

ORIGINAL RESEARCH

Effects of Guided Antenatal Education Support Programs on Postnatal Depression, Social Support, and Life Satisfaction among First-time Mothers in Kelantan, Malaysia



Salwismawati Badrin¹, Salziyan Badrin², Raja Lexshimi Raja Gopal³, Shah Reza Johan Noor⁴

¹*School of Health Sciences, Universiti Sains Malaysia, Kelantan, Malaysia*

²*Department of Family Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia*

³*Nursing Department, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia*

⁴*Department of Obstetrics and Gynaecology, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia*

Article Info	Abstract
Article History: Received: 7 March 2021 Revised: 5 August 2021 Accepted: 9 August 2021 Online: 27 August 2021 Keywords: Antenatal education; postnatal depression; social support Corresponding Author: Salziyan Badrin Department of Family Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia Email: salziyan@usm.my	Background: First-time mothers may experience postnatal depression and a lack of social support, affecting their life satisfaction. However, there is a lack of studies investigating the application of guided antenatal education support programs to deal with such issues. Purpose: The study aimed to evaluate the effects of guided antenatal education support programs on postnatal depression, social support, and life satisfaction among first-time mothers. Methods: This quasi-experimental study involved a total of 72 first-time mothers. Convenience sampling was applied for participant selection, and no randomization was used. The participants were equally divided into the intervention group and the control group. A self-administrated questionnaire was used for data collection during the antenatal period (pretest) and six weeks postpartum (posttest). The risk of postnatal depression was assessed using the Edinburgh Postnatal Depression Scale (EPDS). In addition, the Multidimensional Scale of Perceived Social Support (MSPSS) and the Satisfaction with Life Scale (SWLS) were used to assess social support, and life satisfaction, respectively. The intervention group received a guided antenatal education support program, consisting of antenatal education sessions plus an extra 15-minute discussion and a support guidebook. The data were analyzed using a paired t-test and an independent t-test. Results: There was a significant reduction in the risk of postnatal depression score in the intervention group ($p < 0.05$) after receiving the guided antenatal education compared to the control group. Also, there was a significant increment of life satisfaction score ($p < 0.05$) and social support score ($p < 0.05$) after receiving guided antenatal education in the intervention group. Conclusion: The guided antenatal education support is beneficial to reduce postnatal depression and increase life satisfaction and social support. Nurses and midwives should provide an integration of psychoeducation for first-time mothers, especially during pregnancy.

How to cite: Badrin, S., Badrin, S., Gopal, R. L. R., & Noor, S. R. J. (2021). Effects of guided antenatal education support programs on postnatal depression, social support, and life satisfaction among first-time mothers in Kelantan, Malaysia. *Nurse Media Journal of Nursing*, 11(2), 233-243. <https://doi.org/10.14710/nmjn.v11i2.37123>

1. Introduction

Pregnancy is commonly associated with psychological and physiological changes which can change one's life and relationships with others (Afshari et al., 2020). The transition to parenthood is one of the challenging life events that cause significant distress, especially among first-time parents (Missler et al., 2020). First-time mothers have a higher risk of getting postnatal depression than mothers who experienced childbirth (Vismara et al., 2016). Preoccupations, worries, and anxiety that persist during pregnancy and postnatal periods increase the risk of developing postnatal depression (Vismara et al., 2016). Women's functioning, marital and personal connections, mother-infant interaction quality, and children's social, behavioral, and cognitive development are all adversely related to postpartum depression (Al Nasr et al., 2020). Various risk factors for postpartum depression have been reported in the previous studies, which

include a lack of social support, marital conflict, existence of history depression, lack of breastfeeding, or recent stressful life events (Al Nasr et al., 2020; Kheirabadi et al., 2009). Unemployment, a lack of education, and an unwanted pregnancy have all been linked to an increased chance of getting postpartum depression (Al Nasr et al., 2020).

Positive social support from family and friends eases the transition to motherhood and may help increase parenting competence during the role-transition period (Esmaelzadeh Saeieh et al., 2017). Social support is one of the predictors for postpartum depression and maternal role competence. Maternal competency and pleasure with the maternal role are important to embrace the maternal role (Esmaelzadeh Saeieh et al., 2017). Becoming a mother for the first time is a significant developmental milestone in adulthood. The birth of a child is not only a significant event for couples, but it also causes concern for the entire family. First-time mothers may have a feeling of incompetence in their maternal role (Nelson, 2003). First-time mothers may need guidance and good social support to adapt to their new roles as mothers.

