

Association Between Social Support and Postpartum Depression

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Abstract

Introduction:

Postpartum depression is common; however, little is known about its relationship to social support and postpartum depression. This study examined the association between them among South Korean women within one year of childbirth.

Methods

This study was based on the 2016 Korean Study of Women's Health-Related Issues (K-Stori), a cross-sectional survey employing nationally-representative random sampling. Participants were 1,654 postpartum women within a year of giving birth. Chi-square test and logistic regression analysis were conducted to analyze the associations between social support (and other covariates) and postpartum depression.

Results

Among participants, 266 (16.1%) had postpartum depression. Depending on the level of social support, 6.0%, 53.9%, and 40.1% of them had low, moderate, and high social support, respectively. Women with moderate or low social support were more likely to have postpartum depression (OR = 1.78, 95% CI = 1.26–2.53; OR = 2.76, 95% CI = 1.56–4.89). This trend was observed in participants with multiparity, pregnancy loss, obese body image, and employed women.

Conclusion

Social support was associated with a decreased likelihood of postpartum depression, indicating the importance of social support, especially for women with multiparity, pregnancy loss experience, negative body image, and employed women for preventing postpartum depression.

Introduction

One of the most important turning points in a woman's life is pregnancy and childbirth.[1] Women at the prenatal and postpartum periods commonly experience mental health problems because of new roles and responsibilities.[2] The onset of mental health problems can cause devastation and dissension in a woman's life.[3] Depression is estimated to be the second leading cause of disability by 2020.[4] It is a common and debilitating psychiatric disorder prevalent in South Korea and worldwide.[5, 6] Incidence of depression is approximately two times higher in women than in men, and is particularly common among women of child-bearing age.[7] In Korea, social burden due to mental disorders have significantly increased. The proportion of those who suffered from mental disorders at least once in their lifetime was 30.2% in 2006 and 27.6% in 2011.[8] The consequences of depression during the postpartum period are considerably more deleterious because a woman faces the added responsibility of caring for her newborn infant.[3]

Postpartum affective depression is typically divided into three categories: postpartum blues, postpartum depression (PPD), and puerperal psychosis. Postpartum blues have been reported to occur in 15–85% of women within the first 10 days after giving birth.[9] Although postpartum blues is a common and transient occurrence, its recognition is important because it is a risk factor for subsequent PPD.[9, 10] Puerperal psychosis is the most severe and uncommon form of postnatal affective illness, with a rate of 1–2 episodes per 1,000 deliveries. The symptoms of puerperal psychosis differ from PPD as it comprises delusions, hallucinations, confusion, perplexity, or mania or mixed features.

PPD is the most common complication of childbearing, affecting approximately 10–22% of woman in childbearing age.[11] Women usually experience PPD within the first six weeks following delivery, and recover from it six months postpartum; however, it may continue through the first and second years postpartum.[12] PPD is closely linked with negative outcomes for women and infants, such as maternal suicide, weak maternal interaction with her infant, early termination of breastfeeding, and delays in children's development.[13, 14] Although PPD is undetected or inadequately treated, it may be remedied by both behavioral and pharmacological treatments.[15] However, studies have found out that pharmacological therapy was unsuitable for postpartum mothers, particularly those who wished to breastfeed, as antidepressant compounds may be passed onto the infant via breastmilk.[16, 17] Thus, prevention is the best method against the onset of depression in new mothers rather than relying on these treatments. While the cause of PPD remains unclear, social support has been shown to be effective in helping women cope with postpartum depression.[18, 19] Social support is defined as an exchange of resources among people perceived by the provider or recipient to be intended to improve the lifestyle of the recipient.[20]

Previous studies have investigated the relationship between PPD and social support.[2, 13, 18] However, there was relatively little consideration for factors affecting social support and postpartum depression. Therefore, the aim of this study was to estimate the prevalence of PPD in postpartum women in South Korea and investigate the relationship between PPD and social support.

