

The role of prenatal psychopathological symptomatology on the labor experience and postpartum depression

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The role of prenatal psychopathological symptomatology on the labor experience and postpartum depression

Abstract

The purpose of this paper is to explore the role of maternal depression and anxiety during pregnancy on postpartum depression, both directly and indirectly through the experience of labor. Materials and methods: A longitudinal design at three different time points was carried out on 186 women (Mage = 31.54, SD = 5.05) recruited when they attended delivery preparation courses at the maternity ward. At week 31-32 of gestation, they filled out the Beck Depression Inventory and the State Anxiety Inventory. At childbirth, hospital healthcare staff registered the clinical data of labor: the labour length, and the duration of administration of oxytocin and epidural. One month after birth, the women completed the Edinburgh Postnatal Depression Scale. A Structural Equation Modeling was performed. Results: Both depression and anxiety symptomatology during pregnancy affect the depression symptomatology after delivery. Higher levels of these symptoms tend to predict a worse labor experience, which, in turn, positively predicts a higher level of postpartum depression. Results highlighted both direct and indirect effects, through the experience of labor. Conclusions: This data confirms that maternal psychopathological symptomatology during pregnancy represents a significant risk factor, both for the experience of labor and for the possibility of developing postpartum depressive symptomatology.

Keywords: prenatal depression, prenatal anxiety, maternal psychopathological symptomatology, labor experience, postpartum depression

Introduction

The experience of giving birth and motherhood, particularly for the first time, is highly challenging [1]. From a psychological perspective, in fact, pregnancy with the first child implies the transition to motherhood, a delicate developmental period with important consequences for mothers and for the child-mother relationship. During the first pregnancy, the woman presents her own identity as a mother through the reorganization of her mental representations, of herself and of significant persons [2].

The postpartum period is characterized by several changes: hormonal changes, physical pain, breastfeeding, the construction of an attachment bond, and the need to adapt the self-image to a mother role. The physical, psychological and relational changes that occur during the first pregnancy and postpartum period may increase the risk for maternal emotional vulnerability, such as anxious and depressed feelings, especially in primiparous mothers [3].

Anxious and depressed feelings are extremely comorbid during pregnancy [4] and they are the strongest risk factor for postpartum depression (PPD) [5]. Although anxiety and depression have often been studied separately, with regards to their effects on labor, delivery and postpartum, we believe that they must be considered together. In fact, both these conditions are associated to negative events during labor and delivery, such as more painful and prolonged labor [6] with an increased demand for analgesia [7], and greater oxytocin use [8]. Labor and delivery affect the evaluation of the birth experience with consequences on the postnatal mood. A positive birth experience is associated with an increased mother-child bond and maternal abilities, and contributes to her sense of accomplishment and self-esteem [9]. On the contrary, a negative birth experience can make the mother feel distraught and have a negative impact on her mental health, increasing the risk of postpartum depression and post-traumatic stress disorder [10]. A complicated

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4 delivery (characterized by greater pain, instrumental labor, and long length) therefore
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6 negatively affects the birth experience, thus becoming associated to risk of PPD [10].
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8 Epidural analgesia, although it reduces pain, is associated with a lower satisfaction of the
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10 experience of childbirth [11]. The administration of oxytocin, although it helps contractions
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12 and childbirth, has a different role than natural oxytocin. In fact, natural oxytocin
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14 stimulated by women during labor may reduce the production of stress hormones and favor
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16 a positive mood and the mothering behaviors. On the contrary, administered oxytocin, or
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18 synthetic oxytocin, can influence the intrinsic regulation of endogenous oxytocin and, in
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20 turn, the subsequent oxytocin-related outcomes [12].
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25 Despite the relevance of these aspects, most studies have focused on the separate
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27 effects of anxiety and depression on the labor and delivery experience and on postpartum
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29 depression. Beginning with these considerations, the aim of the present study was to
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31 investigate how these variables interact with each other to contribute to the development of
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33 PPD. In particular, we verified the complex influence that maternal and anxious
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35 symptomatology during pregnancy has on PPD, both directly and indirectly, through the
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37 clinical aspects of labor measured through the following indicators: the duration of labor,
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39 and the administration of oxytocin and epidural analgesia (see Figure 1).
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45 **Materials and methods**

