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MATERNAL PERSONALITY DISORDERS AND THEIR OUTCOMES IN THE OFFSPRING

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Abstract

Background: Current knowledge on the effects of psychopathology during pregnancy and postpartum on offspring mental outcome is very poor and mainly focused on anxiety and depressive disorders. Personality disorders are less investigated. Borderline and Antisocial PDs are especially considered, but the other PDs are too often neglected.

Aim: The aim of the present project drifts towards the identification of possible consequences in offspring, due to maternal psychopathology, particularly personality disorders. Moreover, we will try to identify eventual mediators within personality causal role if any.

Methods: 108 women from Perinatal Psychiatric Department ("LUCE"), 152 from Outpatients Psychiatric Department who had no specific issues towards their children or motherhood (OUTPTS) and 198 healthy controls (HC) were tested with EPDS, BAI, BDI, WHOQOL and CTQ. Their children were tested with CBCL.

Results: "LUCE" and OUTPTS women did not differ from a diagnostic, socioeconomic and pharmacological point of view. Children of "LUCE" patients showed issues in all the domains both at a borderline and clinical level, while children of OUTPTS patients had only issues in few domains and at a borderline level. Clinical issues are shown especially by children of mothers affected by Passive-aggressive, Paranoid, Narcissistic&Borderline, Obsessive-Compulsive and Narcissistic PDs. In particular, children of PA mothers seemed more emotionally reactive, those of N+B mothers more prone to withdrawn. Children of

Abstract English

Passive-Aggressive PD mothers show significance in most of the clinical domains compared to SCID_II-NEG. In particular, it is interesting to underline significance in clinical anxiety/depression, withdrawn and aggressive behavior. Children of Narcissistic mothers have significantly more clinical attention problems while children of Obsessive-Compulsive PD mothers have significantly more clinical anxiety/depression and somatic complaints. Clinical withdrawn differences children of mothers with several PDs compared to those of SCID_II-NEG mothers.

Children of "LUCE"-EPDS^{+} showed clinical issues in all the domains.

EPDS mediation in "LUCE" children showed a significant higher level of clinical withdrawn.

An in-depth analysis of the role of EPDS in comparing children of SCID_II-NEG and each PDs (possible at a clinical level only in "LUCE") showed significance in anxiety/depression between PARA or PA and SCID_II-NEG and in aggressive behavior between PA and SCID_II-NEG.

A further analysis showed lack of significant differences in any CBCL domain in each PDs if EPDS+ and – were compared.

Conclusion: The present study aimed at investigating possible psychic effects in offspring of mothers affected by personality disorders due to maternal psychopathology. We selected psychiatric patients both from Perinatal and Outpatients Departments and healthy controls. A comparison among their children let to highlight two main preliminary conclusion: children of mothers with PDs have worse outcomes and children of mothers with a psychic sufferance in the peripartum have a worse profile compared with those of mothers with the same

diagnosis and pharmacological treatment. The mediation of a positivity for the risk of developing postpartum depression does not seem enough to justify such results. Albeit women with that positivity have children that show higher sufferance, it is the difficulty in mother-child bond or toward motherhood (expressed by women admitted to Perinatal Department) that constitute the best explanation to their children higher difficulties.

Our results suggest and stress the importance of an early identification and treatment of mothers with psychic sufferance during pregnancy in order to prevent or at least reduce their children psychic outcomes.

Abstract

Premesse: Le conoscenze attuali sugli effetti della psicopatologia durante la gravidanza e il postpartum sull'esito mentale nella prole sono molto scarse e si concentrano principalmente su ansia e disturbi depressivi. I disturbi della personalità sono meno indagati. I disturbi borderline e antisociali DP sono quelli maggiormente considerati, sebbene poco analizzati, ma gli altri risultano troppo spesso trascurati.

Scopo: L'obiettivo del presente progetto è orientato all'identificazione delle possibili conseguenze nella prole, a causa della psicopatologia materna, in particolare dei disturbi di personalità. Inoltre, cercheremo di identificare eventuali mediatori rispetto all'effetto della personalità, se presenti.

Metodi: 108 donne dell' ambulatorio psichiatrico perinatale ("LUCE"), 152 del CPS, che non hanno avuto problemi specifici nei confronti dei loro figli o maternità (OUTPTS), e 198 controlli sani (HC) sono stati testati con EPDS, BAI, BDI, WHOQOL e CTQ. I loro bambini sono stati testati con CBCL.