Results

A total of 1,654 postpartum women were included in the analysis, of which 266 (16.1%) had PPD and 1,388 (83.9%) did not. The demographic and health characteristics of the study participants were summarised in Table 1. Statistically significant differences were observed between social support and having PPD. There were more women with PPDs in groups with low social support. Additionally, there were differences in education level, household income, current employment status, current breastfeeding status, degree of parenting burden within the last month, subjective health status, perceived body image, stress, past diagnosis of depression, and smoking experience between women with and without PPD.

Table 2 shows social support status among participants: 6.0% of women had low, 53.9% had moderate and 40.1% had high social support. Women with lower levels of social support were significantly more likely to have lower education and income levels, job, abortion experience, higher parenting burden, lower subjective health status, higher stress levels, and depression compared with women with moderate or higher supports.

Univariate and multiple logistic regression were conducted to determine the association between PPD and social support while controlling for potential covariates (Table 3). In univariable logistic regression analyses, the women with moderate (OR = 2.66, 95% CI = 1.93–3.67) and low (OR = 6.89, 95% CI = 4.22–11.24) level of social supports had increased likelihood for PPD compared to women with high level of social support. Further, in multivariable logistic regression analyses, women with moderate and low social support levels were 1.78 (95% CI = 1.25–2.52) and 2.73 (95% CI = 1.54–4.83) times more likely to develop PPD, respectively, compared to the women with high social support levels. Furthermore, there was a significant association of PPD in women with jobs (OR = 2.80, 95% CI = 2.02–3.88), breastfeeding women (OR = 1.48, 95% CI = 1.10–2.01), and those diagnosed with depression (OR = 2.78, 95% CI = 1.34–5.78). Regarding degree of parenting burden, women with moderate and high parenting burden reported 5.10 (95% CI = 2.66–9.98) and 10.09 (95% CI = 5.08–20.04) times higher chances of having PPD, respectively, compared to the women with low level of parenting burden. Also, women with moderate and low subjective health status were 1.48 (95% CI = 1.07–2.05) and 5.41 (95% CI = 2.83–10.36) times more likely to develop PPD, respectively. Women with moderate (OR = 2.28, 95% CI = 1.32–3.95) and higher (OR = 4.76, 95% CI = 2.58–8.79) levels of stress were also more likely to develop PPD. Interestingly, those with higher household income level reported less likelihood of PPD (OR = 0.50, 95% CI = 0.27–0.90).

The results of subgroup analyses on social support awareness and PPD with covariates were summarised in Table 4. Among women with multiparity, those with moderate and low levels of social support were 2.85 (95% CI = 1.68–4.82) and 4.90 (95% CI = 2.14–11.23) times more likely to develop PPD, respectively; but there were no statistical differences in women with primiparity. Further, in case of women who have pregnancy loss experience compared to those with no experience, the lower the social support, the greater the odds ratios of PPD. In women with pregnancy loss experience, the odds ratios of PPD were 10.26 times higher in such women with low social supports (low: OR = 10.26, 95% CI = 2.16–48.73). Women with moderate and low levels of social support who reported their body image as normal or obese were more likely to develop PPD (*P* value for trend < 0.001). In addition, women with jobs and low levels of social support showed the highest likelihood of PPD (OR = 10.34, 95% CI = 2.34–45.64).

Figure 1 presents the relationship between the level of social support in each scale of the development of PPD, and shows that the lower the social support level in all subscales, the higher the odds ratios of PPD. The results showed a high degree of association in order of family, significant others, and friends.

Discussion

The World Health Organization (WHO) noted that mental health problems such as depression and anxiety are common during pregnancy and after childbirth.[21] However, there was limited information on which women develop PPD. Therefore, this study was conducted to investigate the associated factors of PPD, especially how social support affects depression in postpartum women. Our findings show that postpartum women with low social support had 4.63-fold higher odds of PPD compared with postpartum women with high social support. Further, women who are employed or breastfeeding, or have heavy parenting burden, poor subjective health status, high stress level, and were diagnosed with depression in the past were more likely to develop PPD. Furthermore, this study also showed that higher levels of social support may buffer

against probability of PPD after adjusting for confounding variables. Given our results, postpartum women need a high level of social support from family, close friends, and significant others.

