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Knowledge and Attitude Towards Postpartum Depression among Nurses Working at Family Health Care Centers in Giza Governorate: Impact of Educational Intervention Program

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ABSTRACT

Background: postpartum depression (PPD) is a serious issue having severe consequences on both the mother and child. Nurses working in family health care centers, play a crucial role in identifying and managing PPD, but they may have inadequate knowledge.

Objective: This study aimed to assess the knowledge and attitude of nurses towards PPD, to assess perceived barriers to diagnose and manage PPD, to provide PPD education sessions, then reassess their knowledge and attitude.

Materials and method: A pre- and post-test intervention study that was conducted at four family health centers and included 83 nurses. Knowledge and attitude questionnaires were used.

Results: after the educational sessions the mean percent knowledge score increased significantly from 13.2 ± 10 to 56.6 ± 11.4, the percentage of agreements in aspects related to nurses' role in identification and management of PPD increased significantly and the percentage of nurses who perceived barriers decreased significantly.

Conclusion: This study highlighted the importance of provision educational programs to maternal health care, which play a vital role in the early detection, treatment, and referral for professional management.

Keywords: Postpartum depression teaching program, Nurses, Knowledge, Attitude.

INTRODUCTION

Pregnancy is a transformative process that brings about significant physical, psychological, and social changes in women **(1).** However, the postpartum period is a vulnerable stage for women to develop depression, specifically postpartum depression (PPD). PPD is a common issue in maternal mental health, occurring within the first year after childbirth. It is associated with several risk factors, including physical, psychological, obstetric, sociodemographic, and cultural factors **(2).**

PPD can have severe consequences on both mother and child. It can lead to increased maternal mortality and negatively impact mother-child relationship, breastfeeding, and overall care for the child **(3).** Studies have shown that PPD is highly prevalent among women of all cultural and ethnic backgrounds, including Egypt, where the prevalence rates have been reported to be considerably high. Studies have reported a prevalence of PPD in Cairo of 27.5%, in Gharbia Governorate 20%, in Sohag PPD was 7.32%, in El-Minia study 20% had major PPD & 29.5% had minor PPD, in Mansoura it was 17.9% and in Assiut, the prevalence was 51.7% **(4).**

Nurses play a crucial role in the healthcare system, particularly in maternal and child health. They are often the first point of contact for postpartum women seeking care, making their knowledge and attitude towards PPD of utmost importance **(5).** However, studies have indicated that nurses may have inadequate knowledge and limited understanding of PPD. This can hinder their ability to effectively identify and manage this condition, leading to adverse outcomes for the patient and their family **(6).** Family health care centers serve as essential hubs for providing postnatal care, family planning services, and health education sessions to mothers. Nurses working in these centers are well-positioned to screen for PPD and provide appropriate care. However, studies have shown that nurses in these settings may lack knowledge about PPD and face barriers in diagnosing and managing the condition **(7).**

Therefore, there is a need to enhance nurses' knowledge and understanding of PPD in family health care centers. By improving their knowledge, nurses can effectively screen for PPD, provide early intervention and referral, and support women in their journey towards recovery. This can have a significant impact on the well-being of mothers and their families, especially in low-income countries where resources may be limited **(8).**

This study aimed to assess the knowledge & attitude of nurses in family health care centers towards PPD, along with detecting perceived barriers to diagnose and manage PPD in their routine nursing practice, provide PPD education sessions, then reassess their knowledge and attitude. By evaluating their existing knowledge and identifying any gaps, targeted interventions, such as structured educational programs, can be developed to enhance their understanding and management of PPD. Ultimately, this contribute to improve the overall quality of care provided to postpartum women and their families in family health care centers.

MATERIAL AND METHODS

Study design and study setting: This pretest- posttest intervention study was conducted at the Maternal Health Care Clinics of four Family Health Care Centers in Giza Governorate through the period from November 2023 to February 2024. The nurses at Maternal Care Clinics provide antenatal and post-natal care, family planning services and conduct health education sessions to mothers in various topics related to reproductive health. After obtaining the approval of the research ethics committee, the necessary permissions were obtained from Giza directorate and the health district.

