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Postpartum Stress Symptoms and Child Temperament: A Follow-Up Study

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ABSTRACT: The aim of this research is to investigate whether postpartum stress symptoms may persist through time and whether these symptoms may be connected to temperamental characteristics of the child. The underlying hypothesis is that child temperament may both affect stress symptom persistence and itself be a stress source for the mother. The results indicated that women with chronic stress symptoms had children classified as "slow to warm-up"; in contrast, women that have shown stress symptoms only after delivery and women that have never showed stress symptoms had children classified as "easy."

KEY WORDS: childbirth, PTSD, postpartum disorder, child temperament.

Introduction

This study is a follow-up research on a sample of women tested both after delivery and eighteen months after childbirth. This work investigates whether postpartum stress symptoms may persist through time and whether they may be connected to the temperamental characteristics of the child.

In fact, it has been emphasized that the temperament of the child may affect the mood of the mother (Edhborg, Seimyr, Lundh, & Windstroem, 2000; Murray 2001) and that temperamental difficulties are strictly connected to postpartum diseases (Rothbarth, & Ahadi, 1994; Derryberry & Rothbarth, 1997; Goldsmith, Buss, & Lemery, 1997; Rothbarth & Bates, 1998; Susman, Schmeelk, Ponirakis, & Gariepy, 2001).

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Postpartum Disorders

Giving birth can be one of the most emotionally rewarding experiences in a woman's life. While life with a new baby can be thrilling and rewarding, it can also be hard and stressful at times: many physical and emotional changes can happen to a woman when she is pregnant and after she gives birth. These changes can leave new mothers feeling sad, anxious, afraid or confused, and could arouse different kinds of symptoms (more or less serious, short or long term).

Among possible postpartum disorders we find "mood disorders" or "baby blues," an extremely common reaction occurring in the first few days after delivery, usually appearing suddenly on the third or fourth day. Fifty to 75% of all new mothers experience this feeling of letdown after the emotionally charged experience of birth. Symptoms may include crying for no apparent reason, impatience, irritability, restlessness and anxiety. This is the most common, the least severe, and the best known of the postpartum reactions. Symptoms of the blues are brief and unpleasant and usually disappear on their own, sometimes as quickly as they came (Stein, 1982; Prezza, Di Mauro, Giudici, Violani, Vaccari, & Faustini,1984; O'Hara, Zekoski, Phillipps, & Wright, 1990; Martinez, Johnston-Robledo, Ulsh, & Chrisler, 2000; Seyfried, & Marcus, 2003).

Another frequent and well-known postpartum disease is postpartum depression. At least one in 10 new mothers experiences various degrees of postpartum depression. Postpartum complications can occur within days of the delivery or appear gradually, sometimes up to a year or so later. A woman suffering from postpartum depression will usually experience several symptoms ranging from mild to severe. She may experience alternating "good" days and "bad" days. Although postpartum depression does not take the same form for every woman, all of the symptoms can be equally distressing and often leave the woman feeling ashamed, guilty and isolated (Campbell S.B., Cohon J.F., 1991; Gotlib I.H., Whiffen V.E., Wallace P.M. Mount J.H., 1991; Rossi N., Bassi L., Delfino M.D., 1992; Appleby L., Gregoire A., Platz C., Prince M., Kumar R., 1994; Areias M.E.G., Kumar, R., Barros H., Figureido E., 1996; Chabrol, Saint-Jean, Teisseyre, Roge, & Mullet, 2002; Cooper, Murray, Wilson, & Romaniuk, 2003; Murray, Cooper, Wilson & Romaniuk, 2003; Seyfried, & Marcus, 2003).

Postpartum Psychosis (PPP) is the most severe and, fortunately, the rarest postpartum disorder. It occurs in about 1 out of 1000 women who give birth. Onset is sudden and usually occurs within the first 2–3 weeks. Symptoms of PPP are very extreme and involve a loss of touch with reality. These symptoms may include hallucinations, delusions,

severe insomnia, extreme anxiety and agitation, suicidal or homicidal thoughts; bizarre feelings and behavior (Kruckman & Smith, 1998; Noncas and Cohen, 1998; Seyfried, & Marcus, 2003).

