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PERINATAL DEPRESSION: A STUDY OF PREVALENCE AND OF RISK AND PROTECTIVE FACTORS

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SUMMARY

Background: *International literature has shown that Postpartum Depression (PPD) has a significant social and relational impact on mothers and their partners, on the interaction between mother and child, as well as on the cognitive and emotional development of the child. The goal of this study is to increase the epidemiological knowledge of PPD and to evaluate both risk and protective factors.*

Subjects and methods: *Our study is based on the administration of three tests, Paykel's Life Events Scale, EPDS and MMPI-2, at three distinct time point (during the third trimester, 72 hours after delivery, and three months after delivery, respectively) to a sample of women recruited in the Prenatal Medicine Clinic at the Hospital of Perugia. The data collected was statistically analyzed.*

Results: *The prevalence of PPD 72 hours after delivery was 11%, while the prevalence of PPD three months after delivery was 16.7%. Antepartum Depression (APD), measured using EPDS cut-offs scores of 9 and 14, was found to be a statistically significant risk factor for the development of PPD, while desired life-events during pregnancy can represent a protective factor.*

Conclusions: *The prevalence of PPD that we measured, in agreement with that found in the literature, demonstrates that despite the fact that the diagnostic criteria of the DSM-IV refer to PPD only if it develops within 4 weeks after delivery, PPD can also develop after this period. Furthermore, it appears that monitoring APD and encouraging a psycho-socially serene pregnancy are important for prevention of PPD. In the case of APD it was shown that monitoring women with even light depressive symptoms is important, because these women are more likely to then develop PPD.*

Key words: *postpartum depression – risks factors – protective factors – antepartum depression*

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INTRODUCTION

Postpartum Depression (PPD) is a non-psychotic depressive episode of mild to moderate severity, beginning in or extending into the first postnatal year - Scottish Intercollegiate Guidelines Network). Antepartum Depression (APD) is defined as a non-psychotic depressive episode of mild to moderate severity, beginning in or extending into pregnancy (Scottish Intercollegiate Guidelines Network). A number of epidemiological studies have found a correlation between antenatal and postnatal depressive symptoms (Beck 2002, Robertson 2004, Marino 2012).

From a clinical point of view, Postpartum Depression includes two clinical forms (Cassano 2002) distinguishable according to the RCD diagnostic criteria (Spitzer 1978): minor depression (neurotic, mild, atypical), a dysthymic disturbance (of a duration of less than two years) associated with anxiety, phobic manifestations and obsessive compulsive characteristics; and major depression, a severe depressive disturbance whose content is connected with motherhood and caring for the child (Cassano 2002). In both cases we could define these two forms as "probable" PPD. We can add to these two forms of maternity blues (or blues baby), a transitory paraphysiologic reaction, whose primary symptom is crying (Cassano 2002): in this case we could define this forms as "possible" PPD.

A meta-analysis in 2005 (Gavin 2005) of 109 articles showed that the range of major or minor depression prevalence is from 6.5% to 12.9% (95% CI, 1.0-5.6%) in the months following delivery. Combined studies of the prevalence during various Postpartum periods (Gavin 2005) showed that 19.2% of women experienced a major depressive episode during the first three months following delivery. The prevalence of Antepartum Depression ranges from 8.5% to 11% based on the trimester considered (Gavin 2005, Gaynes 2005, Banti 2011).

The risk factors associated with PPD are those associated with general depression, along with a separate specific group that can be divided into two large categories, psycho-social factors and biological factors (Cassano 2002). Among the psycho-social risk factors, Antepartum Depression and anxiety during pregnancy are of particular importance (Beck 2002, Robertson 2004, Marino 2012). Other psycho-social risk factors include prior history of depression (Robertson 2004), prior history of PPD (Webster 2000), family history of psychiatric illness (Marino 2012, O'Hara 1996), personality characteristics (Josefsson 2007),

conflicts with partners and/or parents (Cassano 2002), social and psychological stress (Yelland 2010), traumatic events in the last year (Banti 2011), and young age of the mother (Cassano 2002). Among biological factors, the most important ones are maternity blues (Stowe 1995) and obstetric complications (Robertson 2004). Other biological factors include a whole series of conditions associated with hormonal imbalances, for the most part associated with a low level of progesterone and estrogen (Block 2000, Block 2006).

