

Psychological Disorders in Women with Spontaneous Preterm Delivery

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Abstract

Background: Preterm delivery is a major cause of mortality in infants. The prevalence of preterm delivery is rising over time. Psychological disorders have been associated with preterm delivery. In this study, we aimed to compare the frequency of psychological disorders among women with spontaneous preterm versus term delivery.

Methods: In this cross-sectional study, psychological disorders in 60 women, who experienced spontaneous term delivery and in 60 women who had spontaneous preterm delivery (gestational age of less than 37 weeks) were examined, using symptom checklist-90-revised questionnaire (SCL-90-R) in Akbarabadi teaching hospital during 2014. The question scales were compared between the two groups, using Chi 2 test and independent t-test.

Results: The mean age of the participants was 23.58 ± 4.26 , and 23.90 ± 4.71 in preterm-delivery and term-delivery groups, respectively (P value = 0.22). The mean score of Symptom checklist-90-revised questionnaire (SCL-90-R) was $102.21 (\pm 35.81)$ in women with preterm delivery, and it was 59.14 ± 22.17 in women with term delivery, which was significantly different (P value < 0.001). In addition, the total score and the score for all the subscales of psychological disorder were higher in women with preterm delivery (P value < 0.001).

Conclusions: Psychological disorders in pregnancy are associated with an increased risk of preterm delivery. Therefore, future studies should focus on finding ways to lower psychological disorders in late pregnancy.

Keywords: Psychological Disorders, Preterm Delivery, Term Delivery, SCL - 90 - Question

1. Introduction

Preterm labor is defined as regular uterine contractions, which result in changes in cervical length before 37 weeks of pregnancy (1). An estimated 15 million preterm births occur each year worldwide, with a global preterm birth rate of 11.1% (among 184 countries). While more than 60% of these preterm births occur in Sub-Saharan Africa and South Asia, preterm labor remains a significant problem in developed countries. Preterm birth rates remain as high as 9% and above for upper middle- and high-income countries. Preterm birth rose from 10.6% in 1990 to a peak rate of 12.8% in 2006 in the United States; however, this rate declined to 11.39% in 2013. Preterm delivery is an important cause of mortality in infants, with the frequency of 5 - 11% (2-5). A worldwide study reported a rising trend in preterm birth during the past decades (6). Complications of preterm birth can cause permanent disability in the survivors (5). On the other hand, increased rate of preterm delivery poses a significant economic burden on the society (6). Psychological disorders during pregnancy are important predicting factors of birth weight and gestational age, and can lead to preterm delivery (7, 8). Some mecha-

nisms for this include: (1) unhealthy coping and life style behavior; (2) stress-dependent hormones; and (3) psycho-immunological factors (9).

Pregnancy affects mothers physically and mentally (10-12). Mental complications of pregnancy include depression, anxiety disorders, and postpartum psychosis. The prevalence of perinatal major and minor depression is up to 20% (13, 14). Compared to the physical aspect, fewer studies have evaluated the psychological aspect of preterm delivery and its effects on pregnancy outcome. In this study, we compared the prevalence of psychological disorders among women with spontaneous preterm versus term delivery.

2. Materials and Methods

In this cross-sectional study, 60 women with spontaneous term delivery and 60 women with spontaneous preterm delivery (gestational age of less than 37 weeks), who referred to Shahid Akbarabadi teaching hospital from April to October 2014 were recruited. The prevalence of psychiatric disorders was compared between the two groups. All participants provided a written informed consent. The