It is only comparatively recently that it has become accepted that women can develop posttraumatic stress disorder (PTSD) symptoms following childbirth. The incidence of PTSD symptoms ranges from 2% to 33%. The symptoms usually onset after a few days, weeks or even months after delivery and may become chronic and result in depression symptoms. This disorder is a complex set of symptoms, mainly anxiety related, that result from and persist after exposure to extreme stress. The main symptoms of PTSD include persistent re-experiencing of the traumatic event, persistent avoidance of stimuli associated with childbirth and emotional numbing and symptoms of hyper-arousal. Although some health professionals may not perceive childbirth as a traumatic event, birthing women have reported experiencing intense fear, helplessness, and loss of control (Menage, 1993; Ballard, Stanley, & Brockington, 1995; Fones, 1996; Reynolds, 1997; Wijma, Soderquist, Wijma, 1997; Creedy, Shochet, & Horsfall, 2000; Czarnocka & Slade, 2000; Nightingale & Williams, 2000; Ayers & Pickering, 2001; Di Blasio & Ionio, 2001; 2002; Keogh, Ayers & Francis, 2002; Bailham and Joseph, 2003).

What Causes Birth-associated Disorders to Arise?

Many studies have shown how postpartum disorders can be connected with both biological factors (O'Hara & Zekoski, 1988; Harris, Lovett, Smith, Read, Walzer, & Newcombe, 1996; Murray, 1996; Gregoire, Kumar, Everitt, & Studd, 1996) and psychological and social factors (Campbell & Cohn, 1991; Gotlib et al., 1991; Romans, Walton, McNoe, Herbison, & Mullen, 1993).

In particular, it was emphasized how hormonal biological alterations are particularly connected to "baby blues," while the presence of difficult psychosocial conditions—like, for example, conflicts in the couple (Gotlib et al., 1991), lack of a support (Romans et al., 1993), economic difficulties (Rigetti-Veltema, Conne-Perreard, Bousquet, & Manzano, 1998)—and of individual psychological factors—like high anxiety levels (Walther, 1997) and low self-esteem (Hall, Kotch, Browne, Rayens, 1996; Fontaine & Jones, 1997)—can play a fundamental role in the onset of depression and postpartum psychosis.

There are still few studies which have analyzed posttraumatic stress disorder in relation to childbirth. Some studies (Ballard, Stanley, & Brockington, 1995; Wijma, et al., 1997; Hynan, 1998; Quinnel & Hynan,

1999; Creedy, Shochet, & Horsfall, 2000; Czarnocka & Slade, 2000; Nightingale & Williams, 2000; Ayers & Pickering, 2001; Keogh, Ayers & Francis, 2002; Bailham and Joseph, 2003) have called attention to how posttraumatic symptoms, as the result of childbirth, can be connected to various factors like: expectations regarding pregnancy and childbirth, the ability or lack of ability to tolerate physical pain during labor, the sense of loss of control during childbirth procedures, the threat to the wholeness of one's body, the lack of information concerning the procedures practiced by the health professionals and the birth of a child with serious pathological conditions.

Postpartum Disorders and Child Temperament

Only recently has the importance been underlined of assessing whether the temperament of the child may affect, in the short and in the long term, the mood of the mother, and whether temperamental difficulties may be closely connected to postpartum diseases (Rothbarth, & Ahadi, 1994; Derryberry & Rothbarth, 1997; Goldsmith, Buss, & Lemery, 1997; Rothbarth & Bates, 1998; Edhborg, Seimyr, Lundh, & Windstroem, 2000; Murray 2001; Susman, Schmeelk, Ponirakis, & Gariepy, 2001).

Contemporary theories about temperament suggest that it has biological roots but also that it is influenced by environmental processes (Susman et al., 2001). Temperament is not static but adaptive to environmental demands (Rothbarth, & Ahadi, 1994) and influences (Goldsmith et al., 1997). Some authors (Derryberry & Rothbarth, 1997; Rothbarth & Bates, 1998) have underlined that temperament systems are functional at birth but become more complex and organized with advancing development, being responsive to environmental demands. Susman and colleagues (2001) argued that postpartum environment possibly acts as a regulator of infant brain development and temperament, so that postpartum disorders are expected to be related to temperament, these emotions affecting the quality of future mother-child interactions.