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Sample size and study participants: Pertaining to a Malaysian study [9] which stated that prevalence of PPD knowledge among nurses was about 55.6%, and after intervention this prevalence increased to about 88.5%. The sample size was calculated at 95 % confidence limit with a 5 % alpha error & 80 % power. The minimal sample size required was 69 using open-epi online calculator (http://www.openepi.com/SampleSize/SSPropor.htm). We added a 20% for the possibility of non-response, the total sample size was 83.

Data collection

Data collection for this research study was conducted in two phases**: In the pretest phase**, structured questionnaires were distributed among participant nurses to explore their demographic characteristics and assess their knowledge and attitude towards PPD. The questionnaires consisted of three sections. The first section collected socio-demographic information such as age, education, marital status, and years of working experience. **The second section** assessed the nurses' knowledge of PPD, including its onset, frequency, comorbidities, symptoms, associated risk factors, assessment, prognosis, and treatment strategies. The questions were multiple-choice with one correct answer out of four choices, and each correct answer scored 1, with a maximum total score of 12 **[10].** The mean percent score of the knowledge among the participants was calculated before and after the intervention**. The third section** evaluated the nurses' attitudes towards PPD. It was divided into five items assessing the nurse's role in caring for PPD and another five items assessing perceived barriers in the identification and management of PPD. The scale was graded as strongly agree = 5, agree = 4, neutral = 3, disagree = 2, and strongly disagree = 1 **[11].** The completion of the questionnaires took approximately 15 minutes.

Prior to distributing the questionnaires to the participating nurses, a pilot testing was conducted on 5 nurses who were not part of the study. The pilot results were used to assess the validity and clarity of the questions, estimate the time required to complete the questionnaires, and identify any difficulties that arose and how to address them. Necessary modifications were made based on the responses from the pilot testing.

Once the data from the pretest phase was collected, the researchers obtained approval from the district administration to conduct health education sessions for the nurses. These sessions were guided by the information obtained from the pretest phase. The education sessions took place at the Family Health Centers' halls after the nurses' working hours. There were four educational sessions, one in each family health center, with each session lasting approximately 2 hours. The topics discussed in these sessions included epidemiology, etiology, clinical features, and management of PPD. The researchers used illustrated Power Point presentations and distributed printed handouts among the nurses. At the end of the sessions, the participants were given the opportunity to ask questions and engage in discussions.

Following the education phase, the same questionnaires used in the pretest phase were distributed among the participating nurses to reassess their knowledge and attitude towards PPD in the post-test phase. This allowed the researchers to evaluate the effectiveness of the educational intervention.

Ethical consideration: The study was approved by The Research Ethical Committee, Faculty of Medicine, Cairo University, with approval registration number N-52-2024. The researcher respected all the principles of ethics of the Helsinki declarations. The interviewer explained to the Nurses the purpose of the study and assured them about confidentiality of their responses, and a signed consents were obtained from them.

Statistical analysis

Data were analyzed using the SPSS for Windows software package, version 22.0 (SPSS Inc., Chicago, Illinois, USA). Qualitative data were analyzed using number and percentage while mean and standard deviation were used for quantitative data. McNemar's test was used to compare nominal data before and after health education. Wilcoxon signed ranks test was used to compare the mean knowledge percent score before and after the intervention. The P value ≤ 0.05 was considered significant.

RESULTS

The study sample consisted of 83 female registered staff nurses employed at the four Family Health Care Centers, specifically in the antenatal and family planning clinics. Table (1) provided a summary of the participants' socio-demographic characteristics. The average age of the nurses was 31.9 ± 8.6 years. Approximately 47% of the nurses had graduated from a nursing institution. The majority of participants (80.7%) were married, and the vast majority (91%) had not received any training on postpartum depression (PPD). On average, the nurses had been working as staff nurses for 9.5 ± 2.7 years.