Life satisfaction may change during and after pregnancy, especially in first-time mothers, as they may experience parenthood. A previous study suggested that positive and negative life events may play an important role in determining overall life satisfaction (Ngoo, 2019). Life satisfaction may be influenced by family's social support, financial status, marriage satisfaction, and family planning (Munaf & Siddiqui, 2013). Human development, including any change in life events, is strongly associated with life satisfaction (Ngoo, 2019). Pregnancy and childbirth are important life events for a woman. The pregnancy and the first childbirth may have an impact on relationship satisfaction among first-time mothers (van Scheppingen et al., 2018).

Brief psychoeducational interventions are beneficial for providing information that may effectively reduce psychological distress (Missler et al., 2020). The social and psychological needs of pregnant women are important to be addressed as pregnancy changes their physical, psychological, and social status (Omidvar et al., 2018). In this regard, antenatal education is important and beneficial during childbirth and helps prepare for early parenthood (Hildingsson et al., 2013). The need for psychological support and education regarding pregnancy, birth, and postpartum in the antenatal education class is needed, especially among first-time mothers. However, there is still a lack of studies assessing life satisfaction and social support among first-time mothers in Malaysia. Hence, it is necessary to highlight the importance of psychoeducation intervention during the antenatal period for new mothers. Accordingly, this study aimed to find out the effects of guided antenatal education support programs on postpartum depression, social support, and life satisfaction among first-time mothers.

2. Methods

2.1 Research design

A quasi-experimental study was conducted to determine the effects of guided antenatal education support programs on postpartum depression risk, social support, and life satisfaction among first-time mothers.

2.2 Setting and samples

The study was conducted among first-time mothers who attended an obstetric clinic in a public university's hospital in Kelantan, Malaysia, between January to May 2016. First-time pregnant women aged above 18 years old at their second and third trimesters of pregnancy (between 12 to 36 weeks of gestation) were recruited in the study using convenience sampling. They were equally divided into the intervention and control groups. Informed consent was obtained from all participants who agreed to join the study. Pregnant women who were single parents, recently or previously diagnosed with psychiatric illnesses, or had other medical illnesses were excluded from the study. The sample size was calculated based on the previous study for risk of postpartum depression, which used the Edinburgh Postnatal Depression Scale (EPDS) for data collection (Kamalifard et al., 2013). The minimum number of participants to include in the study sample was calculated using a power analysis (power=0.80, α =0.05) in the Power and Sample Size software version 3.0.43. The calculated number of participants with the addition of an estimated 20% dropout was 36 participants for each group. Thus, the total samples for both groups were 72 participants. Randomization was not used in the study. The participants were equally assigned into the intervention group (n=36) and control group (n=36) based on the researchers.

2.3 Intervention

The participants in the intervention group attended one-hour antenatal education classes during antenatal visits in a specific and spacious room in the antenatal clinic. The antenatal education sessions were conducted by qualified midwives and nurses. The participants had to complete all three education sessions. The antenatal education class provided consisted of three sessions, as shown in Table 1.

Table 1. Description of guided antenatal education

Session	Duration
Session 1: Lecture and video presentation	
Introduction to the reproductive system in female fetal growth in utero	60 minutes
Psychological changes in pregnancy	
Common problems before delivery	
Introduction to symptoms and stage of labor.	
Session 2: Lecture and demonstration	
Diet during pregnancy	60 minutes
Exercise in pregnancy	
Breathing technique for successful labor	
Pain reduction in labor and husband's role during birth.	
A normal physical change after birth and danger symptoms and signs after delivery	
Session 3: Demonstration and practical session	60 minutes
Care of newborn	
Breastfeeding techniques	
Expressed breast milk techniques	
Breastmilk storage and usage.	

The participants received an extra 15-minutes of a face-to-face discussion with the researcher on the topics presented in the powerpoint slides at the end of the third session (guided antenatal education support). Open discussions on the topics presented during the antenatal class and postpartum issues written in the postnatal guidebook were discussed and explained to the participants in the intervention group. They also received a postnatal support guidebook developed by the researcher. The guidebook consisted of information regarding postpartum depression, including symptoms and signs of depression after giving birth, the triggering factors that contribute to depression, recommendations, and the ways to get support from family members when having depression during the postpartum period. The information in the guidebook was adapted from the national standard protocol and World Health Organization (WHO) guidelines. The participants in the intervention group were encouraged to share the information in the guidebook with their family members. The participants in the control group only received antenatal education class sessions. Both groups were evaluated after the intervention phase at six weeks postpartum when they came for postnatal follow-ups. The flow of the study is shown in Figure 1.

