PERSONALITY DISORDERS FEATURES IN A SAMPLE OF WOMEN WITH PERINATAL DEPRESSION IN PERUGIA, ITALY

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SUMMARY

Background: Antepartum depression (APD) and postpartum depression (PPD) are a significant public health problem. Aim of the study was to determine which personality disorders features could be found in women with APD and PPD compared to women without perinatal depression.

Subjects and methods: The Edinburgh Postnatal Depression Scale and the Minnesota Multiphasic Personality Inventory-2 (MMPI-2) were administered during peripartum to a sample of 54 women recruited at the Obstetrics and Gynaecology Unit, Perugia (Italy).

Results: Results were grouped according to the EPDS ranges 0-8 and ≥9, and to the MMPI-2 scores on each clinical scale. Women with APD had high scores on the MMPI-2 Hypomania, Cynicism, and Antisocial Practices scales; women with early onset PPD (detected in the first week after childbirth) had high scores on the Paranoia and Low Self-Esteem scales; women with late onset PPD (detected up to three months after childbirth), had high scores on the Fears, Obsessiveness, and Depression scales.

Conclusions: Based on the high scores of specific MMPI-2 scales, our study would suggest that: cluster B personality features may represent a vulnerability factor for APD; passive-aggressive personality features may be a vulnerability factor for early onset PPD; cluster C personality features may act as a vulnerability factor for late onset PPD.

Key words: personality disorders - antepartum depression - postpartum depression - perinatal depression - MMPI-2 – EPDS – Italy

INTRODUCTION

Perinatal psychiatric disorders, especially perinatal depression, cross-cut cultures and countries (Lee 2004, Adewuya 2005, Gavin 2005, Klainin 2009, Sawyer 2010, Le Strat 2011, Gupta 2013, Santos 2013, Poçan 2013, Deng 2014) and are a significant public health problem (Gavin 2005), impacting on the affected mother (Nicholson 2006, Sadat 2014), the baby (Murray 1997, Murray 1999, Righetti-Veltema 2002, Grace 2003, Wan 2009, Grigoriadis 2013, Kawai 2017, Abdollahi 2017) and its psychological development (Korhonem 2012, Glashoen 2013, Pearson 2013, Betts 2015, Sanger 2015), and the whole family (Lovestone 1993, Zelkowitz 2001, Paulson 2006, Beestin 2014, Leach 2016). They are clinically classified according to the onset period, i.e. pregnancy or postpartum psychiatric disorders (Paschetta 2014). Most frequent pregnancy psychiatric disorders are anxiety (e.g. panic attacks and phobias) (Wenzel 2005, Ross 2006, Ayers 2008, Coelho 2011, Rubertsson 2004) and depressive disorders (Robertson 2004, Heron 2007, Munk-Olsen 2012, Castro 2016, NICE 2014), often combined in the mixed anxiety-depressive disorder (Austin 2004, Nareen 2011, Falah-Hassani 2017); however, feeding and eating disorders (Cardwell 2013, Easter 2013, Watson 2013, Coker 2015), such as anorexia (Eagles 2012) and bulimia nervosa (Morrill 2001), are also common. Antepartum depression (APD) may occur throughout pregnancy, but it is usually observed at 4-6 months; it is defined as a non-psychotic depressive episode of different severity, beginning in, or extending into, pregnancy (NICE 2014, National Guideline Clearinghouse 2012). After childbirth, postpartum depression (PPD) (Gavin 2005), obsessive-compulsive disorder (Abramowitz 2003, Chaudron 2011, McGuinness 2011, Speisman 2011, Russell 2013), or (less frequently) postpartum psychosis (Chaudron 2003, Spinelli 2009, Upadhyaya 2014) can occur. PPD is generally defined as a non-psychotic depressive episode of different severity beginning in, or extending into, the first postnatal year (NICE 2014, National Guideline Clearinghouse 2012); it occurs most frequently 2-4 months after delivery, but late onsets have been reported (Goodman 2004). Indeed, in DSM-IV (APA 1994) a “postpartum onset” specifier could be applied to a depressive episode only if symptoms began within four weeks of childbirth; now, in DSM-5 (APA 2013), the specifier has been changed to “peripartum onset,” and the time frame of symptom onset includes also pregnancy. Furthermore, postnatal depressive symptoms appear to be strongly correlated to antenatal ones (Robertson 2004, NICE 2014, Beck 2002, Milgrom 2008, Marino 2012).