ethics committee of Iran University of Medical Sciences approved the study protocol. We provided an informed consent about the aims to the participants. The data file remained anonymous, and the identity of the participants was protected. The inclusion criteria were as follows: Singleton pregnancy, intact membranes at the time of admission, and normal vaginal delivery. The exclusion criteria were incomplete medical documents, history of discharge or symptoms of infection, intrauterine fetal death, and mothers who needed intensive care. To assess the psychological health of the mothers, we asked them to complete the validated Persian version of the questionnaire 12 to 24 hours post-delivery. Literate women filled out the form individually, whereas in the case of illiterate women, another educated person, who accompanied the mother, filled it out. The symptom checklist-90-revised (SCL-90-R) questionnaire has 90 items and nine subscales that measure somatization, obsessive-compulsive, depression, anxiety, phobic anxiety, hostility, interpersonal sensitivity, paranoid ideation, and psychoticism. Score rating is based on a five-point scale and evaluates the individual mental status during the last week (0 = none, 1 = a little, 2 = to some extent, 3 = much, 4 = very much) (Blacker, 2000). Total scores from 90 to 200 represent a significant mental health problem and a need to visit a psychiatrist, and scores more than 200 represent a serious mental health problem, including psychotic and mood disorders. Scores on each of the nine subscales, which are less than 2.5, represent the absence of a disorder; scores from 2.5 to 3 represent the presence of a disorder; and scores higher than 3 represent the presence of a serious disorder. In 1994, Bagheri Yazdi et al. evaluated the reliability and validity of SCL-90-R test, and found that it could successfully be used as a screening tool in studies. Possible confounders, including: height, weight before pregnancy, mother's birth weight, marital status, and health behavior (smoking, diet, intake of alcohol during pregnancy), were identified from background data and were matched between the two groups.

2.1. Statistical Analysis

The obtained data were entered into SPSS software version 17 (IBM; Chicago, IL, USA). Mean and standard deviation (SD) were used to describe numerical variables, and relative frequency percentage was used to describe the nominal or categorical variables. Chi 2 test was employed to compare qualitative outcomes between the two groups, and independent t-test was utilized to compare the quantitative outcomes between the two groups.

3. Results

In this study, we studied 120 women: 60 women with spontaneous preterm delivery and 60 with spontaneous term delivery. The mean age of women with preterm delivery was 23.58 (\pm 4.26), and it was 23.90 (\pm 4.71) in women with term delivery, which was not significantly different (P value = 0.22), (Table 1). The mean score of SCL-90-R in women with preterm delivery was 102.21 (\pm 35.81), and it was 59.14 (\pm 22.17) in women with term delivery, which was significantly different (P value < 0.001). The mean scores for each subscale were 2.5 or less in the two groups, but it was significantly higher in the preterm delivery group (P value < 0.03). The mean score of all the nine subscales was higher in the preterm-delivery group. Table 2 demonstrates a summary of the mean score of each of the nine subscales in the two groups. Mental health disorders were only observed in preterm delivery group. Table 3 presents a summary of mental health disorders in the preterm delivery group.

Table 1. Demographic Data

	Term Delivery (%), n = 60	Preterm Delivery (%), n = 60	P Value
Job			0.083
House keeper	71.7	75	
Worker	28.3	25	
Education			0.075
Illiterate	9.7	10.3	
Primary school	23.6	26.4	
Diploma	45	38.3	
Higher levels	21.7	25	
Family income (\$)			0.764
Less than 815.66	65	66.7	
815.66 - 1631.32	21.7	25	
More than 1631.32	13.3	8.3	

4. Discussion

In this study, women with spontaneous preterm delivery had significantly higher scores in all the subscales of the SCL-90-R questionnaire. Bjelanovic et al. reached the same result, using this questionnaire (15). Several studies examined the role of stress on preterm delivery and

Table 2. The Mean Score of Each of the Nine Subscales in the Two Study Groups

	Delivery	Lowest Score	Highest Score	Mean	SD	P Value
Psychosis	Preterm	0.00	2.50	0.9633	0.61671	< 0.001
	Term	0.00	1.50	0.5383	0.51719	
Obsessive compulsive	Preterm	0.00	2.50	1.0167	0.64733	< 0.001
	Term	0.00	1.30	0.5683	0.43628	
Paranoid ideation	Preterm	0.00	2.50	0.8367	0.65146	< 0.001
	Term	0.00	1.40	0.6083	0.47561	
Anxiety	Preterm	0.10	2.20	1.0733	0.56143	0.03
	Term	0.00	1.90	0.5667	0.55040	
Interpersonal sensitivity	Preterm	0.00	2.50	1.0517	0.59674	< 0.001
	Term	0.00	1.40	0.6550	0.49143	
Phobic anxiety	Preterm	0.00	2.20	1.1150	0.63535	< 0.001
	Term	0.00	1.70	0.7333	0.50107	
Hostility	Preterm	0.00	2.20	1.0983	0.58324	< 0.001
	Term	0.00	1.40	0.4700	0.48966	
Somatization	Preterm	0.00	1.30	0.5767	0.56789	< 0.001
	Term	0.00	1.10	0.4987	0.48757	
Depression	Preterm	0.00	1.40	1.017	0.65479	< 0.001
	Term	0.00	1.10	0.8768	0.79865	
Total score	Preterm	18.57	187.14	102.2143	35.81673	< 0.001
	Term	10.00	108.57	59.1429	22.17692	
Global severity index (GSI)	Preterm	-	-	67.41	13.41	< 0.001
	Term	-	-	50.46	8.94	
Positive symptom distress index (PST)	Preterm	-	-	22.59	13.21	< 0.001
	Term	-	-	39.54	8.94	
The positive symptom distress Index (PSDI)	Preterm	-	-	2.43	1.04	< 0.001
	Term	-	-	1.27	0.57	

