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Postnatal depression and social support during the COVID-19 pandemic among Arab women in Jordan and the United States: A comparative study

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ARTICLE INFO	ABSTRACT
	Objectives: To compare the levels of postnatal depression experienced by Arab women in Jordan and the United States (USA) and the impact of social support during the COVID-19 pandemic. **Methodology:** Participants were recruited through online survey links and social media channels, as well as face to face. A sample comprising 434 women in the postnatal period participated in the study that included Arab women in the USA and Jordan women, responding to a comprehensive questionnaire that encompassed inquiries about their pandemic status, demographic characteristics, postnatal depression, and social support. CES-D depression scale was used to determine the level of depression. **Findings:** The depression mean score among women in the postnatal period from Jordan was 24.90±4.14 and the depression mean score among Arab women in the USA was 27.70±4.49. The prevalence of depression among Jordanian women was 52.8% and the prevalence of depression among Arab American women was 73.0%. There is a significant difference between both groups in depression during the postnatal period with more prevalence among Arab American women (t=7.64, p=.010). There are no significant differences between groups in tangible and actual social support among both groups (t=1.50, p=.127). **Conclusions**: This nationwide study conducted among postnatal women in Jordan has shed light on several critical findings. Our study found that Arab women in the USA were suffering from more depression compared to Jordanian women. Moreover, our research highlighted a significant inverse relationship between social support and postnatal depression, indicating that as social support increased, levels of depression decreased among women in the postnatal period. **Keywords:** postpartum, depression, social support, COVID-19

INTRODUCTION

Various studies have linked the COVID-19 pandemic with several psychological stressors that severely affect individuals physiological and psychologically [1-3]. For example, the COVID-19 pandemic caused the closure of education institutions, separation from loved ones, social isolation and social distancing interventions, disruption of routines, and health threats [4-6]. As a result, psychological interventions play an essential role in the process of patient management or pandemic adjustment programs within communities that have been most affected cannot be ignored [7].

Current study focusing on the COVID-19 pandemic suggests that women have a relatively lower risk of severe infection after childbirth and postnatal periods [8]. The COVID-19 pandemic is a traumatic experience that affects the mental health of women in the postnatal period hence increasing their risks of perceived depression [8, 9]. Besides, research shows that it is

expected for women experiencing prenatal depression to suffer from postnatal symptoms of anxiety and postnatal depression that can develop into affective disorders [10]. Furthermore, studies carried out during a few months after the COVID-19 pandemic was considered a healthcare crisis found that women in the postnatal period experienced high-depression levels and reduced psychosocial well-being [11, 12]. Also, a meta-analytic study revealed higher depression levels during postnatal period during the COVID-19 pandemic compared to non-the COVID-19 pandemic periods [13, 14].

Although studies observed a mild increase in depression that caused anxiety and stress symptomatology after childbirth in healthy and low risk population samples, success of preventive interventions depends on identifying and targeting symptoms [15]. There are higher opportunities for infants to experience various behavioral, emotional, cognitive, and physical outcomes when mother experiences antenatal depression and anxiety after childbirth [16]. Maternal depression and anxiety can adversely impact infants' attention

processes, depression regulation, and temperamental development and can extend to childhood [17].

Depression during the postnatal period has consequences for both maternal and neonatal well-being. Maternal experiencing of depression during postnatal period compass physical health issues, psychological distress, communication challenges, and risky behaviors for them. Conversely, depression during postnatal period's impact on neonates and infants manifests as reduced anthropometric measurements, disruptions in sleep patterns, and delayed in motor and cognitive development [5]. Although infrequent, the presence of suicidal thoughts among women with depression during postnatal period raises considerable concern [6].

