A 6-month study of postpartum depression and related factors in Athens Greece

Fragiskos Gonidakis, Andreas D. Rabavilas, Eleftheria Varsou, Georgios Kreatsas, Georgios N. Christodoulou

Abstract

Introduction: Postpartum depression (PPD) affects women in various sociocultural environments around the world during a sensitive period of their lives. The purpose of this study was to investigate the prevalence and time course of PPD in a Greek urban environment as well as possible relations of PPD with certain clinical and sociodemographic factors.

Method: The study was performed on a sample of 402 women that were recruited from a university obstetric clinic in Athens, Greece, during the first 24 hours after delivery. The women completed the Edinburgh Postnatal Depression Scale through telephone interviews. The telephone interviews were conducted the first week as well as the first, third, and sixth month after delivery. The first day after delivery, all women completed the Montgomery-Asberg Depression Rating Scale, the List of Threatening Experience, the State-Trait Anxiety Inventory, the Whitley Index, the Schalling-Sifneos Personality Scale, and the Maudsley Obsessive-Compulsive Inventory. In addition, the Blues Questionnaire was administered the first 3 days and the seventh day after delivery. Other clinical and sociodemographic data were obtained through questionnaires and personal interviews.

Results: A cutoff point of 12 in the Edinburgh Postnatal Depression Scale was used to define PPD. Eighty (19.8%) of the women in the sample experienced PPD during the first 6 months after delivery. The development of PPD was related significantly to the following factors: stressful events during pregnancy (P = .01), maternity blues on the seventh day after delivery (P = .01), obsessive preoccupation with cleaning (P = .04), and judgment that the baby is crying excessively at the first month interview (P = .02).

Conclusion: The women’s emotional condition before and after delivery, obsessionality, and difficulties in regulating the infant’s emotions appear to contribute to the development of PPD during the first 6 months after delivery.

1. Introduction

The first modern clinical observations on postpartum psychiatric disorders were made by Marce [1] in the middle of the 19th century. The International Classification of Disease (10th edition) states that the onset of postpartum depression (PPD) is restricted to the first 6 months after delivery, whereas the Diagnostic and Statistical Manual of Mental Disorder defines PPD as the depressive episodes that develops during the first month after delivery. Postpartum depression affects approximately 10% to 15% of women after delivery [2].

A hypothesis that has been formulated by a number of authors during the 1980s and 1990s was that PPD occurs more frequently in urban westernized societies. This difference has been attributed to both the transformation of family structure from the extended to the nuclear type and the medicalization of childbirth, which deprives women from the protective nature of traditional rituals concerning birth and puerperium [3-5]. Results from more recent studies conducted in Africa [6], the Far East [7,9], and the Middle East [10,11] imply that PPD has similar prevalence rates in different societies and nations around the world. It is interesting, however, that the predicting factors of PPD in these environments are somehow different from those in Western societies. Such examples refer to the sex of the infant [8,12], multiparity [13], and poor accommodation [14].
Although Greece’s social structure is mainly Western European, the Greek society maintains many of its traditions. As in most of the southern European countries, such as Italy and Spain, family ties are still strong even in urban areas. The first months after Greek women give birth, they usually receive a lot of attention and support from their mothers or other close relatives.

This study attempts to investigate PPD in an urban area of Greece during the first 6 months after delivery and its relation to psychosocial and clinical factors.

2. Method

2.1. Study design

This study was conducted in a university obstetric clinic in Athens. For the purposes of the study, 445 women were approached by a clinical psychiatrist the first day after delivery. Most of the approached women were admitted to the clinic on the day of delivery. The inclusion criteria were adequate knowledge of the Greek language (ability to read in Greek), birth of a healthy child (Apgar score of 9-10), and absence of the following: (a) history of psychotic disorder, (b) use of psychoactive substances, and (c) chronic somatic disease. In addition, women that had depression at the time of the first examination (score higher than 20 in the Montgomery-Asberg Depression Rating Scale [MADRS]), were also excluded from the study. This exclusion criterion was adopted to avoid misdiagnosing antenatal depression as PPD. Demographic and clinical data concerning pregnancy, delivery, and puerperium were collected via questionnaires as well as from the women’s medical records.