Risultati: Le donne "LUCE" e OUTPTS non differivano da un punto di vista diagnostico, socioeconomico o farmacologico. I bambini "LUCE" presentavano problemi in tutti i domini sia a livello borderline che clinico, mentre i bambini di OUTPTS avevano difficoltá in pochi domini e ad un livello borderline. I bambini di madri passivo-aggressive sembravano emotivamente più reattivi, quelli delle madri narcisiste&borderline più inclini al ritiro. I bambini di madri passivo-aggressive mostrano una positivitá significativamente maggiore

nella maggior parte dei domini clinici rispetto a quelli di madri senza DP, soprattutto ansia/depressione clinica, comportamento ritirato o aggressivo. I bambini delle madri narcisistiche hanno problemi di attenzione ad un livello clinico significativamente maggiori mentre i figli delle madri con disturbo ossessivo-compulsivo DP hanno significativamente più ansia/depressione e disturbi somatici. Un distacco clinicamente significativo differenzia i bambini di madri con differenti PD rispetto a quelle delle madri senza PD.

La mediazione EPDS nei bambini "LUCE" ha evidenziato un livello significativamente più alto di ritiro clinico.

Un'analisi approfondita del ruolo dell'EPDS nel confrontare i bambini di SCID_II-NEG e di ciascun PD (possibile a livello clinico solo in "LUCE") ha mostrato significato nell'ansia/depressione tra figli di donne con DP paranoide o passivo-aggressivo e SCID_II-NEG e comportamento aggressivo tra passivo-aggressivo e SCID_II-NEG.

Un'ulteriore analisi ha mostrato la mancanza di differenze significative in qualsiasi dominio CBCL in ogni PD se EPDS + e - vengono confrontati .

Conclusioni: Il presente studio ha lo scopo di indagare i possibili effetti psichici, dovuti alla psicopatologia materna, nella prole di madri affette da disturbi della personalità. Abbiamo selezionato pazienti psichiatrici sia da ambulatori di psichiatria perinatale che territoriali e controlli sani. Un confronto tra i loro figli permette due conclusioni preliminari: i figli di madri con PD hanno esiti peggiori e i figli di madri con una sofferenza psichica nel peripartum hanno un profilo peggiore rispetto a quelli di madri con la stessa diagnosi e trattamento farmacologico. La mediazione di una positività per il rischio di sviluppare una depressione postpartum non sembra sufficiente a giustificare tali risultati. Anche se le donne

con quella positività hanno figli che mostrano una maggiore sofferenza, è la difficoltà nel legame madre-figlio o verso la maternità (espressa dalle donne in carico al Dipartimento perinatale) che costituiscono la migliore spiegazione delle maggiori difficoltà dei loro figli.

I nostri risultati suggeriscono e sottolineano l'importanza di una rapida identificazione e trattamento delle madri con sofferenza psichica durante la gravidanza al fine di prevenire o almeno ridurre gli esiti psichici nei figli.

Psychopathology & Perinatal

Pregnancy represents a peculiar life experience characterized by deep physical, emotional and hormonal changes. Physiological modifications linked to pregnancy and labor may represent a risk factor for exacerbation of an already-existing condition in a woman, or determine an onset in vulnerable people. Media attention highlights some pathologies as post-partum depression or psychosis, particularly when the end-results are devastating, such as neonaticide or mother/child homicide-suicide. Any psychiatric pathology can be exacerbated by pregnancy, but, in particular, those related to mood and anxiety. The singular mother-fetus relationship is currently being analyzed more and more frequently. It is well known how genetic transmission may affect the characteristics in the unborn, but the environmental aspect must not be neglected. If they are biological or relational, they play a very important role in the interaction with genetic bases.

The strongest risk factor for depression during pregnancy is a history of depression.6 Other risk factors include a family history of depression or bipolar disorder, childhood maltreatment, single motherhood, having more than three children, cigarette smoking, low income, age younger than 20 years, insufficient social support, and domestic violence (Bloch et al., 2000; Paulson and Bazemore, 2010; Stewart and Vigod, 2016; Wisner et al., 2013).