On the other hand, Edhborg and colleagues (2000) found that the perception of the temperament of the child is connected to the depression of the mother. In fact, the authors underlined that depressed mothers and their partners perceived their children as more temperamentally difficult than couples in families with a non-depressed mother. The depressed mothers perceived their infants as more difficult to care for and more bothersome than did the non-depressed mothers. These findings suggest that postpartum depression is associated with an

identifiable pattern of infant behavior that may exacerbate depressed women's mood.

Murray (2001) argued that it does seem that the infant's behavior early on is important. This is not because it is directly responsible for difficult child behavior later on, but because it adds to the risk of depression, which in turn can lead to problems in the relationship between mother and infant, setting in motion a longer term pattern of maternal rejection and difficult child behavior. The author underlined the importance of giving support to mothers in the early months and particularly to vulnerable mothers of difficult infants, in order to help prevent later child problems from developing.

The Previous Research

The present study originates from previous works conduct by Di Blasio and Ionio (2002), in which the authors emphasized the stressful nature of childbirth and analyzed the effect that elaboration of anxiety content connected to the experience of labor and delivery has on the onset and duration of stress symptoms.

In our research, a group of 64 women with healthy pregnancy and a stable couple relationship was examined after delivery with the Perinatal Post Traumatic Stress Disorders Questionnaire (P.P.Q.; De Mier, Hynan, & Harris, 1996; Hynan, 1998; Quinnel & Hynan, 1999) to assess postpartum stress symptoms. Half of the sample was asked to express their emotion experienced during labor and delivery through a written account.

They found that women who were asked to write about their emotions linked to child delivery showed a lower number of symptoms in the short term (two days after child delivery). In particular, this was true for the symptoms of "avoidance," which usually provokes estrangements, anxiety and rejection of the stimuli, and of "hyper-arousal," which in turn leads to irritability, hyper-control and worries about the occurrence of negative events.

A later analysis conducted after two months using the same questionnaire (PPQ), on the symptoms of PTSD, underlined the persistence of symptoms, especially in women who had not expressed in writing their negative emotions connected with childbirth.

On the basis of these results we were encouraged to follow the evolution of PTSD with a follow-up study to verify whether, 18 months after childbirth, symptoms with these characteristics were still present, and if so with which characteristics. Among the factors, which are mentioned in the literature as connected to the manifestation of

symptoms (social problems, difficulties with the partner, psychological problems in the mother, characteristics of the child) in the months following childbirth, we chose to investigate that factor linked to the temperamental characteristics of the child. In fact, our original sample (Di Blasio & Ionio, 2002) was composed of women belonging to the middle class, without particular social problems and with a stable relationship with the partner, and was originally selected, through the administration of the MMPI, which had already permitted the exclusion of women with psychological problems.

Starting from the above considerations, the aim of this study is to investigate whether postpartum stress symptom persistence may be connected to the temperamental characteristics of the child.

The underlying hypothesis is that child temperament may both affect the persistence stress symptoms and itself be a source of stress for the mother.

Method

Participants

The sample included 36 out of 64 women that attended the previous stages of the research (Di Blasio & Ionio, 2002). The decrease of 44% in the sample number can be attributed both to the refusal of the participants to take part in this further phase of the research and to the impossibility of making contact with them because of changes of address.

The women were aged from 26 to 42 years (mean = 34.47), and most of them were well educated (42% with degrees, 50% with a high school certificate, and 8% without a high school certificate). All the women had a stable affective relationship and a healthy pregnancy. Fifty-four percent of the sample was nulliparous, and 46% were multiparous.

Instruments

The following measures were completed by women eighteen months after their delivery:

1) Perinatal Post Traumatic Stress Disorders Questionnaire (P.P.Q.) set up by De Mier and colleagues (1996) and validated by Quinell and Hynan (1999). The PPQ is a 14-item, dichotomously scored questionnaire; the first three items describe symptoms of persistent re-experiencing of the traumatic event (Criterion B); the next six describe symptoms of persistent avoidance or

emotional numbing of responsiveness (Criterion C); and the last five items describe symptoms of increased physiological arousal (Criterion D). In accordance with the indications of De Mier et al. (1996) and of Quinell et al. (1999), we did not carry out an evaluation of the answers in a clinical-diagnostic way, related to the DSM-IV (American Psychiatric Association, 1994) criteria to reveal the stress symptoms, and consequently we performed a count of the number of symptoms. In fact the questionnaire proved to be "a valid measure of emotional distress ... but not proper to a differential diagnosis of PTSD" (De Mier *et al.*, 1996, p. 279).

