Original Article

JHSMR Journal of Health Science and Medical Research

Effectiveness of using the Centering Teen Pregnancy Program on Postpartum Depression among Adolescent Mothers: A Posttest Only Quasi-experimental Design using a Comparison Group

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Received 23 August 2018 ● Revised 19 October 2018 ● Accepted 5 November 2018 ● Published online 7 December 2018

Abstract:

Objective: To examine the effectiveness of the Centering Teen Pregnancy Program on postpartum depression among adolescent mothers.

Material and Methods: Study sample was 60 adolescent mothers who attended a prenatal care clinic and delivered at a tertiary hospital in Thailand. Convenience sampling was used to select the participants. Thirty participants were assigned into the intervention group and the comparison group. The comparison group received standard nursing care. The intervention group received the Centering Teen Pregnancy Program. Research instruments consisted of the Centering Teen Pregnancy Program, which was modified from the original Nursing Practice Guideline for Teenage Pregnancy, and research questionnaires including demographic data sheets, maternal and infant health records, and the Center for Epidemiologic Studies Depression Scale. All the research instruments were content validated and tested for reliability. Independent t-test and chi-square were used for data analysis.

Results: The average depression score was statistically significantly lower in the intervention group than in the comparison group. Postpartum depression was experienced by 23.2% of adolescent mothers in the comparison group but by only 3.3% in the intervention group.

Conclusion: The Centering Teen Pregnancy Program was effective in reducing postpartum scores and lowering the number of women having postpartum depression. Therefore, the introduction of the Centering Teen Pregnancy Program and the training of healthcare providers to integrate the Centering Teen Pregnancy Program into the standard care for the prevention of postpartum depression are recommended.

Keywords: adolescent mother, Centering Teen Pregnancy Program, postpartum depression, pregnancy

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J Health Sci Med Res 2019;37(1):17-24
doi: 10.31584/jhsmr.201934
www.jhsmr.org

Introduction

In Thailand, childbirth among adolescent mothers is over 15.0% of all births or over 100,000 each year. It is expected that over 40.0% or more than 16,000 of these adolescent mothers experience postpartum depression.[1,2] This prevalence rate is greater than any other complication during the postpartum period such as hemorrhage or infection. Thus, postpartum depression among adolescent mothers is a significant and common complication of childbearing, especially when compared to adult mothers.[3]

Postpartum depression has a significant negative impact on the entire family. The most commonly reported symptoms of depression are tearfulness, hopelessness, anxiety, guilt, and fatigue. These symptoms alter maternal-infant bonding,[4] impair mother-child interaction,[5] delay both children's language and cognitive development,[6] increase the risk of depression in offspring[7] and disturb spousal wellbeing.[8] Even though the high prevalence and negative implications of postpartum depression are evidenced, screening for postpartum depression is still not a part of standard care. Thus, mothers with postpartum depression and their families continue to face this problem and continually lose their quality of life, as well as happiness in child rearing. Therefore, the World Health Organization[9] suggested that prevention as well as diagnosis and care for maternal mental disorders should be incorporated into general healthcare.

Current research findings reveal the contribution of biological, psychological, and sociocultural factors to postpartum depression. The inflammatory process and genetic vulnerabilities are found to be important biological factors predicting postpartum depression.[10] In addition, adverse life events and a history of psychiatric morbidity, such as maternal anxiety, are shown to influence postpartum depression.[11] Furthermore, attitudes towards pregnancy, maternal comfort, family cohesion, adequate social support, and childcare stress are among the sociocultural factors that directly affect postpartum depression.[12-15] Due to the complexity of factors as stated earlier, the success in postpartum depression prevention is still limited.

To date, interventions dealing with postpartum depression have been proposed by many clinicians and researchers. For example, structured educational materials, social support, home visits, and counseling were found to reduce postpartum depression in several age groups.[16-19] Most interventions, however, focused mainly on the reduction of the postpartum depression score rather than prevention[20] and were conducted in other groups (e.g., those who are on public assistance,[21] adults with high risk of postpartum depression).[22] Thus, effective nursing intervention to prevent postpartum depression, especially among adolescent mothers in low- and middle-income families, is crucial.