On day 1 after delivery, all women were asked to complete the Spielberger State-Trait Anxiety Inventory (STAI), the Whitley Index (WI) for hypochondriasis, the Schalling-Sifneos Personality Scale (SSPS), the Maudsley Obsessive-Compulsive Inventory (MOCI), the List of Threatening Experience (LTE) for the period of pregnancy, and, finally, the MADRS.

The women were also asked to complete the Kennerley’s Blues Questionnaire (BQ) every evening for the first 3 days after delivery.

At the end of the first week after delivery and at the end of the first, third, and sixth month after delivery, the women were interviewed by telephone. The BQ was administered during the first of the above interviews and the Edinburgh Postnatal Depression Scale (EPDS) during all 4 interviews. It was also recorded whether the women were breastfeeding and whether, according to their judgment, their babies were crying excessively and/or had sleeping difficulties. If a woman could not be reached in any of the 4 time points of follow-up, no further attempt was made to contact her.

In the case of a woman reporting symptoms of depression, further psychiatric evaluation was suggested. The women that reported during the telephone interviews that they were under treatment for depression were excluded from the next phase of the study.

All women gave informed consent to participate in the study, and they provided us with their telephone numbers to reach them after their discharge from the maternity ward.

2.2. Measurements

(a) The EPDS [15] consists of 10 items with 4 alternative answers for each item. The score for each item varies from 0 to 3, so the maximum score is 30. The EPDS has been widely used because it has high sensitivity and specificity for the diagnosis of PPD [16, 17]. The validation of the Greek edition of EPDS was conducted by Leonardou et al (unpublished data), who calculated the cutoff point for the diagnosis of PPD at 11/12. For our study, we used a cutoff point of 12.

(b) The STAI [18] has been translated and validated for the Greek language by Liakos and Giannitsi [19].

(c) The BQ [20] and the LTE [21] were translated in Greek for the purposes of the study. The translation was done by one of the authors (F.G.) and back-translated by a bilingual psychologist. A panel of experts including 2 psychiatrists, a psychologist, and an obstetrician confirmed the face validity of the 2 scales. The BQ is a validated self-rating scale consisting of 28 questions concerning the emotional state of a woman. The available answers are “yes” or “no,” so the maximum score is 28 and the minimum 0. The LTE is a 12-item scale of stressful life events that has been used successfully in puerperium studies [9]. The LTE includes events such as death, injury or illness, divorce/separation, loss of job, financial or legal problems, and theft. In this study, score in the LTE represents the number of stressful life events that occurred during pregnancy.

(d) The WI for hypochondriasis [22], the revised SSPS for alexithymia [23], the MOCI [24], and the MADRS [25] have been translated, back-translated, and adjusted in Greek by other research groups at the Athens Medical School. The scales have been used successfully in various Greek studies.

The data were analyzed with 2-tailed t test for scale parameters and \( \chi^2 \) for nominal parameters. In addition, a stepwise logistic regression analysis was used to investigate factors that influence the occurrence of postnatal depression.

3. Results

3.1. Response rate and sample characteristics

Of the 445 women that were approached the first day after delivery, 43 were excluded from the study giving a response rate of 90.3%. Of the 43 women that were excluded, 20 (46.5%) could not read Greek (all of them were immigrants),
12 (28%) refused to participate, 4 (9.3%) gave birth to a child who faced serious medical problem, 4 (9.3%) were found to have depression on day 1 after delivery (MADRS >20), 2 (4.6%) were suffering from a chronic somatic disease (hepatitis C caused by IV heroin use and diabetes mellitus under treatment with insulin), and, finally, 1 (2.3%) woman was excluded because she was suffering from schizophrenia and was under treatment with antipsychotic medication. There were no statistically significant differences in demographic and medical data between the group of women that participated in the study and the group that was excluded from the study. The comparison between women that were excluded and women that were included in the study has been presented in a previous publication concerning maternity blues [26]. The sample characteristics are presented in Table 1.