The consequences of depression during pregnancy include difficulty performing usual activities and failure to seek prenatal care; inadequate diet; the use of tobacco, alcohol, and other harmful substances; and the risk of self-harm or suicide (Bloch et al., 2000). Depression

may affect fetal growth as well as infant temperament and later behavior in childhood (Couto et al., 2015; Guintivano et al., 2014; Mehta et al., 2014). Postpartum depression is more common in women with prenatal depression than in women who do not have prenatal depression, and it may lead to difficulties with infant care, mother–child attachment, care of other children, and the relationship with the woman's partner (Wisner et al., 2013).

Major depression is a disabling, treatable disorder that affects more than 12% of pregnant women. Untreated depression during pregnancy has been linked to increased risks of suicide, miscarriage or preterm birth, poor fetal growth, and impaired fetal and postnatal development. Treatment includes psychotherapy, antidepressant medication, or both; the latter is indicated for severe depression.

Data from randomized, controlled trials of antidepressants during pregnancy are lacking, but observational data suggest that selective serotonin-reuptake inhibitors and serotonin–norepinephrine reuptake inhibitors are relatively safe. Some adverse outcomes appear to be slightly more common in offspring of women who take antidepressants during pregnancy; these include preterm birth, neonatal adaptation difficulties, neonatal persistent pulmonary hypertension, and rare cardiac abnormalities in neonates.

Women with depression should be informed of the risks associated with antidepressant drugs as well as those associated with untreated depression, and they should be closely monitored throughout pregnancy and the first postpartum year.

The New Postpartum depression is a disabling but treatable mental disorder that represents one of the most common complications of childbearing (Howard et al., 2014).

Postpartum depression is included in the American Psychiatric Association's Diagnostic and

Statistical Manual of Mental Disorders, fifth edition (DSM-5), as a major depressive episode "with peripartum onset if onset of mood symptoms occurs during pregnancy or within 4 weeks following delivery" (APA, 2013). However, depression that begins later than 4 weeks after delivery or does not meet the full criteria for a major depressive episode may still cause harm and require treatment (Wisner et al., 2010).

In clinical practice and in clinical research, postpartum depression (i.e., nonpsychotic puerperal depression) is variably defined as depression that occurs within 4 weeks after childbirth, or 3 months, 6 months, or up to 12 months after childbirth (APA, 2013; Gaynes et al., 2005; Wisner et al., 2010).

The estimated prevalence of postpartum depression ranges from 6.5 to 12.9% or even higher in lower-income and middle-income countries (Gaynes et al., 2005; Howard et al., 2014; Munk-Olsen et al., 2006). Some studies have shown increased rates of depression among new fathers (Paulson and Bazemore, 2010), whereas others have not (Munk-Olsen et al., 2006).

Symptoms of postpartum depression often include sleep disturbance (beyond that associated with the care of the baby), anxiety, irritability, and a feeling of being overwhelmed, as well as an obsessional preoccupation with the baby's health and feeding. Suicidal ideation and worries about causing harm to the baby have also been reported (Wisner et al., 2013). The strongest risk factor for postpartum depression is a history of mood and anxiety problems and, in particular, untreated depression and anxiety during pregnancy (Wisner et al., 2013). The rapid decline in the level of reproductive hormones after childbirth probably contributes to the development of depression in susceptible women,8 although the specific pathogenesis of postpartum depression is unknown; in addition to hormonal changes (Bloch et al., 2000;

Mehta et al., 2014), proposed contributors include genetic factors (Couto et al., 2015; Guintivano et al., 2014) and social factors including low social support, marital difficulties, violence involving the intimate partner, previous abuse, and negative life events (Howard et al., 2014; Norhayati et al., 2015). The natural course of postpartum depression is variable. Although it may resolve spontaneously within weeks after its onset, approximately 20% of women with postpartum depression still have depression beyond the first year after delivery, and 13% after 2 years; approximately 40% of women will have a relapse either during subsequent pregnancies or on other occasions unrelated to pregnancy (Goodman, 2004). Postpartum depression results in maternal suffering and diminished functioning and is associated with increased risks of marital conflict and impaired infant–caregiver attachment, as well as increased risks of impaired emotional, social, and cognitive development in the child (Stein et al., 2014), and in rare cases, suicide or infanticide (Esscher et al., 2016; Lindahl et al., 2005).