2.4 Measurement and data collection

Self-administered questionnaires were utilized to collect data during the pre-intervention phase and post-intervention phase. These questionnaires consisted of baseline characteristics and sociodemographic data (age, gestational age during data collection, race/ethnic, occupation status, education status, duration of marriage, and plan of the pregnancy) and the Edinburgh Postnatal Depression Scale (EPDS), Multidimensional Scale of Perceived Social Support (MSPSS) and Satisfaction with Life Scale (SWLS) to assess postnatal depression risks, social support, and life satisfaction, respectively. Before the intervention phase, participants in both groups were requested to complete the questionnaires using pens and papers. Similarly, after the intervention phase, another collection of data at six weeks postpartum was done for post-intervention assessment. The assessment of postnatal depression risk, social support, and life satisfaction was also conducted using the similar instruments (i.e., EPDS, MSPSS, and SWLS).

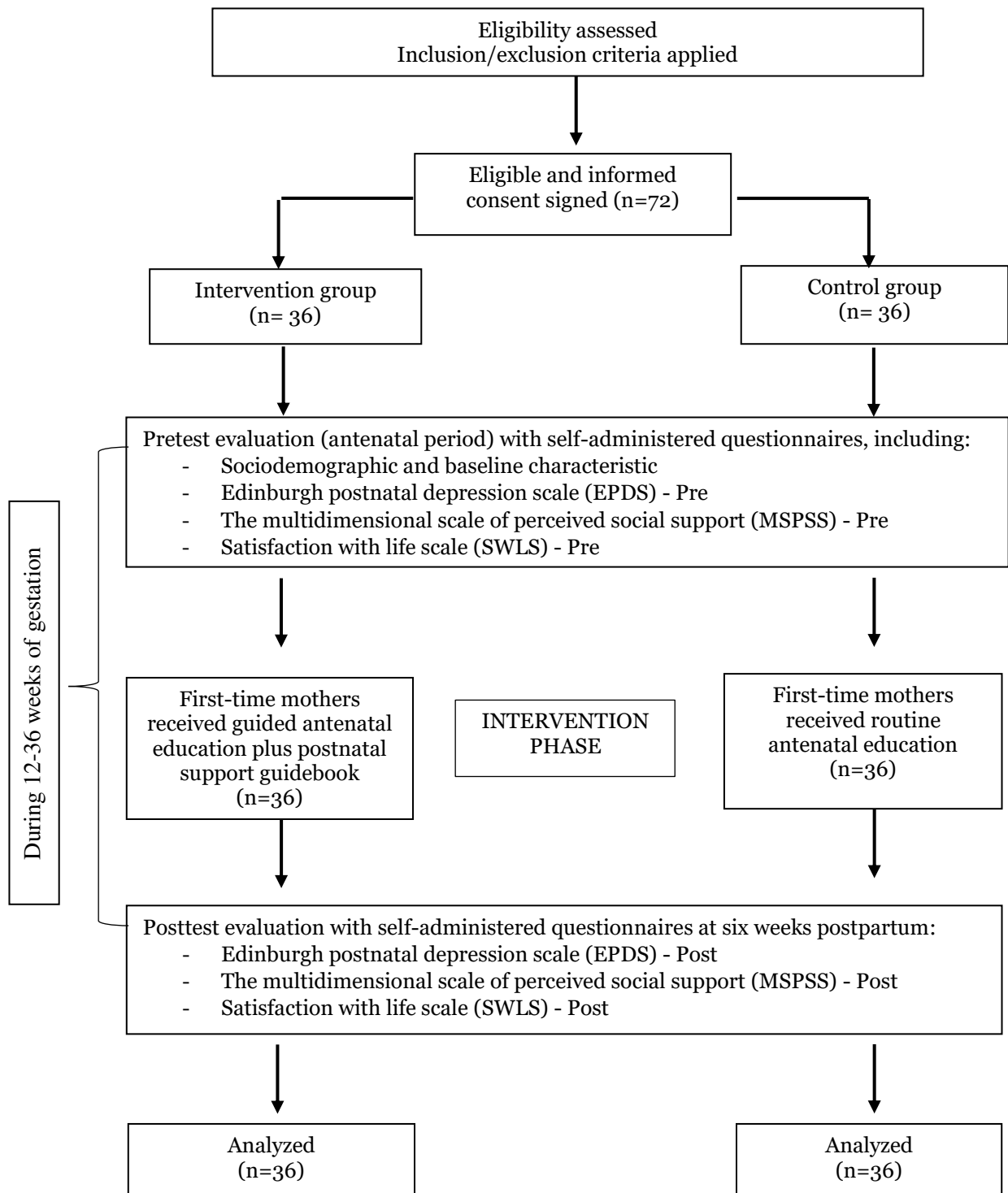


Figure 1. The flow of participants in the study

2.4.1 Edinburgh Postnatal Depression Scale (EPDS)

The risk of postnatal depression was assessed using the EPDS. The EPDS is a self-evaluated questionnaire consisting of 10 items in the Likert scale format developed by Cox et al. in 1987 (Cox et al., 1987). The total score ranged from 0 to 30, and a higher score foreshadows psychological pressure or a risk of depression. The validated Malay version was used in the study. A cut-off score of 11.5 or higher had a sensitivity of 72.7%, and the specification is 95.1% to detect postnatal depression and a positive predictive value of 50% (Azidah et al., 2006). The internal consistency of the Malay version EPDS was at a level of 0.86 (Azidah et al., 2006).