found that the frequency of preterm delivery increases when more events happen in daily lives of the expecting mothers (16, 17). Some studies on depression and frequency of preterm delivery did not detect any significant relationship (18, 19). Gorsuch et al. and Molfese et al. found a significant relationship between anxiety and frequency of preterm delivery, while some other researchers (19, 20) failed to find such a relationship (20-23). We found a significant association between anxiety (one of the nine subscales) and preterm delivery. Women with spontaneous preterm delivery had higher scores of anxiety. Anxiety and its subsequent psychological response can affect gestational age. Most studies found a significant positive relationship between psychological disorders and the incidence of preterm delivery (24, 25). This could be due to

the higher prevalence of cigarette, alcohol and drug use among women with psychological disorders, which affects the age of delivery. In this study, 1 - 2% of women with spontaneous preterm delivery had impairment in four categories of psychosis, paranoia, obsessive-compulsive, and interpersonal sensitivity. Other categories had normal scores similar to women with term delivery. Most of the studies evaluated psychological disorders by means of history taking and based on patients' explanation. In this study, we used SCL-70-R questionnaire, which is an accurate scale that evaluates psychological disorders in nine different categories. These findings suggest that by reducing stress and psychological distress and through improving social support, it may be possible to enhance the quality of life of these patients.

Table 3. Distribution of Mental Health Disorders in the Preterm and Term Delivery Groups

	Groups	N = 120	
		Yes	No
Psychosis	Preterm	Yes	2 (3.3%)
		No	58 (96.7%)
	Term	Yes	0 (0%)
		No	60 (100%)
Obsessive compulsive	Preterm	Yes	1 (1.7%)
		No	59 (98.7%)
	Term	Yes	0 (0%)
		No	60 (100%)
Paranoid ideation	Preterm	Yes	2 (3.3%)
		No	58 (96.7%)
	Term	Yes	0 (0%)
		No	60 (100%)
Anxiety	Preterm	Yes	0 (0%)
		No	60 (100%)
	Term	Yes	0 (0%)
		No	60 (100%)
Interpersonal sensitivity	Preterm	Yes	1 (1.7%)
		No	59 (98.7%)
	Term	Yes	0 (0%)
		No	60 (100%)
Phobic anxiety	Preterm	Yes	0 (0%)
		No	60 (100%)
	Term	Yes	0 (0%)
		No	60 (100%)
Hostility	Preterm	Yes	0 (0%)
		No	60 (100%)
	Term	Yes	0 (0%)
		No	60 (100%)
Somatization	Preterm	Yes	0 (0%)
		No	60 (100%)
	Term	Yes	0 (0%)
		No	60 (100%)
Depression	Preterm	Yes	0 (0%)
		No	60 (100%)
	Term	Yes	0 (0%)
		No	60 (100%)

4.1. Conclusion

Psychological disorders in pregnancy are associated with an increased risk of preterm delivery. Future studies

should focus on finding ways to lower psychological disorders in late pregnancy. In addition, psychological disorders were higher in women with spontaneous preterm delivery at any level compared to those with term delivery. Therefore, to prevent adverse outcomes, special care should be provided to those women with psychological disorders. Moreover, proper screening programs and treatment regimens should be designed and implemented to decrease the risk of preterm labor.

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