KEY CLINICAL POINTS

POSTPARTUM DEPRESSION

- Postpartum depression is a common, disabling, and treatable problem that affects the woman, infant, and family.
- Sensitive inquiry about mental health symptoms should occur at all postpartum consultations, and comprehensive evaluation should be sought when core symptoms of depression, such as low mood or loss of interest, are present.
- Clinicians should be alert to symptoms that suggest bipolar disorder or postpartum psychosis because these require a management strategy that is different from that for postpartum depression.
- Treatment for postpartum depression depends on the severity of symptoms and the level of functional impairment. Mild depression may be addressed with psychosocial strategies, including peer support and nondirective counseling, and psychological therapy is recommended for moderate depression; pharmacotherapy (generally a selective serotonin reuptake inhibitor [SSRI] as first-line treatment) is recommended for severe depression, for lack of response to nondrug therapy, or in accordance with patient preference.
- Most SSRIs pass into breast milk at a dose that is less than 10% of the maternal level and are generally considered to be compatible with breast-feeding of healthy, full-term infants.

Table 1. Criteria for the Diagnosis of a Major Depressive Episode.*

Five or more of the following symptoms during the same 2-week period, with the symptoms representing a change from previous functioning and with at least one of the first two symptoms included

- Depressed mood most of the day, nearly every day
- Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day
- Significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day
- Insomnia or hypersomnia nearly every day
- Psychomotor agitation or retardation nearly every day
- Fatigue or loss of energy nearly every day
- Feelings of worthlessness or excessive or inappropriate guilt nearly every day
- Diminished ability to think or concentrate, or indecisiveness, nearly every day
- Recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide

The symptoms do not meet criteria for a mixed episode (includes hypomanic or manic symptoms)

The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning

The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse or other medication) or a general medical condition (e.g., hypothyroidism)

The symptoms are not better accounted for by bereavement

Severe mental illness and pregnancy

Women with severe mental illness have consistently been reported to have lower fertility rates than do women in the general population, with women with schizophrenia usually having much lower fertility than do women with bipolar disorder (Gaynes et al., 2005; Munk-Olsen et al., 2006; Paulson and Bazemore, 2010; Wisner et al., 2013). Although women with psychiatric disorders have high rates of abortion compared with the general population, this does not appear to explain the decrease in fertility (Munk-Olsen et al., 2006).

Prolactin-raising antipsychotics, which reduce fertility, seem to partly explain the reduction in general fertility rate (Paulson and Bazemore, 2010), with evidence that the general fertility rate among women with schizophrenia has increased modestly over the past 13 years coinciding with the increasing use of non-prolactin-raising antipsychotics (Wisner et al., 2013).

However, because schizophrenia in particular can affect a women's ability to make and sustain relationships (Bloch et al., 2000), some reduction in fertility is likely to continue.

Nevertheless, most women with schizophrenia and bipolar disorder do have children (Mehta et al., 2014), although their pregnancies are more likely to be unplanned and unwanted than are those of women in the general population (Couto et al., 2015). Of those women with psychotic disorders who do have children, some describe motherhood as central to their existence (Guintivano et al., 2014).

Epidemiology

The prevalence of severe mental disorders in pregnancy has rarely been studied, although a

US epidemiological study showed no difference in the prevalence of psychotic (0.4%) and broadly defined bipolar disorder (2.8%) in past-year pregnant women compared with non-pregnant women (Norhayati et al., 2015). Few studies have examined the incidence of severe mental illness in pregnancy, but a Danish registry-based study reported a reduced risk in pregnancy for first psychiatric admissions with both schizophrenia and bipolar disorder (Goodman, 2004), and Kendell's seminal studies (Stein et al., 2014) of psychiatric admission in Edinburgh did not show the increased rates of admission in pregnancy that were noted in the post-partum period.

Similarly, very few studies have been published that investigate the effect of pregnancy on the relapse of schizophrenia. Initial studies report conflicting findings, probably because of differences in sample selection and outcomes measured. A small prospective study noted that ten of 17 pregnant women with schizophrenia reported worsening mental health (Esscher et al., 2016), whereas a larger study of 919 women with schizophrenia identified no increased risk of acute relapse, with only three (0.3%) acute episodes occurring in pregnancy (all in the first trimester) (Lindahl et al., 2005). Prevalence of prescriptions of antipsychotics in women with schizophrenia might be lower for the second and third trimesters of pregnancy compared with the first (Cox et al., 1987), but whether such treatment discontinuation reflects worsening of illness (with consequent worsening of insight affecting adherence with medication), improvement of illness, or merely medication being stopped by women or their clinicians when pregnancy is discovered, is not known.