The prevalence of APD ranges from 8.5% to 11% (Gavin 2005, Gaynes 2005, Banti 2011, Fisher 2012). In a meta-analysis of 109 articles, the prevalence of PPD ranged from 6.5% to 12.9% in the year after childbirth, and 19.2% of women with PPD had a major depressive episode in the first three months postpartum (Gavin 2005). Perinatal depressive episodes may arise in different clinical forms; for example, as dysthymic forms with anxiety and compulsive symptoms, or as...
major depression, sometimes with depressive delusions with most experiences and thoughts focusing on maternity and childcare (Benvenuti 2002).


As far as we are concerned, a small number of studies have deeply investigated the correlation between personality disorder features and PPD (Smith-Nielsen 2016). In this field, cluster C personalities (avoidant, dependent, and obsessive-compulsive personality disorders) emerged as possible risk factors for the new onset of PPD (Akman 2007, Uguz 2009, Meuti 2014). Also women with borderline personality disorder appear to be at greater risk of developing PPD (Newman 2007). PPD was also associated with personality dimensions such as shyness, need of approval, emotional fragility, less control of impulsivity, separation anxiety, and high sense of responsibility; women with PPD were also found to be less tolerant, less empathetic, and more absent-minded than women without PPD (Iliadis 2015, Maliszewska 2016).

The aim of the present study was to determine which personality disorders features could be found in women with APD and PPD, compared to women without APD and PPD, in order to promote preventive strategies and to improve treatment in this field.

### SUBJECTS AND METHODS

#### Subjects

From January to July 2012, questionnaires were administered to a sample of women attending the Prenatal Day Hospital in the Obstetrics and Gynaecology Unit, Santa Maria della Misericordia Hospital, Perugia, Italy. Inclusion criteria were age over 18 years, and agreement and written informed consent; the only exclusion criterion was the inability to speak, understand and write Italian.

#### Methods and Experimental Design

The Edinburgh Postnatal Depression Scale (EPDS) (Boyd 2005) and the Minnesota Multiphasic Personality Inventory-2 (MMPI-2) (Butcher 1989) were used.

The EPDS is a 10-item self-assessment questionnaire investigating the presence and the severity of perinatal depression (Cox 1987, Gibson 2009). Usually the EPDS scores for the screening of PPD are so interpreted: 0-8 healthy (absent PPD), 9-12 “possible PPD” (as baby blues), 13-14 “probable PPD” (as minor PPD), and ≥15 “probable PPD” (as major PPD) (Gibson 2009, Eberhard-Gran 2001, Gaynes 2005). In our study, the cut-off 9 of the Italian validation (Carpinello 1997, Benvenuti 1999) was considered indicative of PPD. The questionnaire was validated in an Italian version and has a high level of validity, reliability, and internal consistency. As in other studies (Murray 1990, Choi 2012, Töreki 2013), the EPDS has been validated as a screening tool for APD in pregnant women, with both cut-off point for “probable depression” of 9 and 14.