The social and relational impact that PPD can have has been shown to be significant both for the mother and her partner (Lovestone 1993), for the mother-child interaction, and for the cognitive and emotional development of the child (Murray 1997, Murray 1999). In international literature this has spurred further research on the prevalence and incidence of PPD, and on models for preventive interventions.

SUBJECTS AND METHODS

Subjects

During the observation period beginning in January 2012 and ending in July 2012, the tests were administered to a sample of women recruited at the Prenatal Medicine Clinic of the Obstetrics and Gynecology Clinic of the Santa Maria della Misericordia Hospital of Perugia.

Signed informed consent was required and obtained from the recruited individuals for administration of the tests.

The only criterion for exclusion was the inability to comprehend and communicate in Italian.

Methods

Three specific time points, both during pregnancy and after delivery, were chosen to administer three tests to the women in this study, firstly, during the third trimester of pregnancy, the subjects were evaluated by both the EPDS and Paykel's Life Events Scale in the Prenatal Medicine Clinic. Secondly, in the hours immediately following delivery, subjects were evaluated again with the EPDS test, and the socio-demographic and obstetric data was collected in the Obstetrics and Gynecology Clinic. Finally, as a follow-up, three months after delivery, the subjects were assessed with both the EPDS and MMPI-2 tests in a customized fashion.

There were essentially three examination methods utilized to gather data for this study: EPDS, MMPI-2 and Paykel's Life Events Scale.

The pivotal instrument for evaluating the risk of developing PPD was the EPDS, a 10-question self-evaluation test, which examines the presence and intensity of symptoms of depression pre and post-partum. From this test, scores between 9 to 12 were used for identifying baby blues (possible PPD), from 13 to 14 for minor depression, and scores of 15 or more for major depression (both indicating probable PPD). For indication of Antepartum Depression, we utilized both the cut-off of 9 (as used in the evaluation of PPD) (Toreki 2012, Choi 2012) and the cut-off of 14 as used in other studies (Murray 1990, Gibson 2009).

The Interview for Recent Life Events (Paykel's IRLE or Scale of Life Events, Paykel 1983) can be considered a radical revision of the previous Life Event scale. Paykel's scale subdivides life events into 10 categories (work, education, economic problems, health, morning, immigration, love life, legal problems, family and marital relationships) and asks to evaluate for each event (on a scale of 1 to 5) the independence from the illness and the objectively negative impact in the past 6 months. The evaluation is conducted through a semi-structured interview and is later validated through the patient's self-scoring. In the Italian version, developed by Fava and Osti (Fava 1982), there are 63 life events.

Data Analysis and Statistics

The differences in the values of the variables studied were evaluated using the Chi-square test, considering significant if p score is below 0.05. Variables with a p score close to 0.1 were also considered. The statistical program SPSS 20.00 was used to statically analyze the data.

RESULTS

Of the 352 women contacted at the Prenatal Medicine Clinic, 284 (81%) were determined to be appropriate for the study, based on exclusion criteria. Of the eligible sample, 85 women (30%) agreed to participate in the study. The primary reasons for which a portion of the women declined to participate were lack of time, lack of interest in the proposed protocol, the belief that they could never become depressed and resistance on the part of the their partners.

Of the 85 women recruited, 54 (63.5%) completed the tests from the third trimester through to the follow-up in the third month after delivery. The dropout was justified by insufficient time to complete the longest test, the MMPI-2.