Recurrence in pregnancy has been assessed more frequently for women with bipolar disorder than schizophrenia, although few prospective studies have been published (2015).

Population-based studies suggest that pregnancy is somewhat protective with low rates of both new onset13 and relapse during pregnancy (Earls, 2010), and a retrospective study in 201320 noted that only 8% of perinatal episodes in 980 women with bipolar I disorder.

A subsequent study (National Institute for Health and Care Excellence, 2014) from the same group in an expanded sample of parous women with bipolar disorder (n=283 BPI and n=338 BPII) noted that 23% had illness episodes during pregnancy compared with 52% with an episode in the post-partum period.

Few data exist for the nature of psychotic relapse during pregnancy although case reports suggest severe psychopathology can occur (Bosanquet et al., 2015; Wisner et al., 2002). Women who are usually maintained on medication to stabilise their condition might stop treatment when they discover that they are pregnant because of fears about potential teratogenicity, and this can lead to a rebound psychosis. Women who are chronically unwell might develop psychotic denial of pregnancy, particularly if they have previously lost custody of a child. This denial can lead to refusal of antenatal care or failure to recognise labour, with consequent unassisted delivery, although this occurrence seems to be rare (Milgrom et al., 2008).

Severe mental illness in the post-partum period

Severe mental illness can occur in the post-partum period as the continuation of a chronic psychotic condition that began in or before pregnancy, or as an episode of severe mental illness with a rapid onset shortly after childbirth. These later episodes, traditionally labelled as post-partum or puerperal psychosis most commonly take the form of mania, severe psychotic depression, or mixed episodes with features of both high and low mood (Yazici et

al., 2015). Despite the current Diagnostic and Statistical Manual of Mental Disorders (DSM) and International Classification of Diseases (ICD) classification systems not recognising the condition (panel 1), the term post-partum or puerperal psychosis has remained in widespread clinical use and some investigators argue that the nosological confusion around severe post-partum episodes has hindered research into this important disorder. Qualitative research has shown that a label of a post-partum mood disorder is favoured by women themselves and by the key user group for women with this condition in the UK, Action on Postpartum Psychosis (Guintivano et al., 2014). As the name suggests, the core features of psychosis such as delusions and hallucinations are common, and women might also have notable confusion or perplexity (Dennis and Dowswell, 2013). Most post-partum psychosis episodes have their onset within 2 weeks of delivery, with more than 50% of symptom onsets occurring on days 1–3 in one retrospective study (Dennis and Chung-Lee, 2006). Sudden onset and rapid deterioration are typical and the clinical picture often changes rapidly, with wide fluctuations in the intensity of symptoms and severe swings of mood (Dennis and Chung-Lee, 2006; Dennis and Dowswell, 2013). Historically, other cerebral or systemic conditions such as eclampsia, delirium, thyroid disorders, or infection were important causes of psychosis occurring at this time, and that they are excluded is important because their misattribution to psychiatric disorder has led to several deaths in new mothers (Howard et al., 2014).

Epidemiology of post-partum psychosis

Several studies have estimated post-partum admission rates to psychiatric hospitals to be about 1–2 per 1000 births in the general population and this figure is often applied to post-partum psychosis (Byatt et al., 2015; Goodman, 2004; Stein et al., 2014). However, the true

incidence of post-partum psychosis might be higher or lower because at least some women with post-partum psychosis are likely to be treated at home (especially if facilities for admission with the baby are not available); and several women admitted in the post-partum period will be for disorders other than post-partum psychosis.

If doubt remains about the incidence of post-partum psychosis, the evidence is strong and consistent for a specific association between post-partum psychosis and bipolar disorder. Data from both retrospective and population registry studies suggest that women with bipolar disorder have at least a one in five risk of suffering a severe recurrence following delivery (Dennis and Hodnett, 2007; Earls, 2010) and an even higher risk (approaching one in two) of experiencing any mood episode in the post-partum period, including non-psychotic major depression.

Women with a history of a previous post-partum psychosis are at very high risk after subsequent pregnancies, with more than one in two deliveries affected (Ashford et al., 2016), and investigators have also suggested that for women with bipolar disorder, a family history of post-partum psychosis gives a similarly high risk in the post-partum period (Azevedo et al., 2014; Lam et al., 2013). However, 50% or more of women who develop post-partum psychosis have no history that suggests they should be considered at high-risk (Orsolini and Bellantuono, 2015).