At the first-week interview, 381 (94.8%) of the 402 women were contacted. At the first-, third-, and sixth-month interviews, 374 (93%), 355 (88.3%), and 327 (81.3%) women were contacted respectively.

3.2. Prevalence and timing of PPD

When the cutoff point of 12 was applied, 26 (6.8%) women were found to have PPD at the end of the first week after delivery, 47 (12.5%), 32 (9.0%), and 16 (4.9%) at the end of the first, third, and sixth month, respectively (Fig. 1). Overall, 80 (19.8%) of the 402 women scored higher than 12 in the EPDS.

Considering the onset of PPD, 26 (32.5%), 33 (41.2%), 15 (18.8%), and 6 (7.5%) new cases of the total 80 cases of depression were observed in the first-week and first-, third-, and sixth-month interviews, respectively (Fig. 1).

The mean scores of the EPDS were higher in the first-month measurement and lower in the sixth-month measurement (Fig. 1). One-way repeated measures analysis of variance of the 4 measurements indicated that there were significant differences of the EPDS scores over the 6 months of observation (Wilks’ Lambda: F = 19.948, df = 3, P < .001, η² = 0.158).

3.2. Duration of PPD

Of the 80 women that scored positively on the EPDS, 70 women completed the whole 6-month period of observation. Of these 70 women, 40 (57.2%) scored positively in the EPDS in only 1 interview, 18 (25.7%) in 2, and 12 (17.1%) in 3. None of the women scored positively in all 4 interviews.

3.3. Demographic and medical variables and data concerning pregnancy, delivery, puerperium, and follow-up

(a) Demographic and social variables: Women in the PPD group reported more often than women in the non-PPD group that they had an average/poor marital relationship and that they were unemployed.

(b) Medical variables: More women in the PPD group reported history of a nonpsychotic mental disorder than women in the non-PPD group.

(c) Pregnancy and delivery: No differences were found between the 2 groups.

(d) Puerperium and follow-up: More women in the PPD than in the non-PPD group reported during the first-week and first-month telephone interviews that their baby was having sleeping difficulties and during the first month interview that their baby was crying excessively. In addition, more women in the PPD than in the non-PPD group expected to have support and help during puerperium, although this difference did not reach statistical significant level (P = .06) (Tables 2 and 3).
3.4. Clinical measurements

The PPD group scored higher than the non-PPD group in MADRS, LTE, and in second-, third-, and seventh-day BQ. There was no significant difference in the scores of STAI, MOCI, SSPS, and WI. The comparisons of the mean scores were conducted by the use of 2-tailed $t$ test trials (Table 4).

A stepwise logistic regression analysis was also conducted to investigate factors that could predict the occurrence of postnatal depression. The regression analysis indicated that LTE, MOCI cleaning subscale, BQ seventh day, and report in the first-month interview that the baby was crying excessively were significantly related to the development of postnatal depression (Table 5). The significance level of the Hosmer-Lemeshow test and the value of $R^2$ Nagelkerke indicate that the model produced by regression analysis has goodness of fit, and it can predict around 44% of the development of PPD.

4. Discussion

According to the results of this study, PPD in a Greek urban environment has similar time of onset, prevalence, and course as in other European and North American countries. It is interesting, though, that the relation found between PPD and poor marital relationship and unemployment has been reported in the literature in studies coming mainly from non-Western countries. In addition, probably, women obsessed with cleaning who feel that their baby cries excessively and had experienced stressful life events during pregnancy and prolonged maternity blues after delivery ran a higher risk of developing PPD during the first 6 months after delivery.

The first aim of our study was to investigate the rate and timing of PPD occurrence. Our study is the first in Greece with this sample size during a 6-month follow-up period.

In this study, PPD had an overall prevalence of 19.8% and a point prevalence of 12.5% at the end of the first month after delivery. These results are similar to those reported in the literature [27,28].

Considering the onset of PPD, approximately two thirds of all new cases of depression were observed during the first 2 interviews that were conducted, respectively, at the end of the first and fourth week after delivery. The above finding is also in accordance with the results reported in the literature [29].