The Centering Teen Pregnancy Program (CTP program) used in this study was guided by the Nursing Practice Guideline for Teenage Pregnancy[23] and the findings from previous studies.[24] The original guideline was developed using an evidence-based approach. The components of the original guideline included a modification of attitude towards pregnancy and an allocation of family and peer support using the centering program. In this present study, the concept of social support was added to the postpartum period, and emphasis was placed on objective social support and spousal support, since they appear to have the largest effects on postpartum depression.[25] Therefore, the objective of this study was to examine the effectiveness of the CTP program on postpartum depression among adolescent mothers.

Material and Methods

This posttest only quasi-experimental design using a comparison group was undertaken in a tertiary care setting in Thailand. The study was approved by the Research Ethics Committee (EC: 21462) prior to conducting

it. Eligible pregnant adolescents were <19 years of age, and <20 weeks' gestational age at their first prenatal visit. Exclusion criteria included a history of receiving mental health services from a healthcare provider. Eligible pregnant adolescents were informed about the study, including its objective, process, benefits, risks, and their rights to participate or withdraw from the study. All eligible pregnant adolescents were allowed to discuss the study with their significant person and had at least 1 week to consider the information provided. During the second visit, all eligible subjects who volunteered to be in the study signed the consent forms.

Using a power of 0.80, a significance level of 0.05 and a large effect size[26] for the two-tailed test, a sample size of at least 26 per group was applicable.[27] Thirty participants per group were recruited in order to accommodate a roughly 15.0% attrition rate. Convenience sampling was used to select the participants. Demographic data, as well as maternal and infant health status, were assessed at the first visit and completed at the postpartum period.

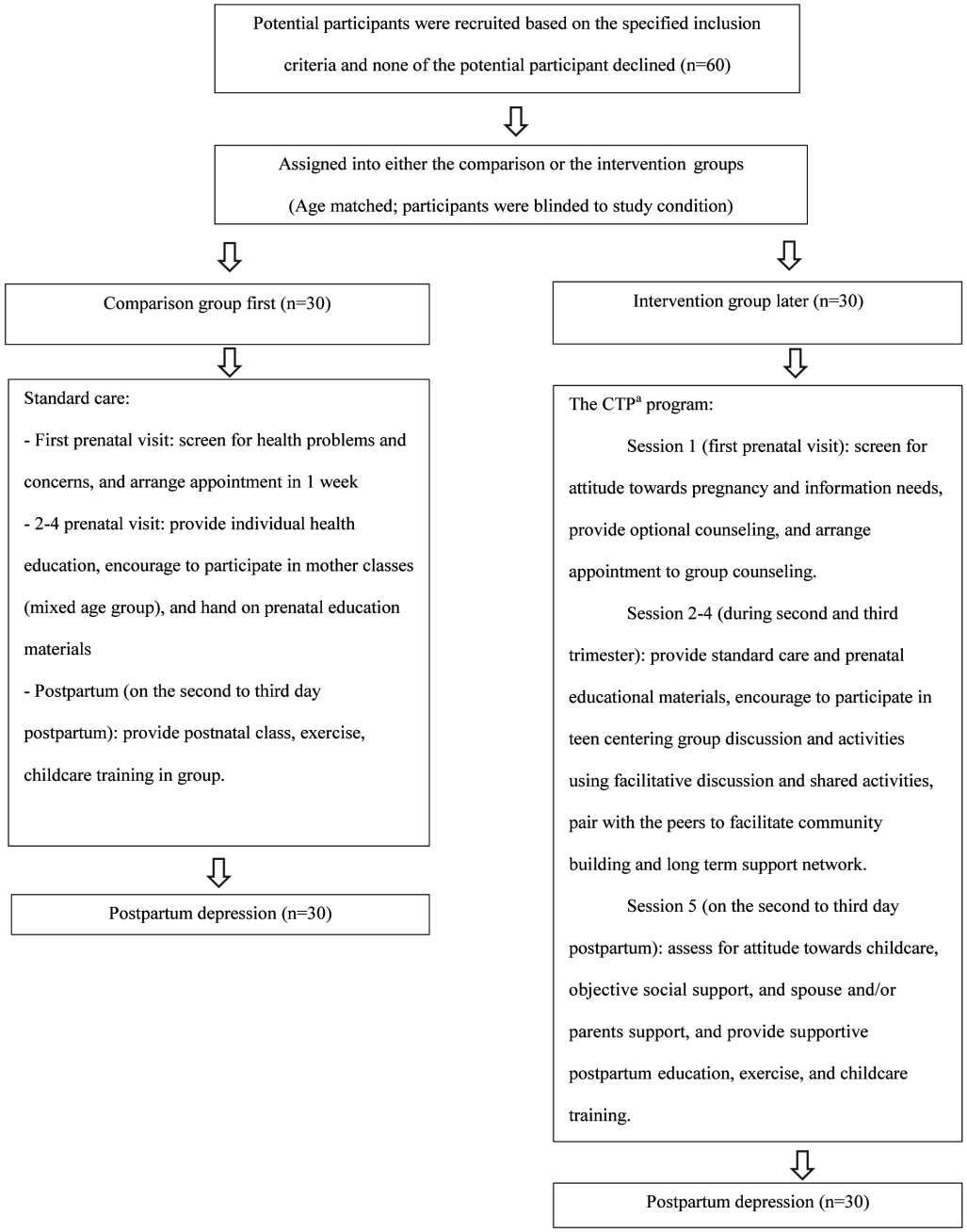
The participants were allocated into either the comparison group or the intervention group. The first 30 participants were assigned to the comparison group; after which, the next 30 participants were assigned to the intervention group. The comparison group received standard nursing care, including regular prenatal examination, five mother classes during pregnancy, and one postpartum health education class. The intervention group received care using the CTP program (Figure 1). In order to avoid contamination bias, the 2 groups were not appointed to a prenatal care clinic on the same day. In addition, the 2 groups were age matched and blinded to study conditions.