2.4.2 Multidimensional Scale of Perceived Social Support (MSPSS)

The MSPSS was used to measure various dimensions of sufficient social support from family, friends, and significant others (Ng et al., 2012). It consists of 12 items scale with 7 seven-point Likert scale format (1=truly disagree, 7=fully agree) and possible responses to each statement (scored 0-6) give a score out of a maximum of 72 with a higher score indicating greater perceived social support. The MSPSS measures the perceived adequacy of social support from three sources, including family members (items 3, 4, 8, and 11), friends (items 6, 7, 9, and 12), and significant others (items 1, 2, 5, and 10). The overall count of social support means for all items used in the research mean score shows strong social support. The original version of the MSPSS has a very good internal reliability score with an α coefficient of 0.88 for the total scale, 0.87 for the family subscale, 0.85 for the friend subscale, and 0.91 for the significant others subscale (Zimet et al., 1990). The original version of the MSPSS is a 12-item. The Malay version of MSPSS Cronbach's alphas for family, friends and significant others were 0.89, 0.90, and 0.94, respectively, in the non-psychiatric group (Ng et al., 2012).

2.4.3 Satisfaction with life scale (SWLS)

The SWLS was developed in 1985 by Diener et al. (Diener et al., 1985). It has 5 items with 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). SWLS was used to assess subjective emotional well-being and life satisfaction (Aishvarya et al., 2014). The total score ranges between 5 to 35, with higher scores indicating a more significant life satisfaction. A validated Malay version of SWLS was used in the study. The SWLS factor has high internal consistency, with Cronbach's alpha of 0.86 (Aishvarya et al., 2014).

2.5 Data analysis

Data analysis was performed by using SPSS version 21 (IBM corp. USA). The p -value was used to determine the statistical significance, and the p -value of <0.05 was considered significant. The paired t -test was used to determine the mean score differences in the control and intervention groups pre and post-test. The independent t -test was used to determine the significant mean score differences between the two groups. The Pearson's correlation analysis was also conducted to determine the relationship between postnatal depression and life satisfaction, and the relationship between postnatal depression and social support.

2.6 Ethical considerations

Informed consent was obtained from all participants who agreed to participate in the study. All participants signed the written informed consent prior to the recruitment and data collection. The study was approved by the Research Ethics Committees of Universiti Sains Malaysia (Ref. USM/JePeM/15090293), and permission from the director of Hospital Universiti Sains Malaysia (Ref. HUSM/11/020/Jld) was also obtained.

3. Results

3.1 Characteristics of respondents

As presented in Table 2, the mean age of the participants in both groups was 26.3 years old. Most participants in each group were Malay ethnic, and the marriage duration was less than two years. More than half the participants in both groups planned for their pregnancy. In addition, more than half of the participants in both groups had higher education levels.

3.2 Effects of guided antenatal education on postnatal depression

Table 3 shows that the EPDS score had a more significant reduction in intervention group as compared to the control group. Paired t -test showed a significant mean difference between pre and post-intervention phases. The finding showed that those participants in the intervention group who received guided education had a lesser risk for postpartum depression than those in the control group ($p<0.05$).

3.3 Effects of guided antenatal education on social support

Table 3 also shows that those who received the intervention had a significant increase in the mean score of MSPSS after the intervention compared to the control group. Paired t -test showed a significant difference in the mean score of MSPSS in pre and post-intervention ($p<0.05$) for the

groups. In addition, social support was higher among participants in the intervention group than the control group, as shown in Table 3.

Table 2. Baseline characteristics of participants

Variables	Control group (n=36)	Intervention group (n=36)	p-value
	f (%)	f (%)	
Age (Mean $\pm$ SD)	(26.3 $\pm$ 3.22)	(26.3 $\pm$ 2.75)	0.96 ^c
Gestational age			
20 weeks - 24 weeks	8 (11.0)	1 (2.7)	0.06 ^a
25 weeks- 36 weeks	64 (89.0)	35 (97.2)	
Race/Ethnic			
Malays	33 (91.7)	34 (94.4)	0.64 ^a
Chinese	3 (8.3)	2 (5.6)	
Indians	0 (0)	0 (0)	
Others	0 (0)	0 (0)	
Occupation			
Employed	19 (52.8)	22 (61.1)	0.76 ^a
Unemployed/housewife	17 (47.2)	14 (38.9)	
Education			
Higher education	23 (63.9)	26 (72.2)	0.44 ^a
Secondary school	13 (36.1)	10 (27.8)	
Primary school	0 (0)	0 (0)	
Duration of marriage			
Less than 2 years	59 (82.0)	30 (83.3)	0.34 ^a
2 - 5 years	11 (15.3)	6 (16.7)	
Over 5 years	2 (2.7)	0 (0)	
Plan of pregnancy			
Planned	54 (75.0)	25 (69.4)	0.27 ^b
Unplanned	18 (25.0)	11 (30.6)	