At the first-month interview, we observed a peak of the EPDS mean score as well as the number of depressed women

<table>
<thead>
<tr>
<th>Demographic and social variables</th>
<th>PPD group Mean score</th>
<th>NPPD group Mean score</th>
<th>$t$</th>
<th>$Df$</th>
<th>$P$</th>
</tr>
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<tbody>
<tr>
<td>Age</td>
<td>29.4</td>
<td>29.2</td>
<td>0.3</td>
<td>400</td>
<td>.7</td>
</tr>
<tr>
<td>Years of education</td>
<td>12.7</td>
<td>12.5</td>
<td>0.5</td>
<td>400</td>
<td>.6</td>
</tr>
<tr>
<td>Years of marriage</td>
<td>4.2</td>
<td>4.2</td>
<td>0.2</td>
<td>400</td>
<td>.9</td>
</tr>
<tr>
<td>Husband’s age</td>
<td>33.7</td>
<td>34</td>
<td>-0.2</td>
<td>400</td>
<td>.8</td>
</tr>
<tr>
<td>Husband’s years of education</td>
<td>12.5</td>
<td>12</td>
<td>-1.2</td>
<td>400</td>
<td>.2</td>
</tr>
</tbody>
</table>

| Medical data                     |                      |                       |     |      |     |
| No. of previous stillbirths      | 0.3                  | 0.3                   | 0.5 | 400  | .6  |
| No. of previous births           | 0.5                  | 0.7                   | -1.1| 400  | .3  |
| No. of abortions                 | 0.4                  | 0.2                   | 1.4 | 400  | .2  |

Demographic, social, and medical data. Scale variables.
Nominal variables.  

(PF 1). These measurements were gradually decreased over time, implying that even without proper medical treatment, PPD is self-limiting. Kumar and Robson [30] and Watson et al [31] have also described the self-limiting nature of the disorder.

The second aim of our study was to investigate the relation between PPD and the demographic, social, medical, and other factors concerning the first 6 months after delivery. In our study, women with PPD, as compared to those without PPD, reported more often poor marital relationship, unemployment, and also that their baby had sleeping difficulties (first week and first month) and that the baby was crying excessively (first month). In addition, women in the PPD group reported more often than women in the non-PPD group to be supported during puerperium, although this difference was marginally nonsignificant.

In the literature, there are reports of the association between poor marital relationship [32-34] and unemployment [34-36] with PPD. A setback of our study was that we did not use a questionnaire to evaluate marital relationship. Women were only asked to self-evaluate their marriage as excellent, good, average, or poor. In addition, information about the duration of unemployment was not collected.

Regarding the infant’s sleeping and crying behavior, Beck [2] also reported in her meta-analysis that the infant’s temperament had a mild relation to the development of PPD. Postpartum depression has been reported to affect the social and psychological development of the child [37-39], and it has also been associated with the insecure type of maternal attachment [40,41] and the mother’s inability to regulate the child’s affect [42]. On the other hand, we should consider the suggestion that the result of our study could also be attributed to the impact of depression in the mother’s perception of the baby’s behavior. The amount of daily crying and the quality of sleep were not measured objectively in our study. It was only recorded according to the mother’s subjective evaluation whether the baby was crying excessively and/or had sleeping difficulties.

The finding that women in the PPD group expected more often than women in the non-PPD group to be supported after discharge from the maternity ward, although marginally nonsignificant, is quite intriguing and difficult to interpret. Our suggestion is that, probably, women who are going to develop PPD mobilize in a greater extent their family and advice during puerperium, although this difference was marginally nonsignificant.