2) An interview built to assess the nine behaviors studied by Thomas and Chess in their research (1977; 1982) in order to understand temperament in children.

The women were first asked to describe their child freely. Then we assessed, by questioning, the children's activity level, rhythmicity, approach-withdrawal, adaptability, threshold of responsiveness, intensity of reaction, quality of mood, distractibility and attention span.

Then the descriptions of the child were coded and scored for each of the nine categories by two independent referees so as to classify the children as "easy," "difficult," "slow to warm up," according to the Thomas and Chess classification.

Procedure

This follow-up study was conducted eighteen months after childbirth. The sample was contacted by telephone because "the benefits of telephone interviews are reported to outweigh those of mailed questionnaires, since the response rate and accuracy of information tend to be higher" (Creedy, Shochet, & Hoesfall, 2000, p. 105).

The women were asked to answer the Perinatal Post Traumatic Stress Disorders Questionnaire (PPQ) items and then asked to describe the characteristics of their child. All the interviews were audio recorded and then transcribed verbatim. The coding of the descriptions of the characteristics of the children was done by two independent referees and then the interrater reliability was weighted up.

Results

Changes of Stress Symptoms Through Time

From the coding of the P.P.Q. it is possible to see that postpartum stress symptoms change through time (see Table 1).

Table 1
Changes of Stress Symptoms Through Time

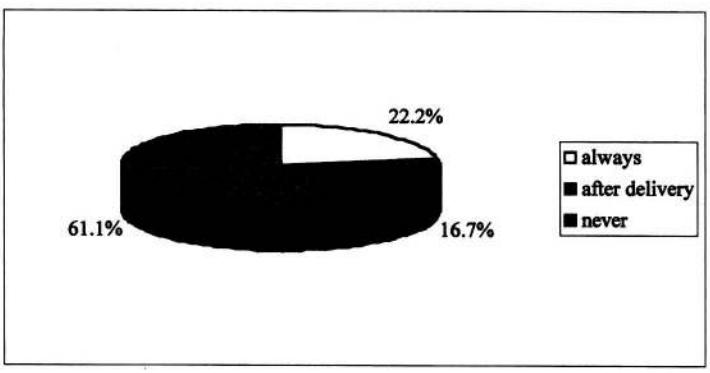
	2 days (64 women)		*2 months (64 women)*		*18 months (36 women)*	
	M	*S*	*M*	*S*	*M*	*S*
Re-experience	1.03	(.67)	.75	(.71)	.39	(.64)
Avoidance	1.59	(1.18)	1.63	(1.29)	1.19	(.89)
Hyperarousal	3.23	(1.11)	2.89	(1.06)	2.06	(1.55)
Total Symtoms	5.86	(2.15)	5.27	(2.18)	3.64	(2.27)

In particular, data has shown that the presence of symptoms of unexpected feelings and thoughts connected to child delivery decreases progressively and constantly through time; symptoms of avoidance of unpleasant thoughts, feelings, places connected to the trauma are more frequent two months after delivery; and hyperarousal symptoms, although they decrease through time, continue to be present in large numbers.

In particular, starting from the data obtained through the three sessions of the study, we observed that:

- 22.2% of the women (N = 8) showed post traumatic stress symptoms both after delivery and eighteen months later;
- 16.7% of the women (N = 6) showed post traumatic stress symptoms only after delivery (from two days to two months);
- 61.1% of the women (N = 22) never showed stress symptoms.

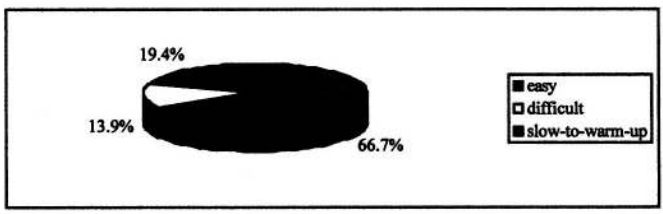
Figure 1
Percentage of the Presence of Stress Symptoms



Children's Temperament

The interviews done to assess the temperamental characteristics of the children have shown that 24 out of 36 children (66.7%) of our sample may be classified as "easy"; 5 out of 36 (13.9%) may be classified as "difficult"; and 7 out of 36 (19.4%) may be classified as "slow-to-warm-up."

