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Can a traumatic childbirth experience affect maternal psychopathology and postnatal attachment bond?

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Abstract

The aim of the present study was to explore the relationship between the experience of childbirth as a traumatic event and the quality of postnatal attachment to child, analyzing the role of depressive symptomatology on this relationship. A sample of 103 women, aged from 26 to 46 years ($M = 35.05$, $SD = 4.51$) filled in questionnaires to assess postpartum stress symptoms related to the childbirth experience, postnatal attachment toward their newborns, and level of depressive symptomatology. A mediation analysis was carried out. The level of postpartum stress symptoms positively affects maternal depressive symptomatology and negatively affects the quality of postnatal attachment. Moreover, the relationship between a traumatic childbirth experience and postnatal attachment is both direct and indirect. In fact, a traumatic childbirth experience also affects the level of postnatal depression that, in turn, negatively affects the quality of postnatal attachment bond. The presence of postpartum distress symptoms affects the well-being of mothers, and these conditions interfere with the ability of women to develop good attachment bonds with their children. These results showed the relevance of paying attention to pregnant women, to help them to live childbirth in a positive and non-stressful way.

Keywords

Traumatic childbirth
Postnatal attachment
Maternal depressive symptomatology
Postpartum distress symptoms

Introduction

Childbirth represents an important turning point in a woman's life and brings with it a wide range of psychological, physical and social effects. No other event represents such a critical period of life for a woman's adjustment, triggering crucial developmental changes in her personal and social identity (Cigoli et al. 2006). Therefore, it is not surprising that giving birth to a child could be experienced by women as an event full of ambivalent emotions: together with the joy of the first meeting with their children, mothers can in fact experience an intense emotional vulnerability, negative feelings such as anxiety, fear of pain, and loss of control (Junge et al. 2018), stress, and possible physical injuries (Maimburg et al. 2016). In this regard, although childbirth is generally a satisfactory and rewarding experience, for approximately one third of women it is a distressing and traumatic event (Dekel

et al. 2019; Grekin and O'Hara 2014), to the point of developing posttraumatic stress disorder (PTSD), with a prevalence range from 2.8% to 5.6% at 6 weeks postpartum, and approximately 1.5% at 6 months postpartum (Olde et al. 2006). This condition involves a wide range of symptoms, including maladaptive beliefs, the implementation of avoidance behavior, the revival of flashbacks, the presence of nightmares, dissociation experiences, a sense of threat, shame, anger and terror (Ayers et al. 2007; Callahan et al. 2006). Given that a history of spontaneous and/or induced termination of pregnancy is consistently associated with PTSD, some authors suggest that the effect of these experiences may be triggered by subsequent deliveries (Reardon 2018), thus enhancing the risk for childbirth PTSD.

At the same time, the way in which women experience childbirth influences not only their health, but also the wellbeing of their children, as well as the quality of attachment bond they develop (Dekel et al. 2019; Elmir et al. 2010; Tani and Castagna 2017). To this regard, recent empirical and clinical studies have shown that a positive childbirth experience represents a significant predictor of a mother's psychological wellbeing that, in turn, constitutes a fundamental precondition, given that she could develop an adequate self-efficacy feeling towards breastfeeding (Hinic 2016) and improve her skills to care for her child (Tani and Castagna 2017). In contrast, women who have difficult or traumatic childbirth experiences present frequent intrusive thoughts and symptoms of hyperarousal and/or avoidance, which make it difficult for them to be emotionally in touch with their newborns, including desire for interaction and closeness with their children (Davies et al. 2008). Consequently, they may show low levels of postnatal maternal attachment to their children (Dekel et al. 2019).

However, findings on the association between postpartum PTSD and the mother-infant attachment bond are inconsistent (Cook et al. 2018). Some studies have found no significant association between mothers' post-partum stress symptoms and their postnatal attachment toward their newborns (Ayers et al. 2007; McDonald et al. 2011; Parfitt et al. 2014). In contrast to these findings, other studies found significant links between maternal PTSD symptoms and the attachment relationship developed by a mother with her infant. Mothers with full or partial post-partum stress symptoms tend to describe their infants as significantly more invasive and difficult in temperament. Moreover, these women report their attachment bond to their children to be less than optimal, characterized by a greater level of feelings of hostility towards the child and, at the same time, lower levels of desire for closeness and pleasure in interaction (Davies et al. 2008; Parfitt and Ayers 2009).

Therefore, additional variables are needed to explain the inconsistency of these results and understand the link between childbirth experience and postnatal attachment. To this aim, we hypothesized that a significant role could be played by postpartum depression (PPD), since recent studies have shown that a difficult or traumatic childbirth is associated with a higher probability of developing this psychological disorder (Olde et al. 2006; Tani and Castagna 2017).

