	2nd round Delphi:	More than half of the experts agreed on Beck depression inventory -II (BDI-II)	More than half of experts agreed on Edinburg postpartum depression scale (EPDS)
	3rd round Delphi:		Full consensus on Postpartum Depression Screening Scale (PDSS)
Evaluation for psychiatric comorbidities	1st round Delphi:	Full consensus (100%) regarding post diagnosis evaluation for patients with psychotic features, active suicidal thoughts and thoughts of harming their intrauterine foetus	
	2nd round Delphi:	Full consensus (100%) on evaluation for comorbid anxiety and bipolar disorder added to evaluation of the approved comorbidities in the first round	
Treatment of mild cases	1st round Delphi:	No consensus	No consensus
	2nd round Delphi:	More than three out of four (75%) experts agreed on cognitive behavioral therapy (CBT) with nearly all of them did not agree on using pharmacotherapy for such cases	More than three out of four (75%) experts agreed on cognitive behavioral therapy (CBT) with more than three out of four of them did not agree on pharmacotherapy and full consensus on not using hormonal therapy for such cases.
Treatment of moderate cases	1st round Delphi:	No consensus	No consensus
	2nd round Delphi:	Full consensus (100%) on combined pharmacotherapy and psychotherapy by more than three out of four (75%) experts agreed on cognitive behavioral therapy and three out of four of them agreed on using half the dose of sertraline	Full consensus (100%) on not using hormonal therapy with full consensus on combined pharmacotherapy and psychotherapy by nearly all of the experts agreed on cognitive behavioral therapy and three out of four of them agreed on using the usual dose of sertraline.
When to refer?	1st round Delphi:	Full consensus (100%) on referral for patients with severe depression, psychotic features, active suicidal thoughts, thoughts of harming their intrauterine foetus or new-borns and comorbid substance abuse	
	2nd round Delphi:	All the experts agreed on referral for patients with bipolar disorders and comorbid anxiety added to the referral of the approved patients in the first round	

was achieved on combined pharmacotherapy and psychotherapy, with three out of four experts agreeing on CBT and the use of half the dose of sertraline for moderate cases. For postpartum depression treatment, three out of four experts endorsed CBT but did not support pharmacotherapy for mild cases. However, a full consensus was reached on combined pharmacotherapy and psychotherapy, with nearly all experts supporting CBT and three out of four experts agreeing on using the usual dose of sertraline for moderate cases. There was a full consensus against using hormonal therapy for any case. Additionally, all experts agreed on referral for patients with bipolar disorders and comorbid anxiety, in addition to the patients identified in the first round.

In the treatment of postpartum depression, three out of four experts supported CBT but did not advocate pharmacotherapy for mild cases. However, a unanimous consensus was reached on the efficacy of combined pharmacotherapy and psychotherapy, with nearly all experts endorsing CBT and three out of four experts agreeing to use the standard dose of sertraline for moderate cases. There was unanimous agreement against the use of hormonal therapy for any case. Furthermore, all experts unanimously agreed on the necessity of referral for patients with bipolar disorders and comorbid anxiety, in addition to the patients identified in the first round.

The Final Key Recommendation of the Delphi Experts

The primary recommendations from the Delphi experts regarding antenatal depression were as follows: approved preventive measures included health education programs, raising awareness about the importance of physical exercise, and implementing telephone-based peer support initiatives (refine statements about what makes such recommendation effective).

Screening for depression in pregnant women every trimester using the Patient Health Questionnaire II.

Diagnosis Using the Beck Depression Inventory II

Following diagnosis, a comprehensive evaluation for: 1) Comorbid anxiety disorders; 2) Presence of bipolar disorder; 3) Thoughts of harming the intrauterine fetus; 4) Suicidal ideation and 5) Signs of psychotic features. This approach ensures timely identification and appropriate management of perinatal depression.

Provision of CBT for mild cases treatment, CBT and half the dose of sertraline for moderate cases treatment and referral for patients with: 1) severe depression; 2) comorbid anxiety; 3) bipolar disorder; 4) thoughts of harming intrauterine fetus; 5) suicidal thoughts; 6) psychotic features and 7) substance abuse.

The primary recommendations from the Delphi experts regarding postnatal depression were as follows: approved preventive measures included health education programs, raising awareness about the importance of physical exercise, and implementing family therapy interventions. Subsequent recommendations will involve screening all new mothers at each well-child clinic visit during the first year after delivery using EPDS.