Despite the weight of recent genetic evidence suggesting shared causal factors across both the psychosis (schizophrenia and bipolar disorder) and mood disorder (bipolar and unipolar) spectrums (Gentile, 2007), susceptibility to childbirth-triggered episodes seems to be one area which differentiates bipolar disorder from these other disorders. For example, in studies of

the Danish registries, Munk-Olsen and colleagues reported a substantially higher risk of both the first onset and recurrence of a bipolar episode than was noted for episodes of schizophrenia or major depression.

Post-partum psychosis: risk factors and pathophysiology

As discussed, the strongest and best-established risk factor for susceptibility to post-partum psychosis is a history of bipolar disorder or previous severe post-partum episodes, although several other potential risk factors have been investigated.

Obstetric risk factors

Several obstetric factors have been examined in relation to risk of post-partum psychosis (including pregnancy and delivery complications, caesarean section, sex of baby, and gestation period) but the only consistent finding is a strong association with primiparity.36–39 The reason for the excessive risk in primiparous women is not clear. An important bias is that women with a severe post-partum episode might be less likely to go on to have further children, but this suggestion has not been shown to account for the association in studies that have controlled for this confounder. First pregnancies and the transition to new motherhood might lead to a greater psychological stress than subsequent deliveries, although hormonal, immunological, and other biological differences between first and subsequent pregnancies should also be considered. The relation of post-partum psychosis to other pregnancy-related disorders that also occur more frequently in first pregnancies, such as pre-eclampsia, is of interest, and the biological and psychosocial differences between first and subsequent pregnancies are a potential area for future study.

Personality Disorders

For the specific purpose of improving diagnosis, the DSM 5 enclosed, in its section III, a new model for the classification of personality disorders. That new model is a categorical-dimensional hybrid based on the assessment of core elements of personality functioning and of pathological personality traits.

General Criteria for a Personality Disorder	**General Criteria for a Personality Disorder**
DSM-IV	**DSM-5 Criteria - Revised June 2011**
	The essential features of a personality disorder are impairments in personality (self and interpersonal) functioning and the presence of pathological personality traits. To diagnose a personality disorder, the following criteria must be met:
A. An enduring pattern of inner experience and behavior the deviates markedly from the expectations of the individual's culture. This pattern is manifested in two (or more) of the following areas: 1. Cognition (i.e., ways of perceiving and interpreting self, other people and events) 2. Affectivity (i.e., the range, intensity, liability, and appropriateness of emotional response) 3. Interpersonal functioning 4. Impulse control	A. Significant impairments in self (identity or self-direction) and interpersonal (empathy or intimacy) functioning.
B. The enduring pattern is inflexible and pervasive across a broad range of personal and social situations.	B. One or more pathological personality trait domains or trait facets.
C. The enduring pattern leads to clinically significant distress or impairment in social, occupational, or other important areas of functioning.	C. The impairments in personality functioning and the individual's personality trait expression are relatively stable across time and consistent across situations.
D. The pattern is stable and of long duration, and its onset can be traced back at least to adolescence or early adulthood.	D. The impairments in personality functioning and the individual's personality trait expression are not better understood as normative for the individual's developmental stage or socio-cultural environment.
E. The enduring pattern is not better accounted for as a manifestation or consequence of another mental disorder.	E. The impairments in personality functioning and the individual's personality trait expression are not solely due to the direct physiological effects of a substance (e.g., a drug of abuse, medication) or a general medical condition (e.g., severe head trauma).
F. The enduring pattern is not due to the direct physiological effects of a substance (e.g., a drug abuse, a medication) or a general medical condition (e.g., head trauma).	

In the DSM 5, all the personality disorders previously enlisted in the DSM-IV-TR, but in the section III, only six of them are enclosed:

- Antisocial
- Avoidant
- Borderline
- Narcissistic
- Obsessive-Compulsive
- Schizotypal

It seems useful, to the purpose of the present study, to report all the criteria and in-depth analysis of the personality disorders more frequently detectable in young women: Borderline and Narcissistic personality disorders.