The MMPI-2 is an objective, non-projective, standardized psychometric test of adult personality and psychopathology (Gregory 2007). It is one of the most commonly used questionnaires for evaluating the main personality traits (Gregory 2007), exploring a spectrum of personality traits in subjects who are not necessarily affected by psychopathological disorders. Composed of 567 true/false items, and divided into 10 clinical scales and 15 content scales, it detects psychopathological behavioral patterns according to clinical and statistical criteria (Hathaway 1995, Butcher 1996). Clinical scales are: Hs (hypochondria), D (depression), Hy (hysteria), Pd (psychopathic deviation), Mf (masculinity-femininity), Pa (paranoia), Pt (psychasthenia), Sc (schizophrenia), Ma (hypomania), Si (social introversion). Content scales are: Anx (anxiety), Frs (fears/phobias), Obs (obsessiveness), Dep (depression), Hea (health concerns), Biz (bizarre mentation), Ang (anger), Cyn (cynicism), Asp (antisocial practices), Tpa (type A), Lse (low self-esteem), Sod (social discomfort), Fam (family problems), Wrk (work interference), Trt (negative treatment indicators). A T-score ≥65 is high and generally indicates a pathological state; T-scores between 41 and 64 (medium score), especially when close to 60, may show a specific personality tendency;
and T-scores ≤40 (low score) are expression of a better adjustment than medium and high scores (Friedman 2001, Keiller 1993). MMPI-2 has been widely standardized on Italian population samples, and many studies confirmed its usefulness and effectiveness in normal and pathological cohorts; furthermore, Italian profiles can be compared with those of other countries and cultures (Hathaway 1995, De Fidio 2005). There is no maximum time to complete the test; the subject has to be at least 18 years old, in possession of a sufficient cultural level to understand the questionnaire items. The MMPI-2 interpretative procedures were automatically analyzed using the “Panda” software (Pancheri 1999).

Figure 1 illustrates the experimental design. Tests were administered at three time-points during pregnancy and postpartum. To identify all women with APD, EPDS was administered during the last trimester of pregnancy (simply stated as EPDS Pre) in the Prenatal Medicine Day Hospital. To identify all women with an early onset of PPD, EPDS was administered in the first week (simply stated as EPDS FW) after delivery at the Obstetrics and Gynaecology Unit; socio-demographic and obstetrical data were collected in the first week too. To follow up women who had already been diagnosed as depressed and to identify patients with late onset depression, EPDS was administered up to three months after delivery (simply stated as EPDS FU) at the women’s homes; at the same time, the MMPI-2 was also administered as the most convenient time and venue for mothers to compile the long MMPI-2 questionnaire.

**Figure 1.** Test administration time-points in the study. EPDS Pre was administered during the Prepartum (last trimester), EPDS FW was administered during the First Week after delivery, EPDS FU and MMPI-2 were administered during the Follow-Up, until three months after delivery

**Data Analysis and Statistics**

Since variable distribution parameters in the study population were unknown, non-parametrical tests for independence i.e. the Mann-Whitney U Test and Spearman’s correlation (Kendall 1948, Gibbons 1985) were used instead of the more common T-test and Pearson’s correlation coefficient. In the present study, independent variables were the EPDS results which were collected at three different time-points. We also analyzed the presence or absence of perinatal depression as another independent variable (positive or negative EPDS independently of administration time). For this purpose, women were divided into two groups according to EPDS cut-off of 9. Group 1 included women without depression, i.e. with scores ranging from 0 to 8 for EPDS administered during the prepartum, and with scores from 0 to 8 for EPDS administered during the postpartum first week and the follow-up. Group 2 included women with perinatal depression, i.e. with EPDS scores ≥9 during prepartum, and/or with scores ≥9 during the postpartum first week or the follow-up. The results of the MMPI-2 clinical and content scales were analyzed in both groups. Scores on the MMPI-2 clinical and content scales were considered as continuous, non-independent variables. Scores on the MMPI-2 scales were stratified into three groups: “Low” for scores ≤40 (simply stated as “1”), “Medium” for scores ranging from 41 to 64 (simply stated as “2”), and “High” for scores ≥65 (simply stated as “3”). All statistics were performed using STATISTICA Statsoft Inc. Statistical significance was set at p<0.05.

**Ethical Standards**

This study was approved by the Umbria region’s ethics committee (CEAS, Comitato Etico delle Aziende Sanitarie dell’Umbria) and was performed in accordance with the ethical standards laid down in the Declaration of Helsinki of 1975, as revised in 1983. All persons gave written informed and voluntary consent prior to inclusion in the study. Details that might disclose the identity of subjects under study have been omitted.