Interestingly, the subgroup analysis showed that women with multiparity had a five times higher risk of PPD if their social support was low. Multiparity could increase the level of maternal stress and depression because women need to also care for their previous children and infants. Women with multiparity may not receive the same level of social support as they received during their first time of childbearing because they are considered to be child-care experts despite their need of extra social support to take care of their newborn babies. Thus, the results suggest that as women with multiparity are more likely to have PPD, better social support is needed for preventing PPD.[22]

Another interesting finding in the current study is that women with low social support and previous experience of pregnancy loss were 10 times more likely to develop PPD. Our result is in line with previous studies in which previous pregnancy loss served as an effect modifier between social support and PPD. Pregnancy loss is an event which makes the bereaved women particularly prone to depression, mood disorders, dramatic mental health disorder, and even suicide.[23] According to previous research, women who have lost their babies were seven to nine times more vulnerable to depression than women without a pregnancy loss.[24] These results indicate that postpartum women with history of pregnancy loss needs higher level of social support to prevent PPD.

Body image also acts as an effect modifier between social support and PPD. Like adolescence, the period surrounding childbirth is accompanied by unique and rapid changes in not only body shape and size but also psychological dimensions. Prior studies suggested that about 85% of women during pregnancy experience body image dissatisfaction.[25] In recent years, increasing numbers of women reported to be concerned about their weight gain and appearance during pregnancy and postpartum period.[26, 27] Body image may influence depression and health behaviours in postpartum women.[28] The current study results suggest that social support is an important factor that improves mental health of women with negative body image during postpartum period.

Many countries have implemented paid leave to help working parents.[29] Despite policies like paid leaves, women continue to work for reasons such as career, worried about losing jobs, financial burden, and negative attitudes in the workplace. Women with dual roles of having a job and childbearing are especially vulnerable to PPD.[30] Similarly, the current study results showed that women who have a job were 2.8 times more likely to develop PPD. Job strain often cannot be decreased or relieved, but social support in workplace can buffer the negative effect of overwork, and role ambiguity.[30, 31] In addition to workplace support, social support from partner, family, and friends also decrease job stress in postpartum women.[32]

The strength of the study is that the findings are based on a nationwide survey, making the data representative of Korean women and comprehensively assessed depressive symptoms of the postpartum period.

Limitations

Several limitations to the present study could influence the interpretation of our findings. First, the cross-sectional design of K-stori could not show the direction of the causal relationship for the identified association between social support and PPD. Second, this study primarily relied on self-report measures from K-stori. Thus, questions on the dependent and other independent variables may contribute to recall bias. Third, depression was measured based on a self-report. Previous research has shown that self-reported survey can be under or overestimated depending on individual characteristics. Though all responses were anonymous, some individuals may not indicate their true levels of depression.[33]

This study provided a cross-sectional estimate of PPD within one year of childbirth in South Korean women. Social support was also positively associated with a lower likelihood of PPD in women with multiparity, pregnancy loss experience, negative body image, and jobs. Postpartum women should receive a high level of social support from family, friends, and significant others to prevent PPD and improve their maternal health, aided by health professionals.

Methods

Study population

This cross-sectional study was based on the Korean Study of Women's Health-Related Issues (K-Stori) in 2016. It was approved by the Institutional Review Board of the National Cancer Center, Korea (Approval no: NCC2016-0062). The K-Stori is a nationwide survey designed to investigate a broad area of health issues among Korean women according to five stages in the life cycle of a woman (adolescence: 14–17 years; childbearing: 19–44 years; pregnancy and postpartum: 19–44 years; menopause: 45–64 years; and old adulthood: 65–79 years).[34] The participants of this study were women within a year of giving birth. From the total pregnant and postpartum women (n = 3000), pregnant women (n = 1,346) were excluded, and thus 1,654 women aged 19–44 years were included in the study. To recruit the participants, the interviewers planned to visit obstetrics and gynecology or post-partum care centers. In order to select the same survey area as the other life cycle stages, a systematic data extraction method was used to identify local obstetrician and post-partum care centers for pregnant and post-partum women based on the same sample design area for the household survey participants. All study participants provided informed consent.