Table (1): Demographic characteristics of the studied participants (N=83)

Demographic characteristics	Mean ± SD		
Age (Years)	31.9 ± 8.6		
		No.	%
Sex	Females	83	100
Education	Nurse school	17	20.5
	Nurse Institution	39	47
	Faculty of nurses	27	32.5
Marital status	Married	67	80.7
	Widow	5	6
	Divorced	11	13.3
Previous training on PPD depression	Yes	7	8.4
	No	76	91.6
Years of working experience	9.5 ± 2.7		

Figure (1) depicts the pre-educational session findings on the participants' understanding of various aspects related to maternity blues and postpartum depression (PPD). Prior to the sessions, only 16% of the participants accurately recognized the proportion of mothers experiencing maternity blues. Similarly, a minority of nurses (20%) correctly stated the proportion of mothers suffering from PPD, while the majority either overestimated or underestimated this proportion. Furthermore, less than a quarter (22%) of the participants were aware of the exact time of PPD onset. Only 13% provided correct answers regarding the risk factors associated with PPD, and a mere 10% were knowledgeable about the clinical manifestations of the condition. Additionally, a mere 8% of the participants acknowledged the Edinburgh Postnatal Depression Scale (EPDS) as an assessment tool for symptoms of psychotic depression. When it came to associated outcomes, only 5% provided accurate answers. Moreover, a mere 7% of the participants demonstrated knowledge about the management of blue baby syndrome. When queried about their understanding of treatment procedures and medications for mild, moderate, and severe PPD, only 2% and 13% responded correctly, respectively. Furthermore, less than a quarter of the participants were aware of antidepressant medications as a potential treatment option.