Lastly, guidelines will contemplate Diagnosis by PDSS with post diagnosis evaluation for: 1) comorbid anxiety; 2) bipolar disorder; 3) thoughts of harming newborns; 4) suicidal thoughts and 5) psychotic features.

Provision of CBT for mild cases treatment, CBT and the usual dose of sertraline for moderate cases treatment with no hormonal therapy for any patient.

Referral for patients with: 1) severe depression; 2) comorbid anxiety; 3) bipolar disorder; 4) thoughts of harming intrauterine fetus; 5) suicidal thoughts; 6) psychotic features and 7) substance abuse.

DISCUSSION

Our current study successfully developed clinical guidelines for the management of peripartum depression tailored to primary healthcare settings in Egypt, which may also serve as a model for other developing countries.

Physical Activity

The Delphi experts identified physical activity as a crucial preventive measure for both antepartum and postpartum depression. This recommendation is bolstered by Dipietro and collaborators (2019), who conducted an umbrella review encompassing 76 systematic reviews and meta-analyses. Their findings offer convincing evidence that engaging in moderate-intensity physical activity markedly reduces the risk of postpartum depression symptoms. This advice is likely driven by the diverse range of physical exercises available, their affordability, and their practical feasibility [15].

Similarly, Zhu and collaborators (2021) conducted a meta-analysis of four controlled clinical trials on exercise interventions for antenatal depression. Their findings revealed a significant and substantial benefit of exercise compared to control groups. The exercise regimens typically involved 30-60-minute sessions, three times per week, over a duration of 4 to 31 weeks. One study focused on moderate-intensity dancing for birth, while the other three consistently included 10 minutes of walking, 30 minutes of aerobic exercise, 10 minutes of stretching, and 10 minutes of relaxation at moderate to vigorous intensity. These results align with a meta-analysis by Liping and collaborators (2023), which emphasized the critical role of physical activity in reducing the risk and severity of perinatal depression [16, 17].

Another survey conducted by Joanna and collaborators (2022), involving 236 pregnant women, aimed to assess whether physical activity during pregnancy influences the occurrence of anxiety and depression during pregnancy, postpartum, and six months following childbirth. Their findings revealed that even light physical activity “protects” against depression and is more beneficial than engaging in sedentary activities [18].

Similarly, Fotso and collaborators (2023) conducted a review of four databases and included 12 studies that suggested a potential benefit of exercise during the postpartum period in reducing the symptoms of postpartum depression (PPD). They concluded that physical activity significantly decreases depressive symptoms during the postpartum period, acting as a natural antidepressant. However, to fully harness the benefits of exercise as a therapeutic approach to PPD, it should be of moderate-to-vigorous intensity, totaling at least 150 minutes per week, as recommended by ACOG. Additionally, it should be complemented by a wellness or support program that targets the behavioral components of a healthy lifestyle [19].

Health Education Programs

A crucial recommendation from the Delphi experts for the prevention of antenatal and postnatal depression was the implementation of health education programs. This recommendation is supported by a randomized controlled clinical trial conducted by Steardo and collaborators (2019). In this trial, 63 women, either more than three months pregnant or within three days postpartum, participated in a psychoeducational intervention. Scheduled every 7-10 days, the intervention consisted of six modules: individual and family assessment; information on the clinical characteristics of the disorder, including incidence, prevalence, long-term outcomes, risks for children, the negative impact on maternal mental health, and available pharmacological and non-pharmacological treatment options; early warning signs; management of suicidal behaviors; communication skills, focusing on strategies for expressing feelings and improving active listening; and problem-solving skills. Each session lasted about 90 minutes and included two or more booster sessions as needed. These sessions encouraged discussion and interaction among participants. To ensure treatment fidelity, the research group developed a manual, and patients and family members received leaflets and other written materials. The authors reported a reduction of at least 50% in the Hamilton Depression Rating Scale (HAM-D) scores at three months post-randomization. These results align with those of an experimental study by Badrin and collaborators (2021), which involved 72 first-time mothers [20, 21].