The socio-demographic characteristics of the sample are as the followings: the average age of the sample is 32.9 years (ranging from 21 to 45 years of age), 90.7% of the sample is of Italian nationality; 53.7% graduated from college, 42,5% held secondary school degree (II level), 1.9% held secondary school degree (I level), and 1.9% possessed post-graduate degrees; 51.9% are regular employees, 27.8% are professionals, 11.1% are unemployed, 5.4% are independent contractors, 1.9% are managers, and 1.9% are still in school; 74.1% are married, 22.1% are living with a partner, 1.9% are divorced, and 1.9% are single; 44.4% were first-time mothers. From the obstetric characteristics of the delivery, it was determined that 55.6% of the women delivered naturally, while 44.4% had a medically assisted delivery, of which 57.7% were cesarian births,

23.1% using partoanalgesia, 15.4% were medically induced and 3.8% were surgical deliveries.

Analysis of the prevalence conducted in the first 72 hours after delivery showed that 11% of the subjects presented a "probable" risk of PPD, among which 5.5% being in form of major depression and 5.5% of minor depression. 30% of the evaluated subjects had developed an elevated risk of baby blues, demonstrating therefore a "possible" risk of PPD.

The remaining 59% did not seem to show particular symptoms of mood alterations connected to the pregnancy (Figure 1).

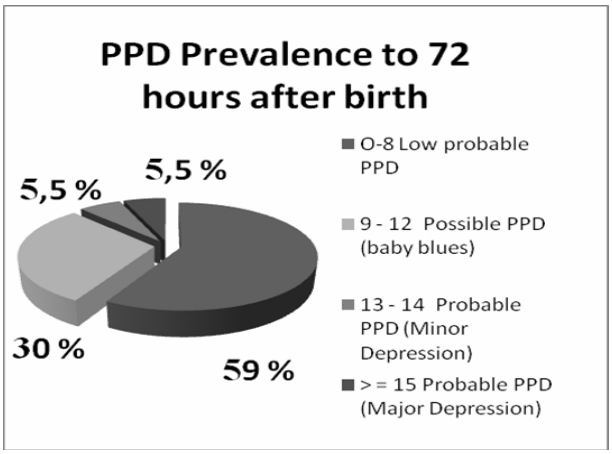

Figure 1. Prevalence of PPD in the sample at 72 hours after birth

During the follow-up, data collected showed that the number of new cases of late-developed PPD is 13%. If one instead examines the date in terms of prevalence, it can be shown that at 3 months, taking into consideration the simultaneous recovery of some patients, a total of 16.7% of the women had developed PPD (compared to 11% in the first 72 hours) (Figure 2).

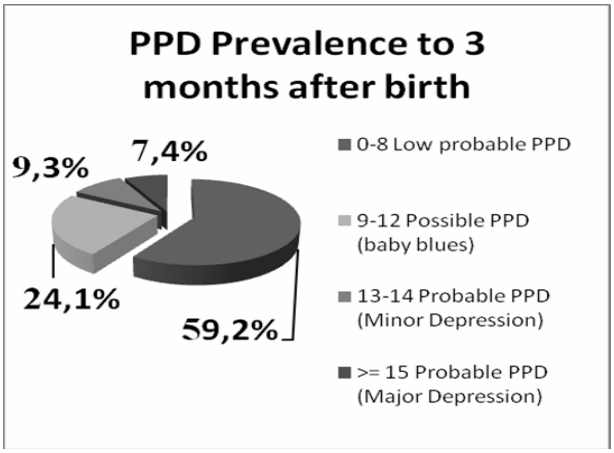

Figure 2. Prevalence of PPD in the sample at 3 months after birth

The prevalence of possible PPD was reduced to 24.1% as in the literature, since in possible PPD the course is shorter and the symptoms are less severe.

Analysis of the most important psycho-social risk factors showed that the increase in the risk of PPD is associated in particular with two psycho-social factors: Antepartum Depression and Anxiety during pregnancy.