46 *Procedure and participants*

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48 Women were recruited at the delivery preparation courses in the maternity ward of the
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50 capital city of Tuscany (Italy). The study provided a cohort longitudinal design at three
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52 different times: Time 1, at week 31-32 of gestation; Time 2, the day of labor; and Time 3,
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54 one month after birth.
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4 Inclusion criteria were to be nulliparous native Italian women, age > 18 years, no
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6 previous diagnosis of depression or anxiety, no risk pregnancy, and single fetus. An
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8 exclusion criterion was a caesarean delivery. All the women were informed about the aims
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10 of the study and signed a written informed consent form. Moreover, they could withdraw
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12 from the study at any time. Participation was voluntary and no monetary reward was given.
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14 Only women responding to the inclusion criteria were invited to participate and, of them,
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16 84% completed the entire follow-up. Given that we were interested in examining the roles
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18 of labor, we excluded at T2 and T3 women who underwent emergency cesarean after labor.
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20 Therefore, the sample was composed of 186 women aged 18 to 42 years ($M = 31.54$, $SD =$
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22 5.05).
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29 **Measures**

30 *Prenatal measures (T1)*

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32 In order to obtain the women's socio-demographic information, a brief questionnaire was
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34 administered consisting of questions about age, educational level, work status, and duration
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36 of couple relationship.
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40 The state of anxiety of the women was assessed using the Italian version [13] of the
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42 State Anxiety Inventory (STAI_Y2) [14]. The STAI_Y2 is a self-report questionnaire
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44 composed of 20 items asking how often the participants experienced the anxiety state
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46 described in each item on a 4-point Likert scale. For the current study, Cronbach's alpha
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48 was .90.
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51 The level of women's depression was assessed using the Italian version [15] of the
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53 Beck Depression Inventory (BDI) [16]. The BDI is a self-report questionnaire composed of
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55 21 items. Participants choose a sentence among 4 options that best corresponds to their
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57 feelings. In the present sample, Cronbach's value was .83.
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Measures of labor outcomes (T2)

Hospital staff recorded three clinical data of the women's labor experience: the duration of labor measured in hours, and the administration of oxytocin and epidural analgesia, also measured in hours. These clinical data were treated as continuous variables.

Postnatal measure (T3)

In order to measure the women's PPD, one month after childbirth, women were contacted by telephone to answer the Italian version [17] of the Edinburgh Postnatal Depression Scale (EPDS) [18]. The EPDS is a self-report questionnaire consisting of 10 items ranging from 0 to 3, according to increasing severity of the symptom. For the current sample, Cronbach's alpha was .86.

Ethical approval

The survey was conducted in accordance with the guidelines for the ethical treatment of human participants of the Italian Psychological Association. The Ethical Committee of the Local Health Authorities had approved the study (no. 780/2013) and all participants provide written informed consent.

Results

The women had a middle or high educational level, with more than 86% having a high school diploma or university degree. Regarding their employment status, 72% of the women had a job and more than 10% were students. Regarding marital status, 54.3% were married. The length of romantic relationships ranged from 1 to 17 years ($M = 6.31$, $SD = 3.73$).