^a Chi-square test; ^b Fisher's exact test; ^c Independent t-test

3.4 Effects of guided antenatal education on life satisfaction

The SWSL score was significantly increased among the participants in the intervention group after receiving the intervention as compared to the control group. The analysis of paired t-test showed significant mean score changes in the SWSL ($p < 0.05$), as shown in Table 3.

In addition, the Pearson's correlation analysis showed a significant negative relationship between postnatal depression and life satisfaction at 6 weeks postpartum ($r = -0.347$; $p < 0.05$) among first-time mothers. In contrast, there was no significant relationship between postnatal depression and social support of first-time mothers in the intervention group before and after delivery (pre-intervention, $r = 0.03$; $p > 0.05$, post-intervention, $r = 0.01$; $p > 0.05$).

Table 3. Within and between-group comparison of EPDS, MSPSS, and SWSL before and after the intervention

Variable	Mean (SD)		Mean of score difference (95% CI)	<i>t</i> -statistic (<i>df</i>) ^c	<i>p</i> -value
	Intervention group	Control group			
EPDS					
Pretest	7.25 (3.08)	5.94 (3.54)	1.31 (-0.03, 2.87)	1.67 (70)	0.10
Posttest	4.25 (2.53)	5.78 (2.75)	-1.53 (-0.28, -0.29)	-2.45 (70)	0.02*
MD			1.58 (0.78-2.39)	3.91 (71)	<0.001 ^d

Table 3. Continued

Variable	Mean (SD)		Mean of score difference (95% CI)	t-statistic (df) ^c	p-value
	Intervention group	Control group			
MSPSS					
Pretest	61.50(4.66)	60.89 (5.91)	0.61 (-0.19, 3.11)	0.49 (70)	0.63
Posttest	70.19 (4.76)	62.42 (4.81)	7.78 (5.53, 10)	6.88 (70)	< 0.001*
MD			-5.11 (-7.01, -3.2)	-5.36 (71)	< 0.001 ^d
SWSL					
Pretest	24.33 (3.63)	24.19 (3.13)	0.14 (-.145, 1.73)	0.17 (70)	0.86
Posttest	29.11(2.80)	26.78(2.00)	2.33 (1.18, 3.43)	4.06 (63)	<0.001*
MD			-3.68 (-4.68, -2.68)	-7.35 (71)	< 0.001 ^d

Notes. MD (mean difference) pre and post-intervention is based on paired t-test results.

^c Independent t-test, the significant *p*-value for the test is <0.05. Levene's test of *p*-value >0.05 was used for homogeneity of variances assumption.

^d Paired t-test analysis; significance value is *p*-value <0.05.

4. Discussion

This study showed that first-time mothers who received guided antenatal education had a significant reduction in their EPDS scores. Thus, we found that guided antenatal education is effective in reducing the risk of postpartum depression. Our study findings are consistent with previous research, which also reported that antenatal education is beneficial for lowering the risk of postpartum depression (Ortiz Collado et al., 2014). A focus on antenatal education targeted at disseminating knowledge about postpartum depression and its risk factors, together with anticipating postnatal issues, may be beneficial for first-time mothers who are experiencing a new role in motherhood. We provide a guidebook to pregnant women, and they could share the information with their families. A study has suggested that education targeting parenting difficulties is important to reduce depression and anxiety postnatal for first-time mothers (Milgrom et al., 2011). Antenatal education, especially the one-to-one approach or guided approach, is beneficial to the mother as they will receive information about their pregnancy, including postnatal care information (Swift et al., 2020). An antenatal class focusing on both education during the prenatal and postnatal period was suggested in the previous study (Entsieh & Hallström, 2016), and it has become one of the platforms to deliver information to pregnant women and their spouses regarding the childbirth process and information about early parenting (Chikalipo et al., 2018). The preparedness for the consequences of the pregnancy and its postpartum issues may reduce maternal distress and help reduce the risk for postpartum depression. The previous study reported that anxiety or depression during pregnancy increases with trimester and influences the preparedness for motherhood (Dere et al., 2019). The previous study suggested that one-to-one midwifery antenatal education is helpful in reducing childbirth fear, and assessment on the need for care for pregnant women can be done at this time (Swift et al., 2020).