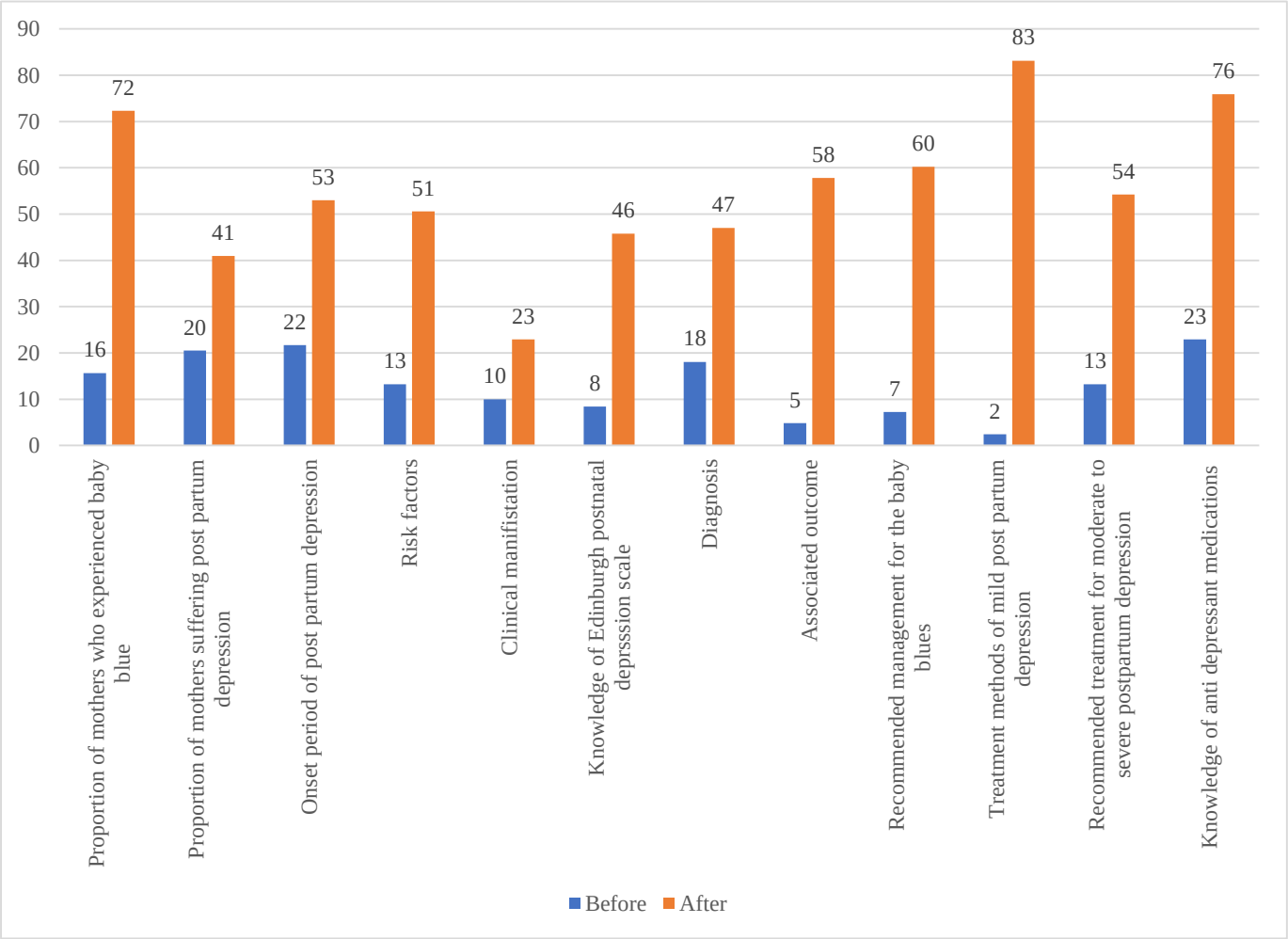

Figure (1): Percentage of correct answers to PPD knowledge questions before and after the educational intervention.

Table (2) presents the findings of the study regarding the knowledge percent scores on etiology and epidemiology, clinical features, management, and prognosis of PPD before and after the educational intervention, as measured by the pre- and post-test scores. The mean pre-test percent score for knowledge on the etiology and epidemiology of PPD was 17.5 ± 18.2, while the mean post-test scores significantly increased to 55.1 ± 20.5 ($p < 0.01$). Similarly, the knowledge percent score for clinical features and diagnosis of PPD significantly increased from a mean pre-test score of 12.1 ± 18.5 to a mean post-test score of 40.6 ± 25.5 ($p < 0.01$). Regarding the knowledge percent score for management and prognosis of PPD, there was a significant increase from a mean pre-test score of 10.4 ± 14.7 to a mean post-test score of 67.5 ± 19.9 ($p < 0.01$). Overall, the total knowledge percent score increased significantly from 13.2 ± 10.1 in the pre-test to 56.6 ± 11.4 in the post-test ($p < 0.01$).

Table (2): Mean PPD knowledge percent score before and after educational intervention (N=83)

Knowledge domain	Mean knowledge score before health education	Mean knowledge score after health education	P. value*
Etiology and Epidemiology	17.5±18.2	55.1 ±20.5	<0.01
Clinical features and diagnosis	12.1 ±18.5	40.6 ±25.5	<0.01
Management and prognosis	10.4±14.7	67.5±19.9	<0.01
Total Knowledge score	13.2±10.1	56.6±11.4	<0.01

*Wilcoxon signed ranks test

Based on the pretest assessment, it was found that majority of the participants (63%) believed that nurses can play a critical role in identifying the early signs and symptoms of postpartum depression (PPD). Additionally, nearly half of them (49%) agreed that nurses can provide comfort to anxious mothers and offer assistance as part of psychosocial support. Another significant finding was that approximately 42% of the participants agreed that having conversations with spouses and close family members can help them understand the illness and become more involved in the care of the mother and child. Furthermore, the study revealed that majority of the nurses (56%) agreed that emphasizing mother-infant bonding is crucial for full recovery from postpartum depression. Additionally, 48% of the nurses believed that receiving training in the diagnosis and treatment of PPD can be helpful. The participants' attitudes showed significant improvement after receiving health education, as evidenced by the post-test results $p < 0.01$. The improvement in attitude towards mother-infant relationships that was emphasized as a critical component of full recovery from PPD, wasn't statistically significant (P=0.33).