PPD is a disabling mental disorder that constitutes one of the most common psychological complications related to the puerperium (Howard et al. 2014). According to the DSM-5, 3–6% of women have a depressive episode during pregnancy or in the weeks or months after birth (APA 2013). At the moment, the prevalence of PPD varies considerably in different countries, ranging from 6.5 to 12.9% (Stewart and Vigod 2016) up to 13–19% (O'hara and McCabe 2013). PPD symptoms are similar to those of depressive disorders, including sadness, frequent crying, despondency, emotional lability, anxiety, loss of appetite, pleasure, interests and energy, suicidal ideation, sleep disturbances, difficulty concentrating, memory difficulties, feelings of fatigue and irritability (Robertson et al. 2004; Wisner et al. 2013). However, there are typical depressive thoughts that accompany this specific disorder, such as self-doubt, self-accusation, and feelings of guilt, which focus on a specific and circumscribed theme, namely motherhood (Schipper-Kochems et al. 2019). These specific depressive thoughts are related to: not meeting the standards of the perfect mother, not being able to love one's own child enough, obsessive concern for the health and feeding of the child, and fear of causing harm to the child (Davies et al. 2008; Robertson et al. 2004; Wisner et al. 2013; Esscher et al. 2016).

Literature has amply demonstrated that maternal depression, especially if untreated, increases the risk of a multitude of serious long-term consequences for the woman, her child and their attachment bond (O'hara and McCabe 2013; Forman et al. 2007; Tronick and Reck 2009). In fact, PPD significantly influences the mother's ability to perform her role adequately (Vismara et al. 2016) and this, in turn, increases the risk of negative outcomes for the general wellbeing of women and their newborns (Van den Bergh et al. 2005; Smorti et al. 2019a, b). Moreover, the presence of depressive symptoms in the postpartum period is correlated with a poorer emotional bond of the mother towards her child (Ohoka et al. 2014; Rossen et al. 2016).

Starting from the above considerations, we hypothesized that a traumatic childbirth experience would have both direct and indirect effects on a mother's postnatal attachment to child. Specifically, we supposed that a traumatic or stressful childbirth experience would constitute a risk factor, increasing the development of

postpartum depression, which, in turn, could affect the subsequent postnatal attachment. Consistent with this hypothesis, the main aim of this study was to analyze the impact that a childbirth experience lived as a traumatic event could have on postnatal attachment by exploring the mediating role of the presence of postpartum depressive symptoms in new mothers.

Method

Participants and Procedure

A sample of 103 women, aged from 26 to 46 years ($M = 35.05$; $SD = 4.51$), was recruited between 1 September 2018 and 31 March 2019 for the present study. Women in the maternity ward of a public University Hospital of the metropolitan area of Pisa were invited to participate. The study was approved by the Ethical Committee of the Local Health Authorities (CEAVNO) (n. 12,749/2018). Inclusion criteria were: a) age > 18 years old; b) able to speak and read Italian; c) no previous psychopathological diagnosis; d) singleton and no risk pregnancy; e) no previous spontaneous or induced termination of pregnancy. Pregnant women were informed about the study and its purposes, and that after delivery and during hospitalization they would be asked to complete a questionnaire, as well as being contacted via email to complete a battery of questionnaires three months after childbirth. The women recruited were informed that they could withdraw from participation at any time, that their participation was voluntary, and they would receive no payment, in accordance with the guidelines for ethical treatment of human participants of the Italian Psychological Association. Written formal consent was obtained from all participants.

Patient enrolment for this study took place during a routine medical visit at the maternity ward of Pisa University Hospitals between the 32nd and 40th week of gestation. Once the women gave informed consent for participation in the two phases of the study, they filled in the questionnaires regarding demographic characteristics. The first phase took place at 2 days post-partum (T1). During hospitalization, women were asked to complete a questionnaire to assess postpartum stress symptoms specifically related to the childbirth experience (PPQ). The second phase of the study (T2) was carried out three months after childbirth, when the mothers completed the MPAS and EPDS via an online questionnaire sent by email.

Measures

Women were asked to fill out a questionnaire with their socio-registry data (age, educational level, and occupational status), and information about their marital status (married or cohabitant), pregnancy (planned or unplanned), and whether they had had previous pregnancies. Two days after delivery and during hospitalization, women were asked to complete a questionnaire aimed at assessing post-partum stress symptoms specifically related to the childbirth experience (PPQ). Then, at three months after childbirth, they received an email with a battery of questionnaires aimed at assessing postpartum depression and maternal attachment toward infant. The questionnaire used in this study is reported above.