We also found that guided antenatal education was effective in increasing the satisfaction of life among first-time mothers. This finding is consistent with another study which suggested that increment in life satisfaction is observed if the mothers received good emotional support during pregnancy and the postnatal period (Gebuza et al., 2014). Spiritual well-being also is one of the factors influencing life satisfaction (Niaghiha et al., 2019) which was not assessed in our study. A previous study in Faisalabad showed a significant negative relationship between postnatal depression and life satisfaction among postpartum women (Yaqoob et al., 2021). Similarly, in our study, we found a negative relationship between postnatal depression and life satisfaction at six weeks postpartum. Higher life satisfaction lowered the risk for postnatal depression. A study done

in Pennsylvania also showed that low relationship satisfaction during pregnancy is associated with postpartum depression among first-time mothers (Mesina et al., 2017). Life satisfaction is thought to be related to social, economic, familial, and personal factors. Dissatisfaction results from any disparity between goals, desires, and needs, which is frequently caused by specific issues and problems.

This study also found that the social support level of first-time mothers was increased with our intervention. Our study was consistent with another study, reporting that education and training in physiological childbirth preparation classes effectively reduce depression, anxiety and increase social support (Zarrabi Jourshari et al., 2020). Our intervention that included antenatal education on discussing the pregnancy, childbirth, and postnatal issues, helped improve the social support among first-time mothers in the intervention group. A greater level of perceived social support was associated with a greater level of life satisfaction (Yu et al., 2020). Support and care received from the family members, friends, and health care personnel are important, especially during the postpartum period, and it can help women to cope with new conditions of being a mother and with stressful maternal responsibilities (Akbari et al., 2020). Antenatal education is part of social support for first-time mothers. Social support is significantly associated with spiritual well-being and life satisfaction in pregnant women (Niaghiha et al., 2019). Severe life events, chronic strain, relationship quality, and supports from partner and family members are the strongest psychosocial predictors for postnatal depression (Yim et al., 2015).

5. Implications and limitations

This study suggests that antenatal education should become a social support medium for pregnant mothers to receive information and support from health professionals. Furthermore, the study also suggests that guided antenatal education and guidebook are beneficial in reducing the risk for postpartum depression and improving social support and life satisfaction among pregnant women, especially first-time mothers. Awareness and assessment of the risk for postnatal depression should be done in the early trimester of pregnancy and after giving birth.

There were few limitations in our study. First, we did not follow up with the patients in the long term to see the benefits of the antenatal education support programs for long-term risk of postnatal depression, social support, and life satisfaction. Second, we evaluated the effects of intervention using the self-report questionnaire. However, we used the Malay version of the questionnaire with good validity and reliability to reduce recall bias. Also, the participants did not know which group they were allocated in the study to reduce the response bias.

6. Conclusion

The antenatal education support programs help reduce postnatal depression, increase life satisfaction and social support, especially in first-time mothers. Guided antenatal education plays an important role in delivering the information, promoting good health care, and helps young mothers into motherhood life.

We suggest that a larger sample size is needed in the future studies to explore social support and life satisfaction among first-time mothers that will help in the improvement of care for pregnant mothers. Effective strategies, including educational materials and support systems as the component, may help provide effective education to reduce psychological distress, especially among first-time mothers.

Conflict of interest

The authors declare no conflicts of interest.

Acknowledgment

Thanks to all who were involved directly and indirectly with the study, and thanks for the supports received from the Hospital Universiti Sains Malaysia and the nursing department, Universiti Kebangsaan Malaysia Medical Centre.

Author contribution

Badrin S., contributed to plan, design and data collection of the research. Gopal, R. L. R., Noor S. R. J. involved in planning, designing and supervising the research process. Badrin S., Badrin S.

involved in data analysis and interpretations, draft and writing the manuscript. All authors reviewed the results and approved the final version of the manuscript.