Measures

The main outcome variable of this study was PPD, which was evaluated using the Edinburgh Postnatal Depression Scale (EPDS).[35] The EPDS is a validated 10 questions screening tool, and is the most widely used screening questionnaire asking mothers how they have felt in the past seven days for PPD (Appendix 1). Participants answered the questionnaires and the answers were scored from 0–3 points (or 3–0 in case of a reverse score) with a total score of 0 to 30. A threshold score of ≥ 10 was used to classify postpartum women with a probable major depression who needed further medical examination.[35]

The Multidimensional Scale of Perceived Social Support (MSPSS) was used to measure individual perceived social supports from three sources: friends (Item 6, 7, 9, and 12), family (Item 3, 4, 8, and 11) and significant others (Item 1, 2, 5, and 10).[36] Participants were asked to indicate their agreement with the

statements on a five-point Likert scale ranging from 0 = very strongly disagree to 4 = very strongly agree. The total score was calculated as the mean of 12 scores and the subscale total scores were the sum of the scores for the four questions related to the subscale. Total scores ranging from 12 to 24 were classified as low social support, from 25 to 36 as moderate social support and from 37 to 48 as high social support.

Further, information on age, living area, education level, household income, current job, number of parities, pregnancy loss experience, current breastfeeding status, degree of parenting burden within the last month, subjective health status, perceived body image, stress, past diagnosis of depression, and smoking experience was collected.

Statistical analyses

Descriptive analysis was conducted to compare the characteristics of study participants according to postpartum depression level. Multiple logistic regression was used to determine the association between PPD and social support while controlling for potential covariates. The odds ratio (OR) and 95% confidence interval (95% CI) of having PPD were estimated. *P* values < 0.05 were considered statistically significant. Furthermore, subgroup analyses were conducted to assess the influence of social support on the risk of having PPD according to groups with different characteristics. In the subgroup analyses, the Cochran-Armitage test was used to assess the association between PPD and each variable and the awareness of nutrition labelling. *P* values < 0.05 were considered to be statistically significant. All statistical analyses were performed using SAS version 9.4 (Cary, NC, USA). This study was performed in accordance with the relevant guidelines and regulations.

Declarations

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Authors' contributions: All authors were involved in the study conception and design. All authors were involved in the study conception and design. HC and KL contributed to drafting and writing the manuscript. HNC, EC, and BP contributed to participate in the initial design of the study and revising the article. MS contributed to revising the article and statistical methodology. HC, YR, and KSC contributed to editing, reviewing, and final approval of article. All authors read and approved the final manuscript.

Competing interests: The authors declare no competing interests.

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Tables

Table 1

General characteristics of the study population afflicted by postpartum depression in this study

Variables		Postpartum depression						P-value
		Total		Yes		No		
		N	%	N	%	N	%	
Total		1,654	100.0	266	16.1	1,388	83.9	
Social support ^a	High	663	40.1	55	8.3	608	91.7	<.0001
	Moderate	892	53.9	173	19.4	719	80.6	
	Low	99	6.0	38	38.4	61	61.6	
Age (in years)	19–29	255	15.4	41	16.1	214	83.9	0.5318
	30–39	1,231	74.4	203	16.5	1,028	83.5	
	40–44	168	10.2	22	13.1	146	86.9	
Region	Urban area	1,347	81.4	217	16.1	1,130	83.9	0.9489
	Rural area	307	18.6	49	16.0	258	84.0	
Education level	≤High school	387	23.4	79	20.4	308	79.6	0.008
	≥College	1,267	76.6	187	14.8	1,080	85.2	
Household income	< 3,000\$/month	417	25.2	92	22.1	325	77.9	0.0005
	3,000–4,999\$/month	1,064	64.3	152	14.3	912	85.7	
	≥ 5,000\$/month	173	10.46	22	12.72	151	87.28	
Current job	No	1,255	75.9	163	13.0	1,092	87.0	<.0001
	Yes	399	24.1	103	25.8	163	74.2	
Parity	Primipara	645	39.0	98	15.2	547	84.8	0.4317
	Multipara	1,009	61.0	168	16.7	841	83.3	
Pregnancy loss experience	None	1,301	78.7	212	16.3	1,089	83.7	0.6509
	Had	353	21.3	54	15.3	299	84.7	
Current breastfeeding	Yes	866	52.4	116	13.4	750	86.6	0.0018
	No	788	47.6	150	19.0	638	81.0	
Degree of parenting burden within the last	Low	363	21.9	11	3.0	352	97.0	0.1926