The authors delivered a guided antenatal education support program to the intervention group, which included antenatal education sessions supplemented by an additional 15-minute discussion and a support guidebook. They reported a significant reduction in the risk of postnatal depression scores in the intervention group ($p<0.05$) compared to the control group. Additionally, there was a significant increase in life satisfaction scores ($p<0.05$) and social support scores ($p<0.05$) after receiving the guided antenatal education in the intervention group. Consequently, it was concluded that guided antenatal education support is beneficial in reducing postnatal depression and increasing life satisfaction and social support. The integration of psychoeducation for first-time mothers, especially during pregnancy, should be provided by nurses and midwives. An additional important recommendation for preventing antenatal depression was telephone-based peer support, which corresponds with the findings

of Chyzzy and Dennis (2019). They conducted a controlled clinical trial during the last trimester and early postpartum periods to assess the feasibility, applicability, and effectiveness of telephone-based peer support for preventing depression. Although depressive symptoms were assessed only during the postpartum period, the authors concluded that mobile phone-based peer support may be a feasible and acceptable approach to support adolescents during both pregnancy and postpartum. Preliminary evidence suggests that this intervention could help prevent depressive symptoms among adolescent mothers [22].

Family Therapy

Another primary recommendation from experts for preventing postpartum depression was family therapy, which aligns with the findings of Cluxton-Keller and Bruce (2018). They conducted a meta-analysis of controlled clinical trials and reported that family therapeutic interventions are effective in preventing postnatal depression. However, this recommendation was not supported by the study conducted by Unno and collaborators (2023). Their research found that interventions for mothers during pregnancy did not reduce parenting difficulties and depression compared to controls. Interestingly, fathers in the intervention group also did not reduce parenting difficulties but coped better with potential postpartum depression in mothers compared to the control group, confirming one of their hypotheses. Based on these findings, healthcare facilities should consider implementing parenting classes to increase opportunities for providing information on mental health. In addition to planning parenting classes, antenatal checkups at hospitals, pregnancy notifications at municipalities, and online services could also be utilized to provide support [23, 24].

Screening Tools for Antenatal and Postpartum Depression

The Delphi experts recommended the use of the Patient Health Questionnaire-2 (PHQ-2) as a screening tool for antenatal depression, which aligns with the recommendation of the American Academy of Family Physicians (2016). This approach involves using the PHQ-2 as an initial step, followed by a more comprehensive screening test if the PHQ-2 result is positive. Several reasons support this recommendation: the questionnaire's brevity, consisting of only two questions, allows for efficient screening of all pregnant women; it is easy to interpret; freely available; and exhibits high sensitivity, enhancing its utility in clinical settings [25].

The Delphi experts recommended using the Edinburgh Postnatal Depression Scale (EPDS) as the screening tool for postpartum depression, aligning with the 2016 recommendations of the U.S. Preventive Services Task Force (USPSTF). The USPSTF concluded that there is sufficient evidence to support the effectiveness of the EPDS in screening for depression in postpartum women. This recommendation underscores the validity and utility of the EPDS in identifying postpartum depression and guiding appropriate interventions.

The recommendation to use EPDS for screening postpartum depression is consistent with the guidelines from the American Academy of Family Physicians (2016) and ACOG Committee Opinion (2015). Several factors contribute to this recommendation: EPDS is the most widely used questionnaire for postpartum depression screening, it is freely available, it has been translated into many languages, and it takes less than 5 minutes to complete. These factors make EPDS a convenient and effective tool for identifying postpartum depression in clinical practice [25, 26].

The Delphi experts recommended screening for all pregnant women and new mothers during the postpartum period, a guideline in line with recommendations from the American Academy of Family Physicians (2016), ACOG Committee Opinion (2015), and the U.S. Preventive Services Task Force (USPSTF) (2016). This recommendation arises from the significant under-detection and undertreatment of perinatal depression, emphasizing the necessity of universal screening to improve identification strategies and enable appropriate care and treatment. Additionally, many women experiencing perinatal depression symptoms may be reluctant to disclose their condition or seek help due to various factors, such as limited recognition of the issue, insufficient available resources, inadequate social support, perceived stigma, and feelings of guilt for experiencing distress during what is typically considered a joyful period. The existence of brief, reliable screening questionnaires further supports the feasibility and effectiveness of universal screening in recognizing and addressing perinatal depression [25-27].