Exploring the connection between depression during the postnatal period and the COVID-19 pandemic has been a subject of investigation in various countries. For instance, a study carried out in the USA found that around one-third and one-fifth of the participants experienced depression during postnatal period and severe depression during postnatal period [7]. A comprehensive review highlighted that the prevalence of depression during the postnatal period escalated to 34 during the COVID-19 pandemic and significantly surpassed the pre-pandemic rates [8]. Another systematic analysis that comprised 24 studies, revealed a 28.0% prevalence of depression during the postnatal period during the pandemic [9]. Nonetheless, conflicting evidence exists, indicating no disparity in depression during postnatal period rates before and after the pandemic. For example, a study involving 557 women in the postnatal period prior to the COVID-19 pandemic and 504 women after its onset, identified a comparable prevalence of depression during postnatal period in both groups [10]. Despite various studies investigating depression during the postnatal period prior to the emergence of the COVID-19 pandemic in Iran, there remains a dearth of research concerning depression during postnatal period prevalence and its associated factors within the context of the COVID-19 pandemic in this region.

The social support among women in the postnatal period and mothers is an important source of preventing many psychological problems and this is considered as a coping mechanism that is often used in difficult situations. The study in [18] found that coping mechanisms are used as a protection from dangerous situations. Besides, the thought of protection mechanisms such as social support are important in dealing with the pandemic, mainly when it causes depression among women [19]. According to [6], many women in Jordan were suffering from decrease of the social support from the families in response to the quarantine and social distancing because of the pandemic. According to [20], the coping mechanisms that students use to deal with depression and anxiety caused by the disease include seeking support from others or assisting themselves by using negative or positive mechanisms such as disregarding the COVID-19 pandemic related news, spiritual methods, meditation, and breathing exercises. Further, it was argued the high levels of depression in China during the pandemic, so the COVID-19 pandemic and containment strategies had indirect side effects such as reduced social support available for women in the postnatal period that contributed to elevated emotional depression levels [21]. Past research has emphasized perceived social support among women in the postnatal period and argued that it is helpful for the short-term and long-term emotional well-being of women in the postnatal period. Very little is known about the effect of postnatal women' social support on depression, so this study aims to compare the levels of postnatal depression experienced by Arab women in Jordan and the USA and the impact of social support on Jordanian and Arab American women during the pandemic.

METHODOLOGY

A cross-sectional comparative design was used to compare social support and postnatal depression symptoms among women during postnatal period. All women in Jordan and the USA in postnatal period were considered as target population.

Participants

The inclusion of the participants were at least 18 years of age and were in postnatal time during the COVID-19 pandemic and residing in Jordan or Arab women living in the USA, and able read and write in Arabic or English languages. This means two groups were recruited. One group from Jordan and the other group from the USA. Each of these two groups will have 225 women during the postnatal period. The invitation for the study and measures of the study was distributed by social media and other methods such as leaflets during the period of May 2022 to August 2023.

Measures

Center for epidemiologic studies depression scale (CES-D) to assess depressive symptoms in participants was utilized [23]. CES-D Scale consists of 10 items aimed at measuring depression levels. This instrument was found to be a user-friendly and efficient tool [24]. The tool employs a four-point Likert scale, wherein participants indicate the frequency of their experiences of a range of emotions and feelings [25]. To ensure consistency, positive responses were reverse-coded, and the responses were summed, resulting in higher scores indicative of more pronounced depressive symptoms. Moreover, individuals with scores equal to or greater than 16 were categorized as exhibiting depressive symptoms.

Also, this study used the medical outcome study (MOS) to measure the degree of social support, which was created as a component of MOS [26]. This instrument evaluates emotional/informational and tangible support and is intended to be utilized with clients to analyze the accessibility of support across many different areas. Emotional/informational support has been assessed using 8 items in MOS social support survey, whereas tangible support was analyzed using four items. Responses to each item ranged from "not at all" to "all the time," and scores were given on a one to five scale. The aim of this 12-item multidimensional self-administered assessment was for assessing individuals with common and treatable chronic illnesses regarding the availability of support.

The instrument has validated four distinct scales measuring the accessibility of numerous kinds of help: tangible support, informational support, and emotional support. Each subscale is evaluated on a five-point Likert scale, with results varying from one to five. The replies were added together to determine the final score, which had a maximum of 100. Each subscale's scores were also calculated. The internal consistency of the questionnaire was examined using Cronbach's alpha, yielding a coefficient of .83.

The study questionnaire also encompassed various experiences of the participants' current postnatal status and

questions related to the pandemic, including whether they had contracted the pandemic, received the pandemic vaccine, and how their lives had been affected by the pandemic.