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The third aim of our study was to investigate the relation between PPD and clinical measurements regarding the

### Table 3
Comparison between PPD and non-PPD group

<table>
<thead>
<tr>
<th>Variable</th>
<th>PPD group (%)</th>
<th>NPPD group (%)</th>
<th>( \chi^2 ) value</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographic and social variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status (married)</td>
<td>97.5</td>
<td>98.3</td>
<td>0.2</td>
<td>1</td>
<td>.6</td>
</tr>
<tr>
<td>Evaluation of marriage (average/poor)</td>
<td>11.7</td>
<td>4.5</td>
<td>5.5</td>
<td>2</td>
<td>.05</td>
</tr>
<tr>
<td>Occupation (unemployed)</td>
<td>30.2</td>
<td>19</td>
<td>3.9</td>
<td>1</td>
<td>.05</td>
</tr>
<tr>
<td>Nationality (Greek)</td>
<td>75.9</td>
<td>65.2</td>
<td>3.3</td>
<td>1</td>
<td>.07</td>
</tr>
<tr>
<td>Medical data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment for conceiving difficulties</td>
<td>11.5</td>
<td>9.7</td>
<td>0.2</td>
<td>1</td>
<td>.6</td>
</tr>
<tr>
<td>History of a nonpsychotic mental disorder</td>
<td>17.7</td>
<td>9.3</td>
<td>4.5</td>
<td>1</td>
<td>.04</td>
</tr>
<tr>
<td><strong>Pregnancy and delivery</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unwanted pregnancy</td>
<td>11.4</td>
<td>14.4</td>
<td>0.5</td>
<td>1</td>
<td>.8</td>
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<tr>
<td>Negative mother’s reaction at the announcement of pregnancy</td>
<td>24.1</td>
<td>20.3</td>
<td>1.2</td>
<td>2</td>
<td>.6</td>
</tr>
<tr>
<td>Mother’s satisfaction with the infants’ sex</td>
<td>77.2</td>
<td>76.6</td>
<td>0.01</td>
<td>1</td>
<td>.9</td>
</tr>
<tr>
<td>Delivery by cesarean section</td>
<td>32.9</td>
<td>38.5</td>
<td>0.8</td>
<td>1</td>
<td>.4</td>
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<tr>
<td><strong>Puerperium and follow-up</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intention to breastfeed</td>
<td>86.1</td>
<td>91.4</td>
<td>1.9</td>
<td>1</td>
<td>.2</td>
</tr>
<tr>
<td>Support and advice from family</td>
<td>68.4</td>
<td>56.7</td>
<td>3.5</td>
<td>1</td>
<td>.06</td>
</tr>
<tr>
<td>Peer support</td>
<td>68.4</td>
<td>69.1</td>
<td>0.01</td>
<td>1</td>
<td>.9</td>
</tr>
<tr>
<td>Breastfeeding (first week)</td>
<td>78.4</td>
<td>83.9</td>
<td>0.6</td>
<td>1</td>
<td>.4</td>
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<tr>
<td>Breastfeeding (first month)</td>
<td>67.4</td>
<td>69.3</td>
<td>0.06</td>
<td>1</td>
<td>.8</td>
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<tr>
<td>Breastfeeding (third month)</td>
<td>40.8</td>
<td>45</td>
<td>0.3</td>
<td>1</td>
<td>.6</td>
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<tr>
<td>Breastfeeding (sixth month)</td>
<td>24.6</td>
<td>22.8</td>
<td>0.1</td>
<td>1</td>
<td>.8</td>
</tr>
<tr>
<td>Poor sleep (first week)</td>
<td>30.6</td>
<td>14</td>
<td>5.4</td>
<td>1</td>
<td>.02</td>
</tr>
<tr>
<td>Poor sleep (first month)</td>
<td>36.2</td>
<td>15.5</td>
<td>9.8</td>
<td>1</td>
<td>.002</td>
</tr>
<tr>
<td>Poor sleep (third month)</td>
<td>14</td>
<td>7.9</td>
<td>1.8</td>
<td>1</td>
<td>.2</td>
</tr>
<tr>
<td>Poor sleep (sixth month)</td>
<td>10.1</td>
<td>7.8</td>
<td>0.4</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Crying excessively (first week)</td>
<td>22.2</td>
<td>14</td>
<td>1.5</td>
<td>1</td>
<td>.2</td>
</tr>
<tr>
<td>Crying excessively (first month)</td>
<td>55.3</td>
<td>22.6</td>
<td>18.8</td>
<td>1</td>
<td>.001</td>
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<tr>
<td>Crying excessively (third month)</td>
<td>18</td>
<td>10.5</td>
<td>2.1</td>
<td>1</td>
<td>.2</td>
</tr>
<tr>
<td>Crying excessively (sixth month)</td>
<td>10.1</td>
<td>7.8</td>
<td>0.4</td>
<td>1</td>
<td>.5</td>
</tr>
</tbody>
</table>

Nominal variables.