**RESULTS**

In the Prenatal Medicine Outpatients Unit, 284 (81%) of the 352 women who were contacted resulted eligible (based on the inclusion criteria); 85 of the eligible candidates (30%) agreed to take part in the study. Reasons for refusing to participate were: a) lack of time or of interest in the study protocol, b) belief they would never get depressed, and c) partner’s resistance. Tests were completed, including follow-up at the third month postpartum, by 54/85 enrolled women (63.5%). The main reason for dropping out was the lack of time to complete the longer test, the MMPI-2. Socio-demographic features and delivery details are reported in Table 1.

Analysis of the prevalence conducted in the first week after delivery (EPDS FW) showed that 11% of the subjects presented a probable PPD, among which 5.5% being in form of minor depression (EPDS score 13-14), and 5.5% of major depression (EPDS scores ≥15); 30% of the evaluated women had developed a possible PPD.
Table 1. Socio-demographic data and details of delivery in the study cohort

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (years)</td>
<td>32.9</td>
</tr>
<tr>
<td>Education (%)</td>
<td></td>
</tr>
<tr>
<td>Primary School</td>
<td>1.9</td>
</tr>
<tr>
<td>Secondary School</td>
<td>42.5</td>
</tr>
<tr>
<td>Graduate</td>
<td>53.7</td>
</tr>
<tr>
<td>Post-graduate</td>
<td>1.9</td>
</tr>
<tr>
<td>Employment Status (%)</td>
<td></td>
</tr>
<tr>
<td>Employee</td>
<td>51.9</td>
</tr>
<tr>
<td>Self-employed</td>
<td>5.4</td>
</tr>
<tr>
<td>Freelance professional</td>
<td>27.8</td>
</tr>
<tr>
<td>Manager</td>
<td>1.9</td>
</tr>
<tr>
<td>Student</td>
<td>1.9</td>
</tr>
<tr>
<td>Unemployed</td>
<td>11.1</td>
</tr>
<tr>
<td>Nationality (%)</td>
<td></td>
</tr>
<tr>
<td>Italian</td>
<td>90.7</td>
</tr>
<tr>
<td>Foreign</td>
<td>9.3</td>
</tr>
<tr>
<td>Romanian</td>
<td>40</td>
</tr>
<tr>
<td>Other</td>
<td>60</td>
</tr>
<tr>
<td>Marital status (%)</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>74.1</td>
</tr>
<tr>
<td>Co-habiting</td>
<td>22.1</td>
</tr>
<tr>
<td>Divorced</td>
<td>1.9</td>
</tr>
<tr>
<td>Single</td>
<td>1.9</td>
</tr>
<tr>
<td>Primipara (%)</td>
<td>44.4</td>
</tr>
<tr>
<td>Delivery details (%)</td>
<td></td>
</tr>
<tr>
<td>Natural</td>
<td>55.6</td>
</tr>
<tr>
<td>Medically assisted</td>
<td>44.4</td>
</tr>
<tr>
<td>Caesarian Section</td>
<td>57.7</td>
</tr>
<tr>
<td>Vacuum delivery</td>
<td>3.8</td>
</tr>
<tr>
<td>Analgesics during labour</td>
<td>23.1</td>
</tr>
<tr>
<td>Induced by drugs</td>
<td>15.4</td>
</tr>
</tbody>
</table>

(EPDS scores 9-12). Analysis of the prevalence at three months after delivery (EPDS FU) showed that a total of 16.7% of the women had a probable PPD, among which 9.3% being in form of minor depression, and 7.4% of major depression; 24.1% of the evaluated women had an a possible PPD. The prevalence of PPD was higher in women with APD, measured to have EPDS Pre test score ≥9. Also in women with EPDS Pre score ≥14, the percentage of subjects developed PPD was higher, but not statistically significant. For a detailed description of the prevalence data, see a previous study by Elisei et al. Table 2 reports the results of the Mann-Whitney U independent test between the two groups (range 0-8 for non-depressed women, and ≥9 for depressed) for EPDS administered at the three time-points and the related clinical and content MMPI-2 scales. Only significant correlations are shown. Table 2 does not show the results of correlation between EPDS Pre with the cut-off of 14 and the clinical and content MMPI-2 scales, as the Mann-Whitney U test cannot be applied when one group is small in number. The same links emerged with the Spearman R Correlation test.