The recommendation for trimester screening, as endorsed by our Delphi experts, closely aligns with the guidance from the ACOG Committee Opinion (2015), which suggests screening patients at least once during the perinatal period for depression. This approach demonstrates a commitment to enhancing the detection rate of perinatal depression by implementing regular screenings throughout pregnancy. Similarly, the recommendation for screening at every well-child clinic visit during the first year after delivery, as supported by our Delphi experts, mirrors the guidance from the American Academy of Pediatrics (2017). The American Academy of Pediatrics recommends screening for maternal depression at 1-, 2-, 4-, and 6-month well-child visits. This timing is feasible as it integrates depression screening into existing visits, eliminating the need for separate appointments for screening. Extending the screening period to one year further emphasizes the commitment to improving the detection rate of perinatal depression and aligns with the WHO's definition of the postpartum period [26, 28].

Diagnostic Tools for Antenatal and Postpartum Depression

The Delphi experts approved the use of the Beck Depression Inventory II (BDI-II) questionnaire as the diagnostic tool for antenatal depression, which is supported by the findings of Ji and collaborators. Their study reported good diagnostic validity for the BDI-II, with the largest Area under the Curve (0.908) observed during the second trimester compared to three other questionnaires. These conclusions were drawn from a prospective longitudinal study involving a total of 534 women, encompassing 640 pregnancies and 4025 follow-up visits from the preconception period through three trimesters and early and late postpartum periods [29].

For the diagnosis of postpartum depression, the Delphi experts recommended the use of the Postpartum Depression Screening Scale (PDSS) as a diagnostic tool, a recommendation supported by the findings of Owora and collaborators. In their systematic review investigating the diagnostic performance of case-finding instruments for major depressive disorder, Owora and collaborators examined ten studies involving 18 case-finding instruments. The authors concluded that the PDSS, with diagnostic threshold scores ranging from 50 to 80, demonstrated the least variation and the highest diagnostic performance across different postpartum periods and diagnostic thresholds. Sensitivity ranged from 0.67 to 0.95, while specificity varied between 0.68 and 0.97 [30].

Furthermore, experts recommended post-diagnosis evaluation for bipolar disorder, psychotic features, comorbid anxiety, suicidal thoughts, and thoughts of harming their intrauterine fetus or new-borns. This recommendation aligns with the guidance of the American Academy of Family Physicians (2016), which recommends evaluation for bipolar disorders, psychotic features, and suicidal or homicidal ideations [25].

Treatments and Doses for Mild and Moderate Antenatal and Postpartum Depression

The Delphi experts recommended CBT as the primary treatment for mild cases of antenatal depression, a recommendation supported by Li and collaborators' meta-analysis. This analysis, which included seven clinical trials with 453 patients, concluded that CBT is an effective psychotherapy for treating antepartum depression. Additionally, experts advised against the use of drugs for mild cases due to concerns about antidepressant side effects and the stigma associated with psychiatric medications. In contrast, Cuijpers and collaborators recommended combining psychotherapy and pharmacotherapy as the best approach for adults with moderate depression. This conclusion was based on their meta-analysis of 101 studies involving 11,910 patients. However, a systematic review and meta-analysis conducted by Pettman and collaborators evaluated the effectiveness of CBT interventions for perinatal depression. While the findings indicated that CBT-based approaches can be beneficial during the perinatal period, the study's conclusions were constrained by considerable heterogeneity among studies and the generally low methodological quality of the included trials [31-33].

Compared to that, Delphi's experts recommended combined psychotherapy and pharmacotherapy in treatment of moderate cases of antenatal depression in the form of CBT and half the dose of sertraline. It is known that the standard adult dose of sertraline for depression is 50 mg. However, the experts recommended initiating treatment at half the standard dose. This approach may remain relevant even if future guidelines adjust the standard dose, as factors such as the patient's weight and individual sensitivity should be considered when prescribing.

The recommendation to use sertraline also aligns with the findings of Heinonen and collaborators, who conducted a large controlled clinical trial confirming that sertraline concentrations in pregnant women remain stable and the transfer of the drug to their infants is minimal [34].

Although pregnant women often require higher doses of medications due to larger volumes of distribution, as noted by Sit and collaborators and Costantine, the Delphi experts recommended starting with half the usual dose of antidepressants. This cautious approach may be due to the uncertainty surrounding the safety of antidepressants during pregnancy. Yonkers and collaborators highlighted potential adverse effects such as fetal death, congenital malformations, and preterm birth associated with SSRIs. Additionally, the significant interindividual variation in maternal drug concentrations during pregnancy, as observed by Heinonen and collaborators, may also influence this recommendation. Clinical symptoms and maybe therapeutic drug monitoring could help identify poor metabolizers at risk of adverse effects and improve the safety of treatment [34-37].