### Table 4
Comparison between PPD and non-PPD group

<table>
<thead>
<tr>
<th>Variable</th>
<th>PPD group</th>
<th>NPPD group</th>
<th>t test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>STA1 (state)</td>
<td>29.8</td>
<td>7.8</td>
<td>28.7</td>
</tr>
<tr>
<td>STA1 (trait)</td>
<td>34.6</td>
<td>8.7</td>
<td>33</td>
</tr>
<tr>
<td>WI</td>
<td>19.5</td>
<td>7.2</td>
<td>18.2</td>
</tr>
<tr>
<td>MOCI total</td>
<td>7.7</td>
<td>4</td>
<td>7.6</td>
</tr>
<tr>
<td>MOCI cleaning</td>
<td>3.1</td>
<td>2.1</td>
<td>3.2</td>
</tr>
<tr>
<td>MOCI doubt</td>
<td>2</td>
<td>1.3</td>
<td>1.8</td>
</tr>
<tr>
<td>MOCI checking</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>MOCI inhibition</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>MADRS</td>
<td>9.4</td>
<td>7.6</td>
<td>6.3</td>
</tr>
<tr>
<td>LTE</td>
<td>1.8</td>
<td>1.6</td>
<td>1.2</td>
</tr>
<tr>
<td>SSPS</td>
<td>5.6</td>
<td>0.3</td>
<td>5.3</td>
</tr>
<tr>
<td>BQ first day</td>
<td>6.13</td>
<td>3.7</td>
<td>5.4</td>
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<tr>
<td>BQ second day</td>
<td>6.14</td>
<td>4.1</td>
<td>4.8</td>
</tr>
<tr>
<td>BQ third day</td>
<td>7.14</td>
<td>4.8</td>
<td>5.3</td>
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<tr>
<td>BQ seventh day</td>
<td>7.35</td>
<td>5.8</td>
<td>2.7</td>
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Clinical measurements.

### Table 5
Predictors of PPD

<table>
<thead>
<tr>
<th>Variable</th>
<th>SE</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTE</td>
<td>0.8</td>
<td>1</td>
<td>.01</td>
</tr>
<tr>
<td>BQ seventh day</td>
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<td>1</td>
<td>.06</td>
</tr>
<tr>
<td>MOCI cleaning</td>
<td>0.3</td>
<td>1</td>
<td>.04</td>
</tr>
<tr>
<td>Crying excessively first month</td>
<td>1.3</td>
<td>1</td>
<td>.02</td>
</tr>
</tbody>
</table>

Results of stepwise logistic regression analysis.  

\( R^2 \text{ Nagelkerke} = 0.44; \text{ Hosmer-Lemeshow test,} \ P = .5. \)
period of pregnancy and the first days after delivery. Women in the PPD group compared with the women in the non-PPD group reported that they experienced more often stressful life events during the period of pregnancy and more depressive symptoms the day after delivery, as well as higher number of maternity blues symptoms the second, third, and seventh day after delivery. They also reported more often than women in the non-PPD group that they had a nonpsychotic mental disorder in the past. Stressful life events during pregnancy and maternity blues measurements on the seventh day after delivery were also related with the development of PPD in regression analysis.