The prevalence of PPD was higher in women with Antepartum Depression, measured to have EPDS test score ≥ 9. Also in women with EPDS Antepartum score ≥ 14, the percentage of subjects developed PPD was higher, but not statistically significant (Table 1). Furthermore subjects with Antepartum EPDS scores between 9-14 experienced PPD more frequently than those with Antepartum EPDS scores ≥ 14 (Figure 3).

Table 1. Antepartum Depression (APD) and PPD

	PPD		p
	Yes (%)	No (%)	
EPDS ≥ 9	16 (76.2%)	5 (23.8%)	<0.0001
EPDS ≥ 14	4 (80%)	(20%)	NS

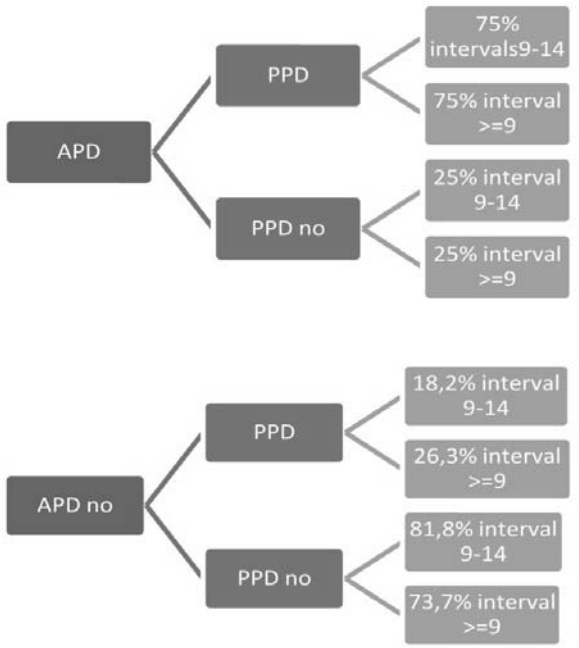

Figure 3. Correlation APD and PPD correlated intervals in two ranges

In women with Antepartum anxiety, the number of subjects developed PPD was higher: taking into consideration the item concerning anxiety (item 4) in the EPDS administered, it was shown that Antepartum Anxiety, although shown as only a interesting significance, is a relevant risk factor for PPD.

In fact, in cases of probable PPD, major depression and minor depression, the median score on item 4 is 2. In cases of possible PPD, cases of baby blues, the median is still 2. On the other hand, in healthy women the median value is 1 (Figure 4).

When looking at the results of Paykel's IRLE, it was noted that women with persistent PPD (both one week and 4 weeks after delivery) had fewer desirable events than women without PPD. This difference, while still present, was less prominent when comparing women without PPD to women either with early PPD (one week after delivery but not 4 weeks after) or late PPD (four weeks after delivery but not one week after) (Table 2).

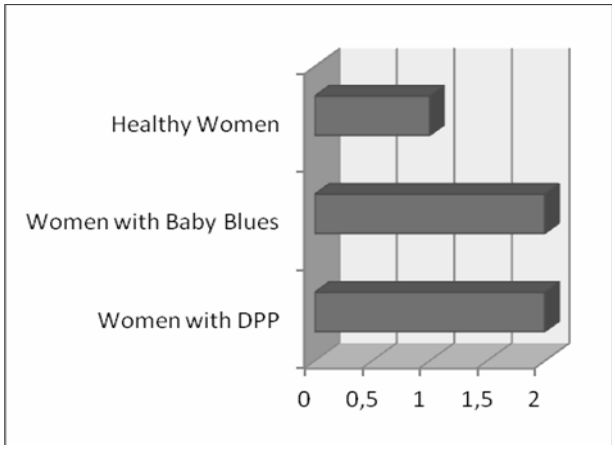

Figure 4. Average rating Prepartum item EPDS in women who develop PPD with Major Depression, with Minor Depression, Baby Blue With respect to that of healthy women

Table 2. PPD and desired events during pregnancy (T=0.127)

	Absent	Present
Absent PPD	20%	80%
PPD the first week and after 4 weeks	57.1%	42.9%
PPD after 4 weeks	28.6%	71.4%
PPD the first week but not after 4 weeks	37.5%	62.5%

DISCUSSION

With regard to prevalence of PPD, in accordance with the literature, our study has showed that the likelihood of developing probable PPD (cases of major and minor depression) is 11% 72 hours after delivery. The likelihood of developing possible PPD (cases of baby blues), on the other hand, is 30%.