Table (3): The perceived role of nurses in identification and management of PPD before and after educational intervention (N=83)

Attitudes towards the role of nurses in the recognition of PPD	Pre-test agreement frequency		Post-test agreement frequency		P value*
	No	%	No	%	
Nurses can play a crucial part in screening and identifying the early signs and symptoms of PPD as the first point of contact with patients	53	63.9	69	83.1	<0.01
Nurses can comfort a distressed mother and provide support as part of psychological support.	49	59.0	78	94.0	<0.01
Nurses can speak to spouses and other close relatives to assist them comprehend the disease and become more involved in the care of the mother and infant	42	50.6	61	73.5	<0.01
Mother-infant relationships must be emphasized as a component of full recovery from Post-Partum Depression	56	67.5	61	73.5	0.33
Specialized training in the identification and management of Post-Partum Depression may be valuable.	48	57.8	74	89.2	<0.01

*McNemar test

As shown in table (4), during the pre-test assessment, most nurses expressed agreement with the following barrier questions: feeling stigmatized to discuss PPD; not knowing how to identify and manage PPD due to making of symptoms; and not having the necessary knowledge or training to identify and manage PPD (88%, 90,4%, and 83.1%, respectively). Over half of the participants 57.8% agreed that there wasn't enough time, and almost half 54.2% agreed that there wasn't enough manpower to screen or manage PPD. Following training sessions, nurses reported a greater comprehension of the symptoms, felt less stigmatized to inquire for the symptoms, and believed that the screening could be done despite time restrictions. These observed changes in perceived barriers were significant ($P < 0.01$.

Table (4): Nurses' attitude towards perceived barriers in identification and management of PPD before and after educational intervention (N=83)

Barriers	Before education agreement		After education agreement		P value*
	No.	%	No.	%	
Feeling stigmatized to talk about PPD	73	88.0	29	35.4	<0.01
Masking of symptoms	75	90.4	24	28.9	<0.01
Having lack of manpower	45	54.2	37	44.6	<0.01
Lack of time	48	57.8	32	38.6	<0.01
Lack of knowledge and training	69	83.1	16	19.3	<0.01

*McNemar test

DISCUSSION

PPD is a serious public health issue with detrimental effects on the mother, child, and entire family. Maternity care nurses play a critical role in the diagnosis and treatment of PPD [12]. As they often serve as the initial point of contact for mothers and offer follow-up services, their ability to diagnose and manage PPD depends heavily on their knowledge, which has been shown in several studies to be limited in many aspects [13-15]. This study assessed the knowledge and attitude of maternal health care nurses in Giza Governorate towards PPD before and after educational intervention.

It was depicted from the initial assessment of the nurses' PPD depression knowledge that 9% of them knew its prevalence, and the others tend to overestimate or underestimate this proportion. These results, aligned with other study revealed that only 14.2% of the nurses indicated the correct answer of PPD prevalence [16]. On the other hand, the findings were inconsistent with a study done in Poland and found that 64.9% of Polish midwives knew the correct proportion of mothers suffering from PPD, which was approximately 15% [17].

Moreover, the initial assessment found that only 22% of the participants knew PPD onset, even though it is necessary that maternal health care nurses be aware of the exact time when PPD initially appears for early detection, management, and avoidance of negative consequences [18]. Similarly, most nurses in studies done in Kazakhstan (80.2%) and Poland (64%) were unaware of the onset of PPD [16,17].

Even if the onset period of PPD is well known, it is fundamental to know about the screening tools, such as the Edinburgh Postpartum Depression Scale (EPDS), which is advisable to be used by health care providers who do not directly offer psychological and/or psychiatric therapies [19, 20]. According to the current study, 6% of the nurses were aware that EPDS might be used as a PPD screening tool. Thus, the proportion of nurses who were unaware of EPDS was much higher than in other studies, where 43.8% of Australian, 69.1% of Kazakhstani, and 42.3% of Polish nurses were unaware of the EPDS screening tool for PPD [17]. However, these findings disagree with a Nigerian study that found that 64% of respondents had sufficient understanding of screening instruments for evaluating PPD, such as the EPDS [21].

Additionally, since the exact cause of PPD is unknown, efforts to identify its risk factors are essential. This study found that less than one-third of the nurses were aware of the risk factors for PPD [22]. This finding aligns with previous research conducted in several countries and demonstrated that a minority of nurses have knowledge of PPD risk factors, whereas the majority only possess a restricted comprehension of its risk factors [23, 24].