In particular, the Italian version of *Perinatal PTSD Questionnaire* (PPQ; Callahan et al. 2006; Di Blasio et al. 2015), which assesses the post-partum stress symptoms in reference to the childbirth experience, was used. It is a 14-item questionnaire on the frequency of post-traumatic distress symptoms concerning childbirth that women rate on a 5-point Likert scale from 0 (not at all or never) to 4 (very often). The total possible score on the PPQ ranged from 0 to 56, with high scores signifying a higher experience of perinatal post-traumatic distress. In the present sample, the Cronbach's alpha was .74.

The early attachment bond between a mother and her newborn infant was assessed using the Italian version of the *Maternal Postnatal Attachment Scale* (MPAS; Condon and Corkindale 1998; Scopesi et al. 2004). This scale consists of 19 items describing maternal thought, feelings and emotions toward her infant. Women answer by indicating the frequency such experiences occur, rating them on a 5-point Likert scale from 1 (very frequently) to 5 (never). The sum of the 19 items forms the total MPAS scale, ranging from 19 to 95, with a high score on this dimension reflecting a higher mother-to-infant attachment bond. In the present sample, the internal consistency value was satisfying, with a Cronbach's alpha of .87.

In order to assess the mother's postpartum depression, the Italian version of the *Edinburgh Postnatal Depression Scale* was used (EPDS; Cox et al. 1987; Benvenuti et al. 1999). The EPDS is a 10-item self-report questionnaire regarding various clinical depression symptoms (such as the level of sleep disorders, guilt feelings, lack of energy, the presence of anhedonia and suicidal ideation). Respondents reported how often they experienced depressive symptoms by rating them on a 4-point Likert scale (from 0 to 3). The total score of EPDS ranges from 0 to 30, and higher scores correspond to a higher severity of depressive symptoms experienced by the women. In the present study, the EPDS showed good internal consistency, with a Cronbach value of .84.

Data Analysis

Descriptive statistics and bivariate correlations were calculated for all variables.

In order to verify whether differences in post-partum distress symptoms (PPDS), postnatal attachment (MPAS) and depression (PPD) were related to socio-demographical characteristics of women (work status, marital status, planned or unplanned, and primiparous and multiparous pregnancy) a series of *t*-tests was conducted. No statistical comparison was performed on educational status considering the high homogeneity of this variable: more than 94% of the women were well educated and only 6 women had a low educational level. Finally, mediational analysis was performed to test the hypothesized model, using the Maximum Likelihood estimator (ML; Muthén and Muthén 1998-2007). In order to examine the significance of the mediation effects in analysis, the bootstrapping method and bias-corrected 95% confidence intervals were used, using 1000 resamples.

Results

More than 94% of the participants had a middle or high socioeconomic level, with 35% having a high school diploma and 59.2% a university degree. Regarding work status, 87.4% had a job. Moreover, 76.7% of the women were married and the other 23.3% lived with their partners. For 73.8% the pregnancy was planned. Finally, for 65% of the women this was their first baby, while 29.1% already had a child, and 5.8% had two children.

No significant differences in postpartum distress symptoms (PPQ), postnatal attachment (MPAS) and postpartum depression (EPDS) emerged in relation to the socio-demographical variables considered. Therefore, these are not included in the subsequent analysis.

In Table 1, the mean, standard deviation, skewness, kurtoses and bivariate correlation calculated for postpartum distress symptoms (PPQ), postnatal attachment (MPAS) and postpartum depression (EPDS) are reported.

Table 1

Descriptive statistics and bivariate correlations for all variables

	M	SD	Skewness	Kurtosis	1	2	3
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*** $p < .001$, ** $p < .01$; PPQ: *Perinatal PTSD Questionnaire*; MPAS: *Maternal Postnatal Attachment Scale*; EPDS: *Edinburgh Postnatal Depression Scale*

	M	SD	Skewness	Kurtosis	1	2	3
1. PPQ	6.52	4.88	.907	.271	–	–.66 **	70**
2. MPAS	82.47	7.74	–.807	.529		–	–.70**
3. EPDS	5.40	4.59	1.05	.721			–