Also, participants were asked about their feelings of "mental depression" in response to the pandemic, with responses recorded on a Likert scale ranging from "I never feel anxious". Questionnaire also gathered information on smoking habits, flu vaccine receipt, and sociodemographic characteristics.

Data Analysis

Data analysis was done by using SPSS version 28. For demographic data, the authors used frequencies and percentages. Chi-square test was used to determine the differences between Arab American and Jordanian women in postpartum depression and social supports. The pearson correlation was used to determine the correlation between postpartum depression and social support during the COVID-19 pandemic. Multiple regression tests were used in determining the predictors of depression and social support.

RESULTS

Demographic Variables

The participants were 557 (89.0%). Almost 299 from Jordan and 258 Arab women who live in the USA participated in the study (**Table 1**).

Table 1. Demographical characteristics of participants (n=557)

Demographical characteristics		Frequency	Percentage (%)
Insurance	No	33	5.9
	Yes	524	94.1
Education	Primary or secondary	69	12.4
	Diploma	169	30.3
	University student	27	4.8
	Bachelor's	255	45.8
	Postgraduate	37	6.6
Number of previous deliveries	One	142	25.5
	Two	130	23.3
	Three or more	285	51.2
Perceived of life status	Excellent	26	5.9
	Very good	77	17.6
	Good	90	20.5
	Accepted	137	31.3
	Not good	101	23.1
Current deliveries outcome	Singleton	320	57.5
	Twins	73	13.1
	Multiple	164	29.4
Pregnancy months	Sixth	58	10.4
	Seventh	146	26.2
	Eighth	143	25.7
	Nineth	210	37.7
Living area	City	427	76.7
	Village	130	23.3
Smoking	No	261	46.9
	Yes	296	53.1
Have you had the pandemic?	No	174	31.2
	Yes, the test result was positive.	262	47.0
	Yes, but the test result was not positive.	115	20.6
	Yes, but I have not received the results yet.	6	1.1
Did you feel pressure during the pandemic?	I never feel anxious.	109	19.6
	To a small degree	187	33.6
	Moderately	114	20.5
	Greatly	121	21.7
	To the fullest	26	4.7
How life changed after the pandemic?	Much better now	22	3.9
	Somewhat better now	133	23.9
	Almost unchanged	148	26.6
	Somewhat worse now	179	32.1
	Much worse now	75	13.5
Have you had the COVID-19 pandemic vaccination?	No	39	7.0
	Yes	518	93.0
How often do you see news related to the pandemic?*	Never	56	10.1
	Barely	171	30.7
	Sometimes	294	52.8
	Always	36	6.5
Have you ever had an influenza shot before?	No	245	44.0
	Yes	176	31.6
	Maybe	136	24.4

Table 2. Description of depression among women after childbirth during the COVID-19 pandemic

Item		Jordan				Arab American				t-test	p-value
		1	2	3	4	1	2	3	4		
1. I was annoyed by things that usually do not bother me.	n	64	89	99	47	25	65	65	103	-5.600	0.00
	%	21.4	29.8	33.1	15.7	9.7	25.2	25.2	39.9		
2. I had a hard time concentrating on what I was doing.	n	44	102	130	23	10	59	160	29	-2.349	0.019
	%	14.7	34.1	43.5	7.7	3.9	22.9	62.0	11.2		
3. I felt depressed.	n	38	98	117	46	17	94	83	64	0.021	0.983
	%	12.7	32.8	39.1	15.4	6.6	36.4	32.2	24.8		
4. Everything you did felt depressed for me.	n	31	94	123	51	25	80	114	39	-3.004	0.003
	%	10.4	31.4	41.1	17.1	9.7	31.0	44.2	15.1		
5. I felt hopeful for the future.	n	52	85	114	48	14	94	89	61	-2.879	0.004
	%	17.4	28.4	38.1	16.1	5.4	36.4	34.5	23.6		
6. I got scared.	n	39	112	113	35	27	68	120	43	-2.903	0.004
	%	13.0	37.5	37.8	11.7	10.5	26.4	46.5	16.7		
7. My sleep was restless.	n	37	102	124	36	17	86	101	54	-0.997	0.319
	%	12.4	34.1	41.5	12.0	6.6	33.3	39.1	20.9		
8. I was happy.	n	40	57	97	105	12	55	119	72	-7.813	0.00
	%	13.4	19.1	32.4	35.1	4.7	21.3	46.1	27.9		
9. I felt lonely.	n	59	123	98	19	16	75	105	62	-5.788	0.00
	%	19.7	41.1	32.8	6.4	6.2	29.1	40.7	24.0		
10. I could not continue forward.	n	63	134	79	23	25	89	99	45	-5.600	0.00
	%	21.1	44.8	26.4	7.7	9.7	34.5	38.4	17.4		