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4 Results showed that the model tested had an optimal fit to the data ($\chi^2= 9.30$, df
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6 = 6, $P = .157$, $CFI = .99$, $TLI = .98$, $RMSEA = .05$, $SRMR = .02$). The findings revealed
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8 significant effects of maternal prenatal symptomatology on the labor experience. In
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10 particular, both prenatal anxiety and depression during pregnancy resulted to be significant
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12 and positive predictors of clinical aspects of labor. Prenatal depression and anxiety were
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14 also positively linked to PPD. Finally, the level of PPD was predicted in an indirect way by
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16 prenatal anxiety ($\beta = .10$, $P < .01$, $CI\ 95\%: .00$ to $.13$) through the labor experience, but not
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18 by prenatal depression ($\beta = .10$, $P < .05$, $CI\ 95\%: -.02$ to $.20$). All statistical coefficients of
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20 direct effects are reported in figure 1.
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31 Discussion

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Pregnancy and the postpartum period is a delicate time in a woman's life, characterized by biological, psychological and social changes, during which women are at an increased risk of emotional vulnerability and depressive symptomatology, especially during the first pregnancy. Extensive literature has verified that psychopathological prenatal symptomatology represents an important risk factor for more complicated labor [6, 7], more negative child outcome [26, 27], and a higher level of PPD [5]. However, to our knowledge, no studies have explored the role of both prenatal depression and anxiety on PPD, considering in addition the labor experience. Starting from this consideration, the main aim of this study was to examine the association of prenatal depression and anxiety conjointly with PPD, both directly and indirectly, through the labor experience. Overall, our results confirmed that both depression and anxiety during pregnancy are significant risk factors for PPD one month after delivery. Higher levels of these symptoms tend to predict a

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4 worse labor experience in terms of labor length and the amount of oxytocin and epidural
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6 analgesia administered. Moreover, these clinical aspects of labor positively predict a higher
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8 level of PPD. In fact, in line with previous studies, the labor experience has a significant
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10 impact on birth experience evaluation, affecting maternal behaviors, abilities, and self-
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12 esteem, which in turn affect the postnatal mood [10].
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15 Finally, we also found a significant and positive indirect effect of prenatal anxiety
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17 on the development of postnatal depressive symptomatology. These results highlighted the
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19 complex influences that psychopathological symptomatology could have on all aspects of
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21 the path to childbirth. In particular, anxiety and depression during pregnancy have negative
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23 consequences on maternal psychological wellbeing before and after delivery. These
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25 feelings, experienced during pregnancy, can make it difficult for women to have a serene
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27 transition to motherhood, negatively affecting the labor experience and fostering the
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29 development of insecure feelings about themselves, their newborns and their relationships.
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33 Despite the relevance of these results, there are a number of limitations in the
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35 present study. First, the proposed theoretical model cannot be considered exhaustive of the
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37 complex set of variables which may intervene in the relationship between prenatal and
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39 postnatal psychopathological symptomatology. Second, only nulliparous women with a
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41 single fetus without complications were included. Finally, our sample was not very big.
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43 Further studies with larger samples should be carried out to replicate our findings.
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47 Despite these limitations, our results could have relevant clinical and social
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49 implications, suggesting the need for preventive action to detect risk situations during
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51 pregnancy. In fact, the mood of the mother is a critical aspect for helping to improve the
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53 adaptation of women during all phases of the birth and postnatal period. From this point of
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55 view, the presence of psychologists and psychotherapists in the equip of doctors that
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57 accompanies women towards motherhood becomes extremely important. In addition to the
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4 physical and medical problems linked to pregnancy, in fact, aspects more strictly
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6 psychological require the same degree of attention and care, and they cannot be neglected.
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8 For this reason, an interdisciplinary group, in which different professional figures
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10 act together with the purpose of helping women in the transition to motherhood, informing
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12 them of the various possibilities of delivery and about the tools that can facilitate childbirth
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14 (administration of oxytocin, epidural, etc.), by giving them the necessary information about
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16 what is happening and what it implies, from both a medical and a psychological point of
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18 view, would be desirable. This would allow women to experience childbirth with greater
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20 awareness, and not as something imposed by doctors without any explanation.
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29

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Table 1. Descriptive statistics and correlations values of maternal prenatal depression and anxiety, clinical data of delivery and PPD