The Delphi experts recommended CBT as the primary treatment for postpartum depression, consistent with the findings of Nillni and collaborators. Their systematic review of nine clinical trials concluded that CBT is an effective psychotherapy for postnatal depression. Additionally, the experts advised against using drugs for mild cases due to concerns about medication during lactation and the proven effectiveness of CBT as a standalone therapy. These concerns were emphasized by Milgrom and collaborators in their randomized controlled clinical trial [38, 39].

The Delphi experts recommended a combination of psychotherapy and pharmacotherapy for treating moderate cases of postpartum depression, specifically using CBT alongside the standard dose of sertraline. This recommendation aligns with the findings of Cuijpers and collaborators, who concluded that combining psychotherapy and pharmacotherapy is the optimal

approach for moderate depression. Their meta-analysis, which included 101 studies with 11,910 patients, supports the efficacy of this combined treatment strategy [32].

The recommendation to use sertraline aligns with the findings of an international review by Molenaar and collaborators. They analyzed 16 clinical practice guidelines from 12 countries and found a consensus recommending sertraline as the preferred medication for postpartum depression. This preference is primarily due to sertraline's favorable profile during lactation, as emphasized in the guidelines [40].

Similar findings were reported by Anderson, who observed that sertraline generally has a relative infant dose (RID) of approximately 0.5%. Additionally, most breastfed infants show undetectable serum levels of sertraline when their mothers are on the medication. Furthermore, sertraline's metabolite, which has minimal activity, is also undetectable in infant serum. These favorable pharmacokinetic properties make sertraline the preferred selective serotonin reuptake inhibitor (SSRI) for lactating women [41].

Postpartum women may be more sensitive to medications because of hormonal effects on liver enzymes and higher levels of drug-binding proteins. Wisner and collaborators suggest beginning treatment at half the standard dose and gradually increasing it. However, Delphi experts recommend using the regular dose of sertraline due to its safety profile and the frequent absence of the drug in infants' serum levels. The goal is to effectively manage postpartum depression, thereby improving the maternal-infant bond and supporting healthy neonatal development [42].

The recommendation from the Delphi experts to avoid hormonal therapy for postpartum depression, regardless of severity, aligns with the findings of Dennis and collaborators. Their meta-analysis did not find sufficient evidence to support the use of estrogen for preventing or treating postpartum depression. It's evident that delayed diagnosis and treatment of postpartum depression can result in poor outcomes for both mother and child. According to updated recommendations from the American College of Obstetricians and Gynecologists, screening for perinatal depression and anxiety should occur at the initial prenatal visit, later in pregnancy, and postpartum. Additionally, the evolving understanding of the pathophysiology of depression and PPD through neuroactive steroids is leading to novel therapeutic approaches with new mechanisms of action, as highlighted by Deligiannidis and Vaughn, which are reshaping the treatment paradigm for this widespread and burdensome disorder [43-45].

Referral to Psychiatry Department

In a recent review by Raza and Raza, they emphasized the critical importance of promptly identifying postpartum psychosis as it constitutes a psychiatric emergency. While postpartum psychosis typically presents with a sudden onset, it is a transient and short-lived condition that often responds quickly to treatment. For mothers deemed at risk of self-harm or harm to their infants, immediate hospitalization is necessary. Conversely, the experts' recommendation aligns with this urgency, advocating for the referral of patients exhibiting psychotic features to specialists, potentially necessitating hospital admission for specialized intervention [46].

The experts' recommendation for post-diagnosis evaluation and referral for bipolar disorder cases aligns with the collaborative approach advocated by Bhat. Bhat suggests coordinated management between primary care physicians and psychiatrists within an Integrated Perinatal Mental Health Program. This collaborative model ensures comprehensive care for individuals with bipolar disorder, particularly during the perinatal period, where specialized attention is crucial for achieving optimal outcomes [47].