Variables		Postpartum depression						P-value
		Total		Yes		No		
		N	%	N	%	N	%	
month	Moderate	949	57.4	159	16.8	790	83.2	
	High	342	20.7	96	28.1	246	71.9	
Subjective health status	High	1,162	70.2	140	12.1	1,022	87.9	<.0001
	Moderate	435	26.3	94	21.6	341	78.4	
	Low	57	3.5	32	56.1	25	43.9	
Perceived body image	Underweight	86	5.2	19	22.1	67	77.9	0.0114
	Normal	885	53.5	121	7.3	764	86.3	
	Obese	683	41.3	126	18.5	557	81.5	
Stress level	Low	292	17.7	17	5.8	275	94.2	<.0001
	Moderate	1,136	68.7	168	14.8	968	85.2	
	High	226	13.6	81	35.8	145	64.2	
Past diagnosis of depression	None	1,611	97.4	26	1.9	1,362	8.5	<.0001
	Had	43	2.6	17	6.4	249	93.6	
Drinking alcohol during pregnancy	None	1,252	75.7	193	15.4	1,059	84.6	0.1926
	Had	402	24.3	73	18.2	329	81.8	
Smoking experience	None	1,596	96.5	248	15.5	1,348	84.5	0.0016
	Had	58	3.5	18	31.0	40	69.0	

^aSocial support: Total Multidimensional Scale of Perceived Social Support (MSPSS) score range from 12-24 (low), 25-36(moderate), 37-48 (high)

Table 2
General characteristics of the study population by social support in this study

Variables		Social support								p-value
		Total		Low		Moderate		High		
		N	%	N	%	N	%	N	%	
Total		1,654	100.0	99	6.0	892	53.9	663	40.1	
Postpartum depression	Yes	266	16.1	38	14.3	173	65.0	55	20.7	<.0001
	No	1,388	83.9	61	4.4	52	51.8	608	43.8	
Age (in years)	19–29	255	15.4	17	6.7	136	53.3	102	40.0	0.6739
	30–39	1,231	74.4	68	5.5	667	54.2	496	40.3	
	40–44	168	10.2	14	8.3	89	53.0	65	38.7	
Region	Urban area	1,347	81.4	76	5.6	735	54.6	536	39.8	0.3451
	Rural area	307	18.6	23	7.5	157	51.1	127	41.4	
Education level	≤High school	387	23.4	36	9.3	224	57.9	127	32.8	0.0002
	≥College	1,267	76.6	63	5.0	668	52.7	536	42.3	
Household income	< 3,000\$/month	417	25.2	48	11.5	238	57.1	131	31.4	<.0001
	3,000–4,999\$/month	1,064	64.3	46	4.3	569	53.5	449	42.2	
	≥ 5,000\$/month	173	10.5	5	2.9	85	49.1	83	48.0	
Current job	No	1,255	75.9	77	6.1	645	51.4	553	42.5	0.001
	Yes	399	24.1	22	5.5	247	61.9	130	32.6	
Parity	Primipara	645	39.0	47	7.3	323	50.1	275	42.6	0.4317
	Multipara	1,009	61.0	52	5.2	569	56.4	388	38.4	
Pregnancy loss experience	None	1,301	78.7	83	6.4	718	55.2	500	38.4	0.0232
	Had	353	21.3	16	4.5	174	49.3	163	46.2	
Current breastfeeding status	Yes	866	52.4	44	5.1	460	53.1	362	41.8	0.0018
	No	788	47.6	55	7.0	432	54.8	301	38.2	
Degree of parenting burden within	Low	363	21.9	6	1.7	149	41.0	208	57.3	<.0001
	Moderate	949	57.4	64	6.7	532	56.1	353	37.2	