	M	SD	1	2	3	4	5	6
1. Depression	8.67	5.59	-					
2. Anxiety	35.46	8.11	.74**	-				
3. Delivery length (hours)	7.48	2.34	.41**	.38**	-			
4. Oxytocin (hours)	1.23	1.97	.41**	.43**	.72**	-		
5. Epidural analgesia (hours)	1.97	2.95	.48**	.49**	.69**	.76**	-	
5. Postpartum depression	8.16	5.20	.72**	.69**	.54**	.51**	.61**	-

Note: ** = $p < .001$

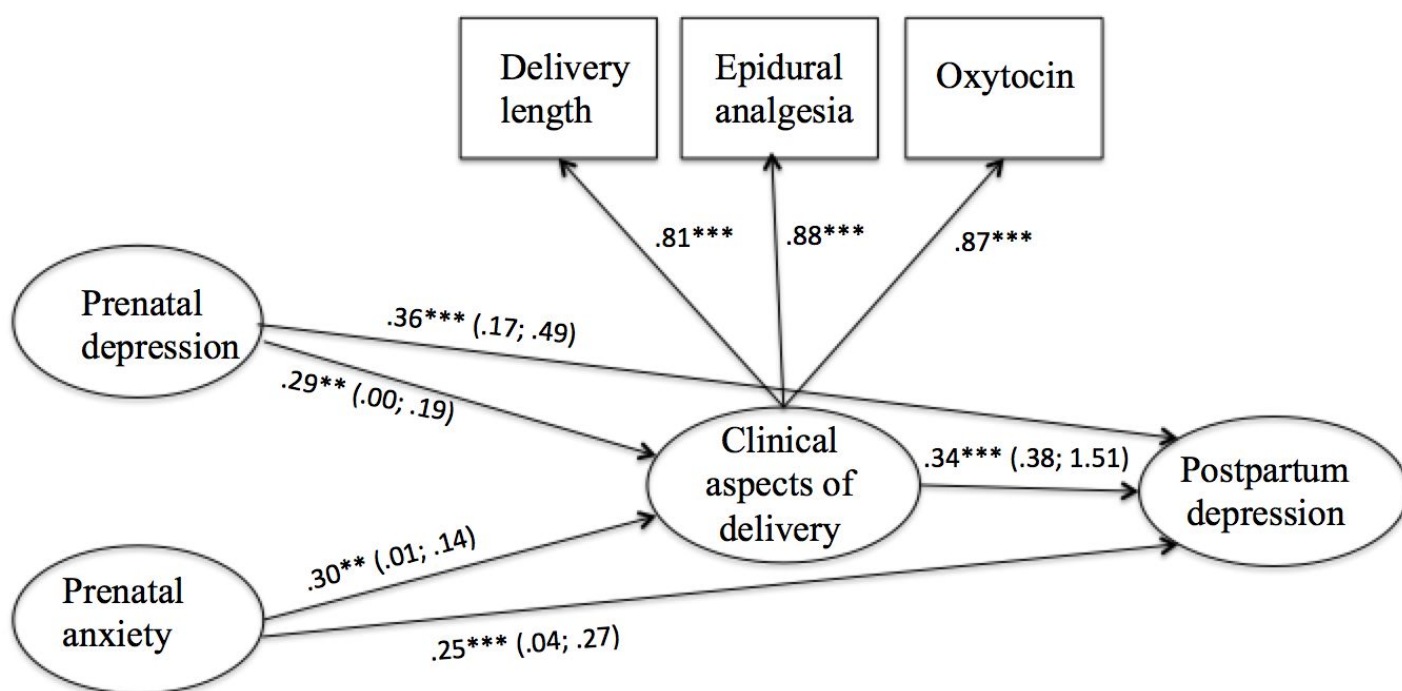


Figure 1. Theoretical tested model and standardized solutions. In parentheses as shown the 95% confidence intervals.