Table 3. Description of support among women after childbirth during the pandemic

	N/LT		S		MT/AT	
	n	R n	n	R n	n	R n
Tangible support						
1. To what extent is there someone who can help you with your needs when you must stick to staying in bed?	83	19.1	163	37.6	188	43.3
2. To what extent is there a person who can take you to the doctor when needed?	68	15.7	160	36.9	206	47.5
3. To what extent can someone prepare your meals for you when you are unable to do so?	97	22.4	158	36.4	179	41.2
4. To what extent is there someone who can help you with your daily routine when you are sick?	97	22.4	151	34.8	186	42.9
Emotional/information support						
1. Someone you can on to listen when you need to talk.	102	23.5	153	35.3	179	41.2
2. Someone to give you good advice about a crisis.	93	21.4	151	34.8	190	43.8
3. Someone to give you information to help you understand a situation.	94	21.7	166	38.2	174	40.1
4. Someone you trust or with whom you can talk about yourself or your problems	78	18.0	160	36.9	196	45.2
5. Someone you really need advice from.	98	22.6	149	34.3	187	43.1
6. Someone you can share most of your worries and fears with	89	20.5	170	39.2	175	40.3
7. Someone you can turn to for suggestions on how to deal with a personal problem.	85	19.6	155	35.7	194	44.7
8. Someone who understands your problems	88	20.3	156	35.9	190	43.8

Note. N/LT: Never/little of time; S: Sometimes; MT/AT: Most of time/all time; & R: Row

Description of Depression Among Women in Postnatal Period During the Pandemic

The depression mean among women in postnatal period from Jordan was 24.90±4.14 and depression mean among Arab women in the USA was 27.70±4.49. Prevalence of depression among Jordanian women was 52.8 (n=158) and the prevalence of depression among Arab American women was 73.0 (n=190). There is a significant difference between both groups in depression during the postnatal period with more prevalence among Arab American women (t=7.64, p=.010) (**Table 2**).

Description of Support Among Women in Postnatal Period During the Pandemic

The mean of tangible support among Jordanian women in the postnatal period was 13.70±3.40. The mean of tangible support among Jordanian women in the postnatal period was 14.20±3.40. The mean of emotional support among Jordanian women in the postnatal period was 27.90±5.70. The mean of emotional support among Jordanian women in the postnatal period was 27.60±5.70. There are no significant differences between groups in tangible and actual social support among both groups (t=1.50, p=.127) (**Table 3**).

Correlation Between Depression & Social Support Among Women in Postnatal Period in the Pandemic

The correlation between depression during the postnatal period and social support during the COVID-19 pandemic was determined by using Pearson correlation test. There was a significant relationship between them (r^2=-.581, p=.001). **Table 4** showed that the only significant relationship is between resilience and social support. As social support increases, the resilience is increased.

Predictors of Depression Among Women in Postnatal Period in the Pandemic

The model was found to be significant (F=4.6, p=.001). Depression among women in the postnatal period were predicted with many factors during the pandemic. These factors were in increased trimester (B=.165, p=001), having insurance (B=.122, p=.006), described life that changed during the COVID-19 pandemic (B=-.256, p<.000), and having pressure (B=.120, p=.018). This means women in the postnatal period with more in trimester, not having insurance, and having pressure may suffer from increasing depression incidence.