MMPI-2 scores are shown in Cartesian distribution to illustrate how both the correlation and significant differences between EPDS and MMPI-2 values are present at the same time (Figure 2).

Table 2. P values of Mann-Whitney U Test and Spearman R Correlation for EPDS (PRE, FW, FU, perinatal depression) and the clinical and content MMPI-2 scales

<table>
<thead>
<tr>
<th>Cut-off group</th>
<th>Mann-Whitney U Test Correlation</th>
<th>Spearman Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE</td>
<td>MA (0.029), CYN (0.042), ASP (0.050), WRK (0.013), TRT (0.024).</td>
<td>MA (0.30), CYN (0.28), ASP (0.27), WRK (0.34), TRT (0.31).</td>
</tr>
<tr>
<td>FW</td>
<td>PA (0.021), LSE (0.017), WRK (0.011); TRT (0.002).</td>
<td>PA (0.32), LSE (0.33), TR (0.35); TRT (0.42).</td>
</tr>
<tr>
<td>FU</td>
<td>FRS (0.006), OBS (0.010), DEP (0.025), WRK (0.013)</td>
<td>FRS (0.38), OBS (0.36), DEP (0.31), WRK (0.34), TRT (0.31).</td>
</tr>
</tbody>
</table>

Finally, just for example, in Figure 3 we show the Obs (obsessiveness) content scale distribution histograms with percentage frequencies on the left, number of patients on the right, and different distribution frequencies in the Low (L), Medium (M) and High (H) scores of MMPI-2: non-depressed women (EPDS 0-8) are not present in the High (H) score group, while depressed women (EPDS ≥9) are disappeared in the L score group. These findings demonstrate that non-depressed women show low Obs content scale values and that depressed women show medium-high Obs content scale values. Similar distribution histograms can be constructed with all clinical and content MMPI-2 scales that resulted significant.
The results of the present study show that: a) women with APD (i.e. with EPDS Pre ≥ 9) present high scores on Ma (hypomania), Cyn (cynicism), and Asp (antisocial practices) scales; b) women with early onset PPD (i.e. with EPDS FW ≥ 9) have high scores on Pa (paranoia), and Lse (low self-esteem) scales; and c) women with late onset PPD (i.e. with EPDS FU ≥ 9) show high scores on Frs (fears/phobias), Obs (obsessiveness), and Dep (depression) scales.

The link between high scores on MMPI-2 Ma, Cyn, and Asp scales, and APD describe a “dysphoric depression” profile (Meuti 2014) characterized by dysphoria, hyperactivity, narcissism, excessive anger, hostility, irritability, suspiciousness, manipulativeness, emotional immaturity, and interpersonal susceptibility), which is often found in subjects with borderline personality disorder (BPD) and, more generally, in patients with cluster B personalities. Relationship between BPD and perinatal depression has been described in literature (Newman 2007, Meuti 2014, Niolu 2014). These cluster B personalities pregnant women have difficulty to the reorganization of identity and relationship that would be required during pregnancy and motherhood (Fonagy 2004). These pregnant women or mothers experience difficulties in understanding the others’ emotional states and have oscillations between states of hostility, anger, helplessness, and dissociative withdrawal which put into question the sense of continuity of the self (Meuti 2014). Also theories that hypothesize that APD is linked to pregnant women’s social and environmental problems (Robertson 2004, Niolu 2014, Lee 2000, Grussu 2009) may account for its correlation with Cyn and Asp. In fact, negative socio-environmental factors (such as a history of traumatic experience, abuse, neglect, domestic violence) could “generate” a character vulnerability that manifests in an abnormal response to pregnancy and childbirth.