Borderline personality disorder (BPD) is present in about 6% of primary care patients (Gross et al., 2002) and persons in community-based samples and in 15 to 20% of patients in psychiatric hospitals and outpatient clinics. In clinical settings, about 75% of persons with the disorder are female, although this percentage is lower in community based samples (Grant et al., 2008; Lenzenweger et al., 2007). Patients with BPD usually enter treatment facilities after suicide attempts or after episodes of deliberate self-injury. Such episodes result in an average hospital stay of 6.3 days per year and nearly one emergency room visit every 2 years, rates that are 6 to 12 times those among patients with a major depressive disorder(Bender et

al., 2001; Pascual et al., 2007; Zanarini et al., 2004).

Table 1 summarizes the criteria for the diagnosis of BPD, according to the Diagnostic and Statistical Manual of Mental Disorders, fourth edition. Recurrent suicidal threats or acts, when combined with fears of abandonment, are by themselves strongly indicative of the diagnosis(Grilo et al., 2007).

Though these signature criteria make BPD easy to recognize, the diagnosis is often underused(Zimmerman and Mattia, 1999; Zimmerman et al., 2010). A major reason for this is the perception that the recurrent crises, emotional volatility, and self-injurious behavior that characterize patients with BPD are willful and manipulative episodes rather than signs of an illness(Groves, 1981; Vaillant, 1992).

BPD is significantly heritable, with 42 to 68% of the variance associated with genetic factors (Distel et al., 2010; Gunderson et al., 2011b)— rates in the same range as those reported for hypertension(Kupper et al., 2005).

All the major components of the disorder (e.g., interpersonal hypersensitivity, affective dysregulation, and impulsivity) have likewise been shown to track in families (Gunderson et al., 2011).

Studies involving the use of magnetic resonance imaging or positron-emission tomography in patients with BPD have shown a hyperresponsive amygdala and impaired inhibition from the prefrontal cortex during tasks involving exposure to facial expressions, reactions to emotionally charged words, and interpersonal cooperation (Donegan et al., 2003; King-Casas et al., 2008; Silbersweig et al., 2007). There is evidence that neurohormones, such as oxytocin and opioids, mediate the exaggerated fears of rejection and abandonment that are

characteristic of BPD(Stanley and Siever, 2010). Environmental influences also appear to be important in the pathogenesis of the disorder; insecure attachment, childhood neglect or trauma, and family marital or psychiatric problems are recognized risk markers.

Whereas BPD has long been considered a chronic and largely untreatable disorder, more recent data indicate a high remission rate (about 45% by 2 years and 85% by 10 years), with remission defined as no more than two diagnostic criteria being met for at least 12 months, and a low relapse rate (about 15%) (Gunderson et al., 2011a). In other respects, however, the prognosis remains discouraging. The suicide rate is about 8 to 10%, which is particularly high for young women, in whom the suicide rate is typically low. Moreover, even after remission, most patients with BPD have severe functional impairment, with only about 25% of patients employed full time and about 40% receiving disability payments after 10 years(Gunderson et al., 2011a). In addition, BPD negatively affects the course and treatment of coexisting medical conditions (Palmer et al., 2003; Rothrock et al., 2007) and other psychiatric disorders (Massion et al., 2002; Walter et al., 2009).

Costs of the disorder include those related to heavy utilization of expensive health care resources and the persistent lack of productivity of patients (Soeteman et al., 2008). There are also considerable emotional and other costs, including those related to a variety of behaviors that are more common among patients with BPD than among those without the disorder, including reckless driving (Sansone et al., 2010), domestic violence (Tweed and Dutton, 1998), imprisonment (Trestman et al., 2007), and pathological gambling (Fernandez Montalvo and Echeburua, 2006).

Narcissistic personality disorder (NPD) affects about 1-6% of primary care patients and

persons in community-based samples (Goldner-Vukov and Moore, 2010; Roepke and Vater, 2014) and 6%-36% of patients in psychiatric hospitals and outpatient clinics (APA, 2013), but narcissistic personality traits in the nonclinical young adult population are on the rise (Twenge et al., 2012). 50-75% of NPD are males (APA, 2013; Roepke and Vater, 2014).

Heritability is considered about 50-80% while it is about 25%-70% among non-clinical twins (Kendler et al., 2008). This rate is among the highest compared to other personality disorders (Roepke and Vater, 2014). The genetic variance in personality traits, in general, is 65%, while 10% is felt to be due to shared and 25% to non-shared environmental factors including differential parenting (Goldner-Vukov and Moore, 2010). Otherwise, being raised as a child of a