References

- Afshari, P., Tadayon, M., Abedi, P., & Yazdizadeh, S. (2020). Prevalence and related factors of postpartum depression among reproductive aged women in Ahvaz, Iran. *Health Care for Women International*, 41(3), 255-265. <https://doi.org/10.1080/07399332.2019.1578779>
- Aishvaryya, S., Maniam, T., Karuthan, C., Sidi, H., Nik Jaafar, N. R., & Oei, T. P. (2014). Psychometric properties and validation of the satisfaction with life scale in psychiatric and medical outpatients in Malaysia. *Comprehensive Psychiatry*, 55 (Suppl 1), S101-106. <https://doi.org/10.1016/j.comppsy.2013.03.010>
- Akbari, V., Rahmatinejad, P., Shater, M. M., Vahedian, M., & Khalajinia, Z. (2020). Investigation of the relationship of perceived social support and spiritual well-being with postpartum depression. *Journal of Education and Health Promotion*, 9, 174-174. https://doi.org/10.4103/jehp.jehp_56_20
- Al Nasr, R. S., Altharwi, K., Derbah, M. S., Gharibo, S. O., Fallatah, S. A., Alotaibi, S. G., Almutairi, K. A., & Asdaq, S. M. B. (2020). Prevalence and predictors of postpartum depression in Riyadh, Saudi Arabia: A cross sectional study. *PLoS One*, 15(2), e0228666. <https://doi.org/10.1371/journal.pone.0228666>
- Azidah, A. K., Shaiful, B. I., Rusli, N., & Jamil, M. Y. (2006). Postnatal depression and socio-cultural practices among postnatal mothers in Kota Bahru, Kelantan, Malaysia. *Medical Journal of Malaysia*, 61(1), 76-83. <https://www.ncbi.nlm.nih.gov/pubmed/16708738>
- Chikalipo, M. C., Chirwa, E. M., & Muula, A. S. (2018). Exploring antenatal education content for couples in Blantyre, Malawi. *BMC Pregnancy and Childbirth*, 18(1), 497. <https://doi.org/10.1186/s12884-018-2137-y>
- Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry*, 150, 782-786. <https://doi.org/10.1192/bjp.150.6.782>
- Dere, S. S., Varotariya, J. K., Ghildiyal, R. P., Sharma, S. A., & Kaur, D. M. S. (2019). Antenatal preparedness for motherhood and its association with antenatal anxiety and depression in first time pregnant women from India. *Industrial Psychiatry Journal*, 28(2), 255-261. https://doi.org/10.4103/ipj.ipj_66_19
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49(1), 71-75. https://doi.org/10.1207/s15327752jpa4901_13
- Entsieh, A. A., & Hallström, I. K. (2016). First-time parents' prenatal needs for early parenthood preparation - A systematic review and meta-synthesis of qualitative literature. *Midwifery*, 39, 1-11. <https://doi.org/https://doi.org/10.1016/j.midw.2016.04.006>
- Esmaelzadeh Saeieh, S. P., Rahimzadeh, M. P., Yazdkhasti, M. P., & Torkashvand, S. M. (2017). Perceived social support and maternal competence in primipara women during pregnancy and after childbirth. *International Journal of Community Based Nursing and Midwifery*, 5(4), 408-416.
- Gebuza, G., Kaźmierczak, M., Mieczkowska, E., Gierszewska, M., & Kotzbach, R. (2014). Life satisfaction and social support received by women in the perinatal period. *Advances in Clinical and Experimental Medicine*, 23(4), 611-619. <https://doi.org/10.17219/acem/37239>
- Hildingsson, I., Dalén, K., Sarenfelt, L., & Ransjö-Arvidson, A.-B. (2013). First-time parents' perception of antenatal education in Sweden. *International Journal of Childbirth*, 3(1), 28-38. <https://doi.org/10.1891/2156-5287.3.1.28>
- Kamalifard, M., Yavarikia, P., Babapour Kheiroddin, J., Salehi Pourmehr, H., & Iraj Iranagh, R. (2013). The effect of peers support on postpartum depression: A single-blind randomized clinical trial. *Journal of Caring Sciences*, 2(3), 237-244. <https://doi.org/10.5681/jcs.2013.029>
- Kheirabadi, G. R., Maracy, M. R., Barekatin, M., Salehi, M., Sadri, G. H., Kelishadi, M., & Cassy, P. (2009). Risk factors of postpartum depression in rural areas of Isfahan Province, Iran. *Archives of Iranian Medicine*, 12(5), 461-467.