The CTP program modified from the original Nursing Practice Guideline for Teenage Pregnancy.[23] This five-session program included assessing the attitudes of teens and their significant persons (spouse, and/or parents), optional counseling, teens centering group discussion and activities, and teens' community building. The CTP program was integrated into the standard prenatal care and started from the second prenatal visit until the postpartum period. Three research assistants were trained and had primary responsibility in recruiting the subjects, collecting data, providing the CTP program to the intervention group during pregnancy, and evaluating the effectiveness of the CTP program using the Center for Epidemiologic Studies Depression Scale (CES-D)[28] during the postpartum period. The CTP program included:

-Session 1 (at second prenatal appointment), adolescent mothers, spouse, and/or parents were individually screened for attitudes towards pregnancy and information needs, then offered optional counseling according to their needs. The adolescent mothers and families were appointed to groups for counseling at the next visit.

-Session 2-4 (during second and third trimester), after receiving standard prenatal examination, adolescent mothers received 30-45 minute sessions of teen centering group discussions and activities. The group comprised 3-6 adolescent mothers and significant persons circling up with staff. Facilitative discussion and shared activities aimed to address important and timely health issues, as well as problem management for each trimester and the anticipated postpartum period and childcare. Adolescent mothers were paired with their peers to facilitate community building and long term support networks. The health related issues that were discussed among each pair were brought to the group as exemplary. Prenatal educational materials were provided at the end of each session.

-Session 5 (on the second to third day postpartum), adolescent mothers, spouse, and/or parents were individually assessed for attitudes towards childcare, objective social support, and spousal support. Supportive postpartum education, exercise, and childcare training were provided to adolescent mothers.



[a]=The Centering Teen Pregnancy Program

Figure 1 Allocation of the participants

On the third day postpartum, a 20-item standard test (CES-D) was used to assess postpartum depression. In this study, 8 adolescent mothers with depression scores of 22 or greater[28] (1 from the intervention and 7 from the comparison groups) were considered to have depression and were reported to the charge nurse for further evaluation.

Statistical analyses

All demographic variables were analyzed using descriptive statistics. The Shapiro-Wilk test and normal quantile-quantile plot were used to test for bivariate normality.[29] The results suggested a normal distribution of the difference between the paired depression scores (W=0.96, p-value>0.05). Furthermore, using a boxplot, no outlier in the difference between the paired depression scores was seen. The differences in postpartum depression were compared using the independent t-test and chi-square test.

Results

Descriptive characteristics of the adolescent mothers included in the study are presented in Table 1. Mean age of the participants in the intervention and comparison groups were 17.1 [standard deviation (S.D.) =1.4] years and 17.0 (S.D.=1.8) years, respectively. Most of them had a low income. In both groups, more than half of the participants were married, students/unemployed, first time mothers, and had normal childbirth. The groups were similar except for their occupations.