Figure 2
Children's Temperament



Is Postpartum Stress Symptom Persistence Connected to Temperamental Characteristics of the Child?

Our data showed a significant difference between the persistence of stress symptoms and the temperamental characteristics of the child (Chi-square = 14.347; d.f. = 4; $p < 0.01$; Contingency Coefficient = .534).

In particular, most women (5 out of 8) who continue to present a high number of stress symptoms eighteen months after the childbirth describe the temperament of the child as "slow to warm up."

The women who, on the other hand, have suffered posttraumatic symptoms only in the period immediately after childbirth describe their children as "easy". A similar description of child with an easy temperament is also given by most of the women (16 out of 22) who did not present stress symptoms either immediately after childbirth or in the following months. However, a minority of subjects belonging to this group describe their child as having a temperament which is slow to warm up (see Table 2).

Discussion

The data in this study showed that in 22% of the cases, PTSD symptoms persist for a long time and are still present 18 months after

Table 2
Postpartum Stress Symptoms and Temperamental Characteristics

	Easy	*Difficult*	*Slow-to-Warm-Up*	*Total*
Always	2	1	5	8
After delivery	6	0	0	6
Never	16	4	2	22
Total	24	5	7	36

childbirth. It emerges from the research how the most affected mothers, in whom post traumatic stress disorder with onset after the birth of the child lasts beyond eighteen months after childbirth and thus constitutes a form of prolonged depression, give a description of their children which falls into the category called by Thomas and Chess (1977; 1982) "children who are slow to warm-up." These children are characterized by a combination of negative responses of moderate intensity to new stimuli, by a low level of adaptation, by low activity and by a moderate irregularity of biological functions.

These characteristics of the child, which are certainly the fruit of individual differences, can also be interpreted as the effect of the impairment of the mother's ability to stimulate the child adequately and to represent a competent mediator with the external environment, as a result of the presence of postpartum depression symptoms (Bookman-Livingood, Dean, & Smith, 1983). Numerous authors (Tronick & Gianino, 1986; Dodge, 1990; Murray, 1992) have in fact underlined how depressed mothers, since they are not able to synchronize with their child, cannot regulate his affections and emotions. This maternal incompetence may cause avoidance responses in the interaction with the adult, not permitting him to form a cooperative relationship with the other members of his world.

Some authors (Whiffen & Gottleb, 1989; Edhborg et al., 2000) have on the other hand shown how the presence of depression symptoms may affect the perception of the child's temperamental characteristics: depressed mothers perceive their children as more difficult to look after, and more annoying and demanding, than do non-depressed mothers.

Our data have also shown how mothers presenting stress symptoms only in the period immediately after childbirth and no symptoms at 18 months describe their children as having an "easy" temperament. These children are characterized by regular rhythms both regarding feeling and sleep, by a positive approach to new stimuli, by a high

adaptability to changes and by a prevalently positive mood. Mothers perceiving their child as easy to look after describe the interaction with him as satisfying and gratifying, and perceive themselves as competent mothers capable of responding to the requirements of bringing up the child.

Mothers who have never presented any stress symptoms either after childbirth or in the follow-up give information on the various temperamental profile of their child. Most describe the child as "easy," while fewer describe him as "difficult" or "slow to warm-up."

Conclusion

In conclusion, we should firstly like to mention the difficulty of carrying out follow-up studies, owing to the inevitable reduction of the sample. We should also like to underline that although our results represent pilot data, they highlight the importance of monitoring the evolution of postpartum symptoms through time. In a considerable percentage of cases, in fact, symptoms last and assume characteristics similar to those of depression. Mothers in whom these symptoms persist describe their children as characterized by a temperament which is slow to warm-up and emphasize the negative characteristics. Because of this, they feel incompetent and frustrated and still more depressed. This group of mothers should be carefully followed and monitored, since it presents a combination of risk characteristics.

PTSD symptoms which last for a long time, together with the child's temperamental characteristics and the perception of malaise experienced by mothers in the relationship with the child, represent the essential elements of the pattern which could place at risk the psychological development of the child.

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