Table 4. Predictors of postnatal depression among women after childbirth in the pandemic

Model		Unstandardized coefficients		Standardized coefficients	t	Significance
		B	Standard error	Beta		
1	(Constant)	21.643	2.265		9.557	.000
	Trimester (first, second, & third)	-.299	.284	-.053	-1.054	.293
	Living (city vs. village)	-.104	.519	-.010	-.201	.841
	Smoking(no vs. yes)	.422	.439	.047	.961	.337
	Vaccination (no vs. yes)	-.177	.448	-.020	-.396	.693
	News	.044	.219	.010	.199	.842
	Age (years)	-.049	.049	-.059	-1.013	.312
	Insurance (no vs. yes)	1.065	.449	.119	2.372	.018
	Income (high vs. low)	-.670	.383	-.230	-1.752	.021
	Education	.046	.177	.015	.261	.794
	Description of life status(poor vs. good)	-.441	.200	-.125	-2.204	.028
	Number of pregnancies	.191	.453	.021	.423	.673
	COVID-19 test positive or not	.066	.237	.014	.279	.780
	Degree of feeling of pressure	.477	.201	.144	2.370	.018
	Degree of social support	-.051	.250	-.110	-2.050	.040

DISCUSSION

The study aimed to compare levels of postnatal depression experienced by Arab women in Jordan and the USA and the impact of social support during the pandemic. Very little is known about the effect of postnatal women' social support on depression. Few studies are currently discussing depression during the postnatal period. In Italy, it was mentioned the depression prevalence is 44.4% [22]. Despite these elevated rates, no comparisons were drawn with pre-The pandemic periods in their study. Conversely, it was examined two groups of postnatal women in Italy during the pandemic [23]. Their findings revealed a significant depressive symptom experiencing on the second day postnatal is 28.5 during the pandemic. Since these figures are based on data collected shortly after childbirth, they might signify the "baby blues" rather than actual depression during the postnatal period. Nevertheless, it was scrutinized 516 postnatal women in New York City and detected a decline in depression during postnatal period rates during the lockdown [24-27].

Postnatal women faced increased social restrictions and a diminished support system, both during pregnancy and after childbirth, compared to those who gave birth prior to the pandemic [28, 29]. Preventive measures implemented in Japan by birth facilities led to missed opportunities professionals of emotional and tangible support and receiving family visits during hospitalization [30]. Furthermore, these women often had to cancel plans for hometown deliveries or stays at their parents' or in-laws' homes. These observations mirror a study highlighting the prevalence of social restrictions among pregnant women during the COVID-19 pandemic [31]. These limitations subsequently resulted in a loss of social support from many important people for postnatal women [31, 32]. Notably, 33.0% of the women surveyed indicated an absence of support from parents or other family members during the pandemic. Outcomes expand existing scientific knowledge, illustrating how COVID-19 pandemic preventive measures can expose mothers to a dearth of social support.

Our study established a link between lack of social support with postnatal depression. This aligns with a prior study involving pregnant women, which found a connection between decrease informal support and the lack of informal childcare support with prenatal depression during COVID-19 pandemic [31]. It corresponds with research suggesting that insufficient social support increase the risk for depression among women during postnatal period [33, 34]. The evidence from previous studies determine three reasons for postnatal depression:

(1) a loss of support from physicians,

(2) a decline in support from families, and

(3) a decrease in maternal autonomy regarding childbirth and lactation [35, 36].

Support from physicians and nurses primarily revolves around providing informational assistance, offering guidance on stress management, childbirth, and child-rearing during prenatal checkups, hospital stays, and infant checkups [37-39]. The relatives and families support can encompass emotional, tangible, or belonging assistance. In our study, mothers who reported a lack of support from family and relatives for childcare consultations were more likely to experience depression during the postnatal period. This mirrors previous research emphasizing the importance of emotional and tangible support to prevent depression during postnatal period [40, 41]. The study highlights that informal support, alongside formal support from healthcare professionals, plays a pivotal role in averting postnatal depression.

CONCLUSIONS

This nationwide study conducted among postnatal women in Jordan has shed light on several critical findings. Our study found that Arab women in the USA were suffering from more depression compared to Jordanian women. Moreover, our research highlighted a significant inverse relationship between social support and postnatal depression, indicating that as social support increased, levels of depression decreased among women in the postnatal period.

the participants were told that they could leave the study without any consequences.

Declaration of interest: No conflict of interest is declared by authors.

Data sharing statement: Data supporting the findings and conclusions are available upon request from the corresponding author.

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