Table 1 Participants' personal characteristics

Characteristics	Intervention group (n=30)		Comparison group (n=30)		Test statistics	P-value
	Number (%)	Mean (S.D.)	Number (%)	Mean (S.D.)		
Age (year)[a]	-	17.07 (1.41)	-	17.03 (1.77)	0.08	0.94
Education[b]						
≤Elementary	4 (13.3)	-	5 (16.7)	-	0.13	1.00
≥High school	26 (86.7)	-	25 (83.3)	-		
Occupation[b]						
Student	13 (43.3)	-	15 (50.0)	-	10.84	0.01
Unemployed	12 (40.0)	-	2 (6.7)	-		
Other (e.g., worker, farmer)	5 (16.6)	-	13 (43.3)	-		
Marital status[b]						
Single	13 (43.3)	-	7 (23.3)	-	2.70	0.17
Married	17 (56.7)	-	23 (76.7)	-		
Family income[a]	-	4,366.67 (3,355.21)	- -	6,503.57 (7,212.92)	1.46	0.15
Gravida[b]						
Primigravida	25 (83.3)	-	28 (93.3)	-	1.46	0.42
Multigravida	5 (16.7)	-	2 (6.7)	-		
Childbirth methods[b]						
Normal	23 (76.7)	-	17 (56.7)	-	2.70	0.17
Instrumental	7 (23.3)	-	13 (43.3)	-		

[a]=t-test, [b]=chi-square, S.D.=standard deviation

As shown in Table 2, the results indicate that participants in the intervention group had lower average depression scores when compared to the comparison group. Regarding the number of adolescent mothers having postpartum depression, 8 participants had depression according to the cut-off CES-D score ≥22 [1 participant (3.3%) is from the intervention group and 7 participants (23.3%) are from the comparison group] (χ^2=5.19, p-value<0.05).

Discussion

The results in this study show the effectiveness of the CTP program in preventing postpartum depression among adolescent mothers. The average depression score and the number of adolescent mothers having postpartum depression were lower in the intervention group than in the comparison group. The key point that may have influenced the study results was the first session intervention. After individual screening for attitude towards pregnancy and information needs, adolescent mothers and their families were counseled regarding their concerns and needs. Good rapport was built and health practice goals were set. At the end of the session, adolescent mothers and their families started having positive attitude towards pregnancy and were looking forward to coming to the next visit. In previous studies, positive attitude was inversely related to postpartum depression.[12,30]

During sessions 2-4, centering group discussion and activities as well as community building among adolescent mothers and their peers were intended to provide health information, social support, and skills in communication and problem management. According to the previous studies, social support was shown to effectively prevent postpartum depression.[31] Furthermore, enhancing communication and problem management from this study may possibly allow adolescent mothers to express their needs and seek appropriate ways to manage their problems. The effect of communication on postpartum depression was supported by a prior study.[32]

At the final session, objective social support and spousal support as well as supportive postpartum education and childcare training were provided to adolescent mothers. Adolescent mothers and their families had opportunities to ask questions and to provide care to their newborns under supervision until they were prepared. Significant persons, especially spouses and/or parents were trained together with the mothers during hospitalization to do essential childcare. Adolescent mothers in the comparison group also received postnatal education and training for childcare. The differences in the amount and type of support between the 2 groups might be the reason for differences in the rate of postpartum depression.[24]

Table 2 Comparison of the mean depression score between the intervention and comparison groups using independent t-test and chi-square

Test score	Intervention group (n=30)	Comparison group (n=30)	Test statistics	P-value
Mean depression (S.D.)[a]	9.67 (5.67)	16.30 (6.70)	-4.91	0.00
Depression score[b]				
<22	29 (96.7)	23 (76.7)	5.19	0.03
22 or greater	1 (3.3)	7 (23.3)		

[a]=t test, [b]=chi-square, S.D.=standard deviation

Conclusion

Standard care in the study setting, including pre-postnatal education and childcare training, was effective in preventing postpartum depression. The number of adolescent mothers in the comparison group with postpartum depression was only 23.3% which is lower when compared to that of other studies. The integration of the CTP program into standard care leads to even lower rates of postpartum depression. Thus, the effectiveness of the CTP program in reducing postpartum scores and lowering the number of women having postpartum depression was revealed. The training of healthcare providers for the integration of the CTP program into the standard care is recommended.

Acknowledgement

The authors thank all participants and their families, and appreciate the funding support provided by Mae Fah Luang University.

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