In the literature, there are reports of the association between antenatal factors and PPD [43-45]. Among these factors, depression before delivery [14,38], history of depression [33,35], and stressful life events [33,36] have been strongly related to the development of PPD. Beck [2] in her meta-analysis reported that antenatal depression had a medium impact, whereas personal history of depression and stressful life events had a moderate impact on the development of PPD. Robertson et al [46] in their meta-analysis of the antenatal risk factors for PPD reported that depression, anxiety, stressful life events during pregnancy or the early puerperium, low levels of social support, and a previous history of depression were the strongest antenatal predictors of PPD. In our study, history of nonpsychotic mental disorder and measurements of depression after delivery were not found, in regression analysis, to have a significant impact on the development of PPD. A setback of our study was that the positive for history of a mental disorder category included all women who reported that they had any nonpsychotic mental disorder in the past and not only those who reported history of depression. In addition, the administration of MADRS on the first day of delivery provided us with only a retrospective measurement of the women’s emotional condition before delivery.

Maternity blues in our study were strongly related to PPD. Although the relation between maternity blues and PPD has been well studied and established [8,47,48], the level and etiology of this relation remain uncertain. A reason for the above might be the differences between the scales that have been used to measure maternity blues and PPD, as well as the different time points that those scales were administered. It is interesting that although women in the PPD group had higher scores on all the BQ measurements, with the exception of the first day after delivery, only the seventh day measurement was found in regression analysis to be significantly related to the development of PPD. Our suggestion is that prolonged maternity blues symptoms could be related to the development of PPD. This type of relation has also been reported by Lee et al [8].

Finally the fourth aim of our study was to investigate the relation between PPD and personality traits. We examined obsessionality, alexithymia, trait anxiety, and hypochondriasis.

Considering obsessionality, although we failed to find any difference in the mean scores of MOCI between the PPD and the non-PPD group, the cleaning subscale of MOCI was related in regression analysis to the development of PPD. In the literature, there are reports that obsessive-compulsive disorder symptoms worsen during pregnancy and puerperium [49]. In addition, comorbidity between depression and primary obsessive-compulsive disorder is quite high [50]. It seems that women who are preoccupied with obsessions of contamination and cleaning rituals are more prone to develop depression after delivery. A possible explanation of the above could be that women with this kind of preoccupation are more stressed when they undertake the responsibility of their newborn child’s care and health.

Although hypochondriasis and trait anxiety have been reported to have an impact on both the onset and severity of depression [51,52], we did not find any relation among measurements of anxiety and somatic preoccupation after delivery and development of PPD. It is noteworthy that hypochondriasis has been related to the occurrence of maternity blues [26].

Alexithymia has never been studied in women who develop PPD. Our hypothesis that alexithymia might relate with PPD was based on the relation between alexithymia and depression [53,54]. Alexithymia measurements did not differ between the PPD and non-PPD group, thus failing to verify the above hypothesis.

An interesting finding reported by Pop et al [55] is that different factors can predict PPD according to the time of the assessment. Because our study included 4 assessment interviews, during the first 6 months after delivery, further investigation is needed on the predicting factors of PPD for each of the 4 assessments periods separately.

Two of the major limitations of this study were the absence of a structured interview to confirm diagnosis of PPD and the use of telephone interviews to follow up women after discharge from the maternity ward. The EPDS is a widely used screening instrument for PPD with a positive predictive value reported as high as 76% [56]. When the Greek version of EPDS was administrated together with SCID, it produced a sensitivity of 90% and a specificity of 97.22% (Leonardou et al, unpublished data). The telephone interviews were chosen as a way of follow-up to achieve low dropout rates from the study. The percentage of women (81.3%) that completed the 6 months of observation can be considered quite satisfactory. Lee et al [8] reported that women that were interviewed by phone were reporting less symptoms of PPD, so the actual rate of PPD in our group might be higher. Finally, a third major limitation was that all women that were included in the study were recruited from the same obstetric clinic, and thus, the study’s results may not be representative of other clinics in Athens, Greece.

It is unfortunate that although all women found positive for PPD were advised to visit a specialist for further evaluation, only 5 (6.3%) of them reported that they had done so during the 6-month period of follow-up. Of these 5 women, 4 had a previous history of depression and had received psychiatric help in the past. The above observation
raises a lot of questions regarding the level of information that the Greek public and health professionals have on mental disorders of the puerperium.

References


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