From the follow-up evaluations conducted 3 months after delivery, it is demonstrated that an additional 13% new cases of PPD appeared among women considered healthy 72 hours after delivery. This data showed, in agreement with international literature, that despite the fact that the diagnostic criteria of the DSM-IV refer to PPD only if symptoms occur within 4 weeks of delivery, PPD can in fact develop after this period.

Regarding the duration of depressive episodes among women with PPD diagnosed 72 hours after delivery, the results bring to light an extreme variability in the course of PPD and the absence of a dominant trend, which agrees with the literature on this subject. In fact, follow-ups with these women shows that while 4% of the women who showed signs of PPD right after the delivery were no longer symptomatic in their follow-ups, there were 5% of subjects with maternity blues in the 72 hours after delivery who had transformed into PPD 3 months later.

With regards to the clinical progress, it was possible to observe worsening of symptoms of depression between Antepartum and Postpartum in cases of major and minor depression. However, there was substantial leveling of symptoms in cases of maternity blues.

With regard the prognosis, we have detected a progressive worsening of symptoms of PPD from the first 72 hours to follow-up. However the same symptomatology in subjects with maternity blues showed significant improvement.

With regard to risk factors, this study, as in the literature, shows that one of the most relevant risk factors for the development of PPD is Antepartum Depression. In particular, analyzing the two cut-off points for the diagnosis of APD, at 9 and 14, it was seen through EPDS that women who demonstrated APD in the form of major depression were less likely to develop PPD than those with minor depression, or those with less severe symptoms of depression. A reasonable hypothesis is that women who demonstrate more severe symptoms of depression in the Antepartum period can be identified early and therefore treated in such a way as to avoid, in some cases, the development of PPD. Subjects with more subtle symptoms, on the other hand, might make diagnosis, and subsequent possible treatments, more difficult.

Furthermore, our study showed that with EPDS test (containing two items that allow one to measure Antepartum anxiety) that women who developed PPD had elevated levels of anxiety during pregnancy, and that the higher the levels of anxiety, the more severe the form of PPD they developed; women who did not develop PPD did not show elevated levels of anxiety during pregnancy.

In addition, it was shown that the presence of "desired Life Events" during pregnancy serves as a protective factor against the development of PPD.

CONCLUSIONS

Our study was conceived to investigate and further understand the possible causes and possible risk factors of Postpartum Depression, with the intention to then develop standardized models of prevention to reduce the incidence and effects of this pathology.

The epidemiological data we gathered are similar to those discussed in the literature; this shows the increasing relevance of this illness.

The causes of PPD are many. Although it remains difficult to distinguish between risk factors and causes, our study agrees in giving relevance to risk factors, specifically Antepartum Depression and Antepartum Anxiety. In particular, our research shows that APD in women with milder symptoms of depression was more likely to evolve into PPD than in women with more severe symptoms. This data suggested theuse of a cut-off on the EPDS score of 9, but not 14, for measuring APD, in order to be able to observe over time and therefore intervene, even in those cases in which mild symptoms of depression would not have suggested an elevated risk of developing PPD.

In particular, we consider the use of EPDS as a screening test important not only for PPD and APD, but also as a diagnostic tool useful for evaluating the presence of Antepartum Anxiety.

Finally, it was shown that positive psycho-social events that occur during pregnancy can serve as protective factors against PPD; this demonstrates the importance of making pregnancy as serene a period (from a psycho-social point of view) as possible for the future new mother.

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Conflict of interest: None to declare.

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