Variables		Social support								p-value
		Total		Low		Moderate		High		
		N	%	N	%	N	%	N	%	
the last month	High	342	20.7	29	8.5	211	61.7	102	29.8	
Subjective health status	High	1,162	70.2	46	4.0	614	52.8	502	43.2	<.0001
	Moderate	435	26.3	42	9.7	242	55.6	151	34.7	
	Low	57	3.5	11	19.3	36	63.2	10	17.5	
Perceived body image	Underweight	86	5.2	6	7.0	56	65.1	24	27.9	0.2281
	Normal	885	53.5	52	5.9	471	53.2	362	40.9	
	Obese	683	41.3	41	6.0	365	53.4	277	40.6	
Stress level	Low	292	17.7	11	3.8	154	52.7	127	43.5	<.0001
	Moderate	1,136	68.7	50	4.4	618	54.4	468	41.2	
	High	226	13.6	38	16.8	120	53.1	68	30.1	
Past diagnosis of depression	None	1,611	97.4	93	5.8	864	53.6	654	40.6	0.0076
	Had	43	2.6	6	14.0	28	65.1	9	20.9	
Smoking experience	None	1,596	96.5	91	5.7	858	53.8	647	40.5	
	Had	58	3.5	8	13.8	34	58.6	16	27.6	0.0128

Boldface indicates statistical significance ($p < 0.05$)

Table 3

Univariable and multivariable logistic regression analyses of the relationship between social support and postpartum depression

Variables		Postpartum depression			
		Univariable logistic regression		Multivariable logistic regression	
		cOR	95% CI	aOR	95% CI
Social support	High	1.00		1.00	
	Moderate	2.66	1.93–3.67	1.78	1.25–2.52
	Low	6.89	4.22–11.24	2.73	1.54–4.83
Age (in years)	19–29	1.00		1.00	
	30–39	1.03	0.71–1.49	1.03	0.67–1.57
	40–49	0.79	0.45–1.38	0.77	0.40–1.45
Region	Urban area	1.00		1.00	
	Rural area	0.99	0.71–1.39	0.98	0.67–1.43
Education level	≤High school	1.00		1.00	
	≥College	0.68	0.50–0.90	0.77	0.54–1.08
Household income	< 3,000\$/month	1.00		1.00	
	3,000–4,999\$/month	0.59	0.44–0.79	0.76	0.54–1.07
	≥ 5,000\$/month	0.52	0.31–0.85	0.50	0.27–0.90
Current job	No	1.00		1.00	
	Yes	2.33	1.77–3.08	2.80	2.02–3.88
Parity	Primipara	1.00		1.00	
	Multipara	1.12	0.85–1.46	0.82	0.58–1.16
Pregnancy loss experience	None	1.00		1.00	
	Had	0.93	0.67–1.28	1.01	0.68–1.51
Current breastfeeding status	Yes	1.00		1.00	
	No	1.52	1.17–1.98	1.48	1.10–2.01
Degree of parenting burden within the last month	Low	1.00		1.00	
	Moderate	6.44	3.45–12.01	5.10	2.66–9.98