It was depicted that less than one-quarter of the participating nurses were aware of the clinical manifestations of PPD, and only 19% were aware of the outcomes that are associated with it. Remarkably, these results were lower than those of previous studies: 69.8% of the nurses from Kazakhstan and 90.1% from Poland correctly identified the clinical signs and symptoms of PPD [16,17].

Moreover, the study showed that most of the nurses were unaware of the PPD treatment regimens or medications. This was closely comparable to **Elmira *et al.*** [16] discovery that over half of the respondents (55.2%) gave the wrong answer when asked about the medications that should be given for PPD. Also, **Kang and his colleagues** [25] observed similar findings, as just 25.9% of nurses were knowledgeable about PPD treatment methods. These findings reveal surprisingly poor knowledge compared to the results of **Chrzan-Detkos**'s study [26], which found that just 12.6% of respondents gave the wrong answer for the suggested course of treatment for PPD, or sad mother syndrome.

The nurses' lack of or insufficient training and educational sessions may account for their demonstrated poor level of understanding of PPD, since almost 91% of them reported that they did not have any PPD training. Similarly, according to an Indian study, poor PPD knowledge among nurses was found to be associated with their lack of PPD training [27]. Another study also indicates that most nurses and midwives did not have regular in-service training on mental health and PPD, and their related knowledge was inadequate [28]. The findings are also consistent with **Noonan *et al.*** [29] in the Republic of Ireland and **Elimira *et al.*** [16] in Kazakhstan in Asia [16].

This validates the results of the current study, which showed that the nurses' mean knowledge score and their understanding of every aspect of PPD significantly improved following the delivery of the education sessions. These results align with previous research on the benefits of educating nurses on PPD, which showed that nurses' knowledge was significantly enhanced after training and education [11]. According to another research study, the nurses' education increased their comprehension of PPD's symptoms, signs, and risk factors. Their competence and confidence in instructing patients also improved [30].

Regarding nurses' attitudes towards PPD, the results of the current study indicated that they accept their responsibility for identifying clinical manifestations, supporting mothers, encouraging communication with family members, and emphasising the importance of the mother-child bond. But there were obstacles in the way of providing the services such as the stigma associated with discussing PPD, masking of symptoms, and lack of resources (time, manpower, knowledge, and training). Like that, Malaysian research discovered that 78% of nurses thought it was their duty to screen mothers for PPD, however they stated that PPD screening takes too long and that this is a result of high workloads and a staffing deficit. Furthermore, they

asserted that they lacked training and that they would feel more comfortable identifying and counselling mothers who suffer from PPD if given sufficient training [9]. Additionally, the nurses who took part in another study that was conducted in Iran agreed regarding their role in identifying and managing PPD as well as offering support and health education to family members. However, they recognised that their lack of knowledge affected their ability to identify the clinical manifestations of PPD and that the masking of symptoms made diagnosis more challenging, in addition to a shortage of resources and time. They indicated a significant willingness to attend frequent training sessions to advance their knowledge [6]. In accordance with these findings, nurses understand the importance of their role in PPD, but they also agree that their understanding of PPD screening and management is inadequate [31]. Additional studies revealed that one of the biggest obstacles to PPD screening services was a lack of time to perform PPD, which was explained by staff incompetency due to a lack of knowledge from insufficient training [32,33].

Following the delivery of the educational sessions, the nurses' agreements regarding their responsibility for screening and managing PPD considerably improved, and their perceptions of the obstacles diminished. Additionally, the results align with that of **Varotariya *et al.*** [11] who showed that following PPD teaching sessions, most nurses had better agreement on items indicating the nurse's role in screening, identifying, and referring mothers who were depressed. These results also align with other research conducted by **Link and his colleagues** [15].

CONCLUSION AND IMPLICATION

The study indicated that the family health center nurses' knowledge of PPD was inadequate. It highlighted the importance of giving maternal health care nurses a chance to participate in continuous educational programs to improve their current understanding of PPD. With this improved knowledge of PPD, nurses can play a vital role in the early detection of the condition with screening, initial medical treatment, and referral for professional management. The study emphasized that the present top priority is to inform legislators, planners, and policymakers about the missed opportunity of integrating mental health services into mainstream maternal health programs, which lead to comprehensive, high-quality care for mothers.

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