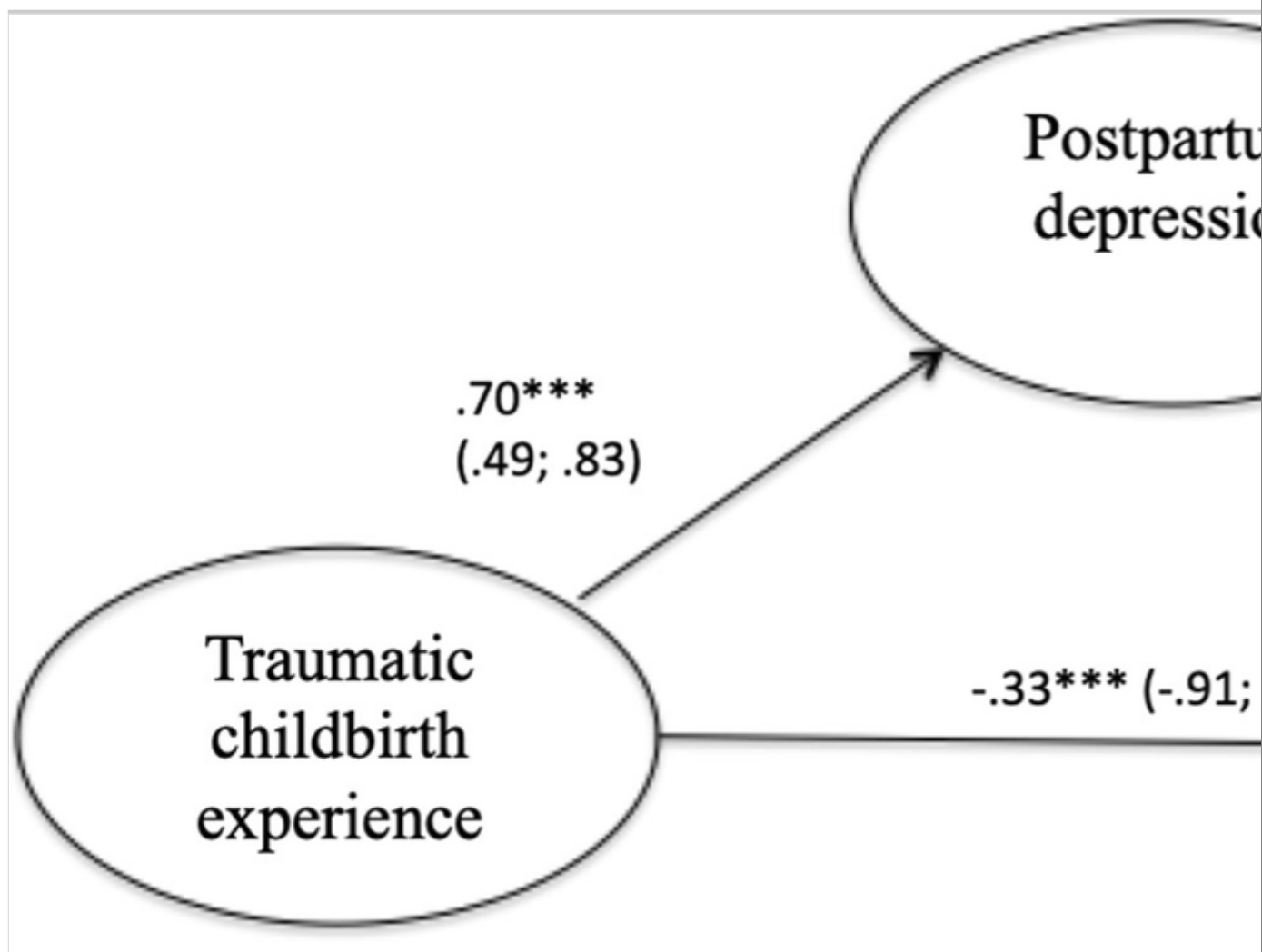
*** $p < .001$, ** $p < .01$; PPQ: *Perinatal PTSD Questionnaire*; MPAS: *Maternal Postnatal Attachment Scale*; EPDS: *Edinburgh Postnatal Depression Scale*

The results showed significant correlations between variables. In particular, high levels of postpartum distress symptoms were positively linked to postpartum depression. Moreover, postnatal attachment was negatively correlated with the level of postpartum distress symptoms and postpartum depression.

Finally, mediational analysis showed significant paths among variables. In fact, as reported in Fig. 1, the levels of postpartum distress symptoms have significant and positive effects on the level of postpartum depression and significant and negative effects on postnatal attachment. In other words, high levels of postpartum distress symptoms are linked to higher levels of postnatal depression and lower levels of postnatal attachment. Moreover, postpartum depression has a negative effect on postnatal attachment; in fact, high levels of postpartum depression are associated to lower levels of postnatal attachment. Finally, the relationship between postpartum distress symptoms and postnatal attachment is both directly and indirectly mediated by the level of postnatal depression ($\beta = -.33$, $p < .001$; CI 95%: $-.82$; $-.21$).