The recommendation to refer depressed patients with comorbid substance abuse aligns with the findings discussed by Prince and Ayers in their updated review. They highlight the complexities of substance abuse, emphasizing its negative impact on the mother, offspring, and family unit. Prince and Ayers stress the urgent need for specialized management to address the intertwined challenges of depression and substance abuse, underscoring the importance of tailored interventions to reduce risks and support recovery [48].

Yonkers and collaborators stress the critical importance of medication intervention in urgent cases involving mothers with suicidal tendencies, homicidal thoughts, manic episodes, severe depression, or psychosis. Their report, issued by the American Psychiatric Association and ACOG, highlights the necessity for timely and appropriate psychiatric interventions, especially in emergency or inpatient settings [49]. This recommendation strongly supports the Delphi experts' stance on referring high-risk patients to ensure they receive the specialized care and interventions they urgently need.

The recommendation to refer patients with comorbid anxiety aligns with guidance from The Australian Clinical Practice Guideline. This guideline highlights the importance of screening for perinatal depression and anxiety, emphasizing the need to identify appropriate healthcare professionals for comprehensive follow-up care. By advocating for referrals in cases of comorbid anxiety, both the experts and the guideline emphasize holistic support and interventions tailored to address the complex mental health needs of individuals during the perinatal period [50].

STRENGTHS AND LIMITATIONS

The primary strengths of our study lie in its extensive representation across various Egyptian governorates,

encompassing participation from key stakeholders such as the Ministry of Health and Population, educational hospitals, the World Health Organization, and university hospitals. This broad representation enhances the generalizability and credibility of our study findings, offering insights that are applicable and relevant across diverse settings. Additionally, all participants are specialists in family medicine and psychiatry, bringing forth a comprehensive understanding and expertise that addresses the identified problems from multifaceted perspectives. This collective wealth of knowledge and experience enriches the depth and validity of our study outcomes, bolstering its reliability and relevance in informing effective interventions and strategies.

Without doubt our study had several limitations: Experts were chosen based on prior professional connections, a common drawback in guidelines developed using the Delphi technique. In addition, complex and long questionnaires lead to slow rate of responses lasting several months without answer for some questions.

CONCLUSION

In conclusion, a successful consensus on Egyptian practice guidelines for peripartum depression (antepartum and postpartum depression) has been developed and formulated in four pages including 9 main sections;

1. Preventive measures for antepartum and postpartum depression.
2. Screening tools for antepartum and postpartum depression.
3. Who is eligible for screening for antepartum and postpartum depression?
4. Timing of screening for antepartum and postpartum depression.
5. Diagnostic tool of antepartum and postpartum depression.
6. Evaluation for psychiatric comorbidities with peripartum depression.
7. Treatment of mild and moderate cases antepartum depression.
8. Treatment of mild and moderate cases postpartum depression.
9. When to refer?

ETHICS APPROVAL

This study was ethically approved by the Institutional Review Board of the Faculty of Medicine, Ain Shams University. This study was executed according to the code of ethics of the World Medical Association (Declaration of Helsinki) for studies on humans.

CONSENT FOR PUBLICATION

Written informed consent was obtained from all participants.

AVAILABILITY OF DATA

The datasets generated and /or analysed during current study available from the corresponding author on reasonable request.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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AUTHORS' CONTRIBUTION

The study design was conducted by Wafaa Mohamed Korany, Diaa Marzouk Abd El-Hamid, and Mohamed Farouk Allam.

Analysis and interpretation of data were performed by Wafaa Mohamed Korany, Inas Abd El Rahim Ali, and Mohamed Farouk Allam.

Manuscript writing was carried out by Wafaa Mohamed Korany, Inas Abd El Rahim Ali, and Mohamed Farouk Allam.

The collection of data was managed by Wafaa Mohamed Korany, Diaa Marzouk Abd El-Hamid, and Mohamed Farouk Allam.

Critical revision was conducted by Wafaa Mohamed Korany, Diaa Marzouk Abd El-Hamid, Inas Abd El Rahim Ali, and Mohamed Farouk Allam.

SUPPLEMENTARY MATERIAL

Supplementary material is available on the journal's website.

DISCLOSURE

A portion of the results from our study titled "Development of Practice Guidelines for Peripartum Depression in Primary Healthcare" was presented at the "42nd Annual International Ain Shams Medical Congress 2021". The abstracts presented at our annual congress have been published in a supplement issue of QJM. You can access the publication through the following DOI link: https://doi.org/10.1093/qjmed/hcad069.277

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