The link between high scores on MMPI-2 Pa and Lse scales and early onset PPD describe a “negativistic depression” profile characterized by depression, anger, rigidity, distrust, susceptibility, sullenness, interpersonal sensitivity, hostility, suspiciousness, ideas of reference (or persecutory ideation in response to stressful situations), and feelings of unattractiveness, inadequacy, and low self-confidence; these features are frequently found in subjects with passive-aggressive (negativistic) personality traits/disorder. Passive-aggressives manifest their anger indirectly, deflecting it. Paranoid passive-aggressives use the mechanism of projection as a vehicle for the indirect expression of hostility to others in the form of blaming. They project their anger and self-blame onto others so that “I criticize myself” becomes “You criticize me” and “I blame and dislike you for that” (Kantor 2002). The new mother might experience the childbirth as a physically and psychologically shocking event which “forced” her to face the completely new reality of a baby to be taken care of. The mother affected by early onset PPD are unable of this responsibility, as to detach herself from everyday reality, of build an effective relationship with her child and respond to his needs. In some stressful situations, the mother may also develop transitory persecutory ideas and be convinced, for example, that the child is seriously ill.

Late onset PPD is rather different. In our study, it is linked to high scores on MMPI-2 Frs, Obs, and Dep scales. This link describe a “psychoaesthetic depression” profile (Meuti 2014) characterized by chronic depressive thoughts and cognition with feelings of inadequacy, uselessness, hopelessness, uncertainty, guilt or remorse, low self-confidence and stress coping ability, apathy, inhibition, anxiety, fears or phobias, ruminations about decisions and problems, and inability to control obsessional thoughts. These features are frequently found in subjects with obsessive-compulsive/dependent personality traits/disorders, i.e. in cluster C personalities (Akman 2007, Uguz 2009, Meuti 2014, Niolu 2014). These women show a tendency to experience discomfort with respect to modification and relational identity that occur during the transition and the change of parenthood’s role, experiencing feelings low self-esteem, associated with a low sense of autonomy, fatigue, rumination at the level of thought to counter the belief of “not being able” to face a new situation (Meuti 2014, Niolu 2014). This inability to change generates a “lack of identity” that can overwhelm patients with feelings of guilt and become the basis for recurring concerns (particularly about the health of the child) which could eventually lead to slipping into depressive conditions with psychasthenic features (Meuti 2014, Niolu 2014). From a similar psychopathological background, a postpartum obsessive-compulsive disorder could occur too, either as related to PPD (Niolu 2014) or as totally independent (Abramowitz 2003), often characterized by obsessive ideations and controlling compulsions about the health of the child (Gaynes 2005).
Several limitations of our study deserve brief mention. First, the small sample size suggests caution in the interpretation and generalizability of our results, and the low participation rate may limit the external validity of the study. Secondly, many personality features could not have been examined or explained even by complex instruments such as MMPI-2. Lastly, the reasons why we found high scores on MMPI-2 Wrk (work interference) and Trt (negative treatment indicators) scales have not been analyzed.

CONCLUSIONS

In our understanding, perinatal depressive disorders are much more complex than previously thought. Personality traits and personality disorders features underlying the perinatal depression may represent the vulnerability mechanism with which the disorder itself is established, determining the clinical manifestation, course, and treatment response (Meuti 2014, Niolu 2014). Despite the sample size is too small to draw any firm conclusions about the inferences of interest, our results preliminary would suggest that: a) cluster B personality structures, particularly BPD features, may represent a vulnerability factor for APD; b) passive-aggressive (negativistic) personality features may be a vulnerability factor for early onset PPD; and c) cluster C personality structures, particularly obsessive-compulsive/dependent personality disorder features, may act as a vulnerability factor for late onset PPD. In conclusion, future research will need to detect more deeply the personality structures and the psychopathological dynamics underlying perinatal depression and, more generally, perinatal psychiatric disorders, so as to promote focused and efficient preventive interventions, and to provide adequate and specific treatments.

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Conflict of interest: None to declare.

References


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