	High	12.48	6.55–23.79	10.09	5.08–20.04
Subjective health status	High	1.00		1.00	
	Moderate	2.01	1.51–2.69	1.48	1.07–2.05
	Low	9.34	5.38–16.23	5.41	2.83–10.36
Perceived body image	Underweight	1.00		1.00	
	Normal	0.56	0.32–0.96	0.98	0.52–1.87
	Obese	0.80	0.46–1.38	1.24	0.65–2.36
Stress level	Low	1.00		1.00	
	Moderate	2.81	1.68–4.71	2.28	1.32–3.95
	High	9.04	5.16–15.82	4.76	2.58–8.79
Past diagnosis of depression	None	1.00		1.00	
	Had	3.58	1.91–6.69	2.78	1.34–5.78
Smoking experience	None	1.00		1.00	
	Had	2.45	1.38–4.34	1.69	0.83–3.44

Table 4

The results of subgroup analysis of postpartum depression to social support stratified by parity, pregnancy loss experience perceived body image, current employment status

Variables		Postpartum depression					
		Social support					P-value For trend
		High	Moderate		Low		
		OR	aOR	95% CI	aOR	95% CI	
Parity	Primipara	1.00	1.05	0.62– 1.78	1.74	0.74–4.10	0.0017
	Multipara	1.00	2.85	1.68– 4.82	4.90	2.14– 11.23	< .0001
Pregnancy loss experience	None	1.00	1.58	1.07– 2.35	2.15	1.14–4.05	< .0001
	Had	1.00	2.36	0.99– 5.63	10.26	2.16– 48.73	< .0001
Perceived body image	Underweight	1.00	0.44	0.03– 5.81	0.52	0.02– 13.07	0.0987
	Normal	1.00	2.45	1.46– 4.10	3.35	1.43–7.85	< .0001
	Obese	1.00	1.70	1.02– 2.83	2.39	1.05–5.41	< .0001
Currently employed	No	1.00	1.97	1.27– 3.05	2.39	1.21–4.71	< .0001
	Yes	1.00	1.76	0.93– 3.34	10.34	2.34– 45.64	< .0001

Figures

Figure 1. The results of subgroup analysis based on postpartum depression according to social support by social support subscale

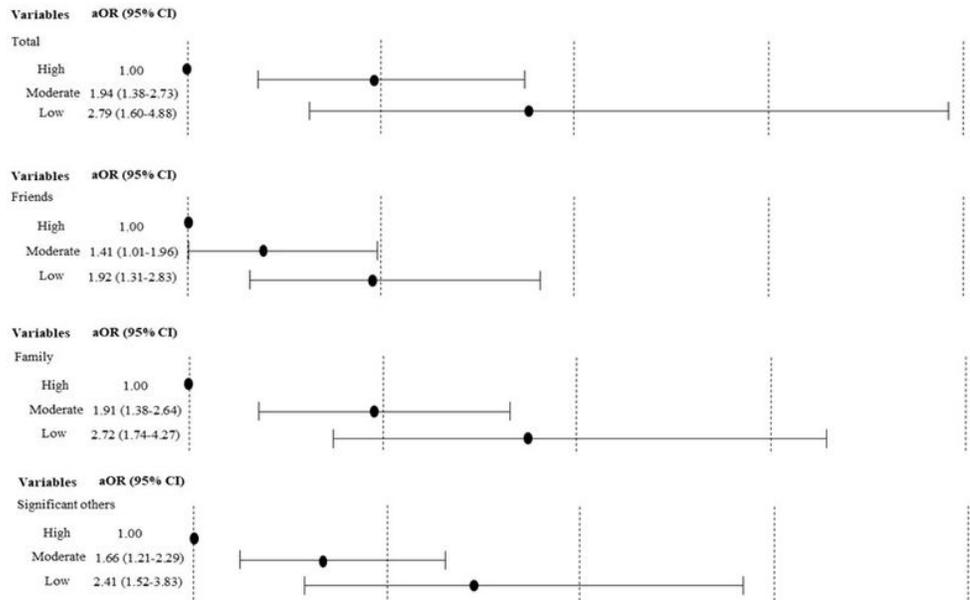


Figure 1

The results of subgroup analysis based on postpartum depression according to social support by social support subscale

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Supplementaryappendix1Associationbetweensocialsupportandpostpartumdepression.docx](#)