- Mesina, A. M., Kjerulff, K. H., Deimling, T., Phaeton, R., & Repke, J. T. (2017). Association between partner-relationship satisfaction during pregnancy and maternal postpartum depression. *Obstetrics & Gynecology*, 129(5). <https://doi.org/10.1097/01.AOG.0000514384.19556.f>
- Milgrom, J., Schembri, C., Ericksen, J., Ross, J., & Gemmill, A. W. (2011). Towards parenthood: An antenatal intervention to reduce depression, anxiety and parenting difficulties. *Journal of Affective Disorders*, 130(3), 385-394. <https://doi.org/10.1016/j.jad.2010.10.045>
- Missler, M., van Straten, A., Denissen, J., Donker, T., & Beijers, R. (2020). Effectiveness of a psychoeducational intervention for expecting parents to prevent postpartum parenting stress, depression and anxiety: a randomized controlled trial. *BMC Pregnancy Childbirth*, 20(1), 658. <https://doi.org/10.1186/s12884-020-03341-9>
- Munaf, S., & Siddiqui, B. (2013). Relationship of postnatal depression with life and marital satisfaction and its comparison in joint and nuclear family system. *Procedia - Social and Behavioral Sciences*, 84, 733-738. <https://doi.org/10.1016/j.sbspro.2013.06.636>
- Nelson, A. M. (2003). Transition to motherhood. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 32(4), 465-477. <https://doi.org/10.1177/0884217503255199>
- Ng, C., Nurasikin, M., Loh, H. S., Yee, A., & Zainal, N. (2012). Factorial validation of the Malay version of multidimensional scale of perceived social support among a group of psychiatric patients. *Malaysian Journal of Psychiatry*, 21(2), 35-50.
- Ngoo, Y. (2019). Human development index as a predictor of life satisfaction. *Journal of Population and Social Studies*, 27, 70-86. <https://doi.org/10.25133/JPSSv27n1.005>
- Niaghiha, M., Baglooei, M., Mafi, M., & Taherpour, M. (2019). Spiritual well-being and life satisfaction in pregnant women: The mediating role of social support. *Social Health and Behavior*, 2(3), 83-88. https://doi.org/10.4103/shb.shb_11_19
- Omidvar, S., Faramarzi, M., Hajian-Tilak, K., & Nasiri Amiri, F. (2018). Associations of psychosocial factors with pregnancy healthy life styles. *PLOS ONE*, 13(1), e0191723-e0191723. <https://doi.org/10.1371/journal.pone.0191723>
- Ortiz Collado, M. A., Saez, M., Favrod, J., & Hatem, M. (2014). Antenatal psychosomatic programming to reduce postpartum depression risk and improve childbirth outcomes: A randomized controlled trial in Spain and France. *BMC Pregnancy Childbirth*, 14, 22. <https://doi.org/10.1186/1471-2393-14-22>
- Swift, E. M., Zoega, H., Stoll, K., Avery, M., & Gottfreðsdóttir, H. (2020). Enhanced antenatal care: Combining one-to-one and group antenatal care models to increase childbirth education and address childbirth fear. *Women and Birth*, 34(4), 381-388. <https://doi.org/10.1016/j.wombi.2020.06.008>
- van Scheppingen, M. A., Denissen, J. J. A., Chung, J. M., Tambs, K., & Bleidorn, W. (2018). Self-esteem and relationship satisfaction during the transition to motherhood. *Journal of Personality and Social Psychology*, 114(6), 973-991. <https://doi.org/10.1037/pspp0000156>
- Vismara, L., Rollè, L., Agostini, F., Sechi, C., Fenaroli, V., Molgora, S., Neri, E., Prino, L. E., Odorisio, F., Trovato, A., Polizzi, C., Brustia, P., Lucarelli, L., Monti, F., Saita, E., & Tambelli, R. (2016). Perinatal parenting stress, anxiety, and depression outcomes in first-time mothers and fathers: A 3- to 6-months postpartum follow-up study. *Frontiers in Psychology*, 7(938). <https://doi.org/10.3389/fpsyg.2016.00938>
- Yaqoob, N., Arshid, M., Zaib Un, N., Jabbar, Z., & Fatima, K. (2021). Sadness along with happiness: Depression and satisfaction with life among postpartum women in Faisalabad. *Health Psychology Research*, 8(3), 8960-8960. <https://doi.org/10.4081/hpr.2020.8960>
- Yim, I. S., Tanner Stapleton, L. R., Guardino, C. M., Hahn-Holbrook, J., & Dunkel Schetter, C. (2015). Biological and psychosocial predictors of postpartum depression: Systematic review and call for integration. *Annual Review of Clinical Psychology*, 11, 99-137. <https://doi.org/10.1146/annurev-clinpsy-101414-020426>
- Yu, M., Qiu, T., Liu, C., Cui, Q., & Wu, H. (2020). The mediating role of perceived social support between anxiety symptoms and life satisfaction in pregnant women: A cross-sectional study. *Health and Quality of Life Outcomes*, 18(1), 223. <https://doi.org/10.1186/s12955-020-01479-w>

- Zarrabi Jourshari, F., Zargham Hajebi, M., Saravani, S., & Eghbali, Z. (2020). The effect of antenatal physiological classes on depression, anxiety and social support in the last month of pregnancy. *Journal of Health and Care*, 22(1), 65-74. <https://doi.org/10.29252/jhc.22.1.65>
- Zimet, G. D., Powell, S. S., Farley, G. K., Werkman, S., & Berkoff, K. A. (1990). Psychometric characteristics of the multidimensional scale of perceived social support. *Journal of Personality Assessment*, 55(3-4), 610-617. <https://doi.org/10.1080/00223891.1990.9674095>