Fig. 1

Theoretical tested model and standardized solutions. In parentheses as shown the 95% confidence intervals. *Note.* *** $p < .001$



Discussion

The main purpose of this study was to explore the role that a childbirth experience lived as a traumatic event plays on the onset of the mother's attachment bond towards her newborn. As we have already stated, recent literature is not consistent (Cook et al. 2018). In particular, while some authors have observed that the presence of postpartum distress symptoms negatively affects the development of a secure maternal attachment bond to the newborn (Dekel et al. 2019), other authors have not found this association (Ayers et al. 2007; McDonald et al. 2011). Moreover, to our knowledge, the role that postpartum depression has on this relationship is not clear; therefore, this study offers an empirical contribution, enhancing knowledge in this field and exploring both the direct and indirect through the mediational effect of the presence of postpartum depression symptoms.

Overall, our results have highlighted that a traumatic childbirth experience is strictly linked to the development of the attachment bond between a mother and her

newborn. Specifically, post-partum stress symptoms resulting from an experience of difficult or traumatic childbirth negatively influence the development of a mother's postnatal attachment towards her newborn, both directly and indirectly, through the presence of postpartum depressive symptomatology. Indeed, alongside the direct path, the presence of stress related to childbirth also contributes to the onset of postpartum depression, which in turn interferes with the onset of a positive postnatal attachment.

Therefore, our results are consistent with previous studies, which have shown that a traumatic or stressful childbirth experience interferes with the maternal skills to develop a secure attachment bond (Dekel et al. 2019). In fact, when childbirth is experienced negatively and relived in an intrusive way, it can lead the mother to be less responsive and have less desire to be emotionally close to her child (Davies et al. 2008). Moreover, data are consistent with findings indicating that the way in which childbirth is experienced by a woman is strictly linked to the onset of postpartum depressive symptomatology (Olde et al. 2006; Tani and Castagna 2017), a condition that, as well as entailing serious consequences for the wellbeing of both mother and child (Van den Bergh et al. 2005; Smorti et al. 2019a; Smorti et al. 2019b), has significant and negative impacts on maternal responsiveness (Vismara et al. 2016). In line with previous studies (Ohoka et al. 2014; Rossen et al. 2016), our results highlight that women with symptoms of postpartum depression report a poorer attachment bond to their newborns.

Despite the interest of the aspects investigated, this study has some limitations. First, the proposed theoretical models are not thorough, and other variables may play predictor roles for the onset of a mother's postpartum depression and the quality of her early attachment bond with her newborn.

Second, the inclusion criteria are a limitation, since only women without previous psychopathologies and with singleton and no risk pregnancies were included. Therefore, in order to give greater validity to our results, it would be interesting to include other psychological and clinical conditions; for example, a previous maternal psychopathology, or a multiple or risk pregnancy, to better understand the links between the variables taken into consideration. The characteristics of the sample is another limitation. In fact, most of the women were well-educated and employed. This aspect could reduce the generalizability of our results.

Despite the aforementioned limitations, the findings of the present study could have important clinical and social implications, providing a relevant contribution to the knowledge of the onset of postpartum depression and the quality of early bonding

between mothers and their newborns. Specifically, the present study underlines the importance of helping mothers live the childbirth experience in a positive and non-stressful way. This is an important protection factor from the development of postnatal depressive symptoms and allows mothers to connect emotionally with their children by establishing good postnatal attachment. Moreover, results of this study suggest the relevance of intervention aimed at reducing post-traumatic stress symptoms. In this direction, narrative-based intervention for the attribution of coherent meanings for traumatic childbirth experiences may be effective both for the improvement of the well-being of women with high levels of PTSD symptoms and the interception of critical situations, which could become chronic (Di Blasio et al. 2015). In fact, as hypothesized in a previous study, “writing about the experience of childbirth, particularly if it is stressful and characterized by ambivalent emotions, brings to light discrepant and contradictory thoughts and perceptions, which can activate avoidance mechanisms requiring time to be processed” (Di Blasio et al. 2015, p.225). The tendency to avoid thoughts and emotions may bring about a cold, and detached attitude, while the elaboration of unconscious and automatic avoidant negative thoughts may promote wellbeing and psychological health (Di Blasio et al. 2015).

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Compliance with Ethical Standards

Conflict of Interest Authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of Ethical Committee of the Local Health Authorities (CEAVNO) (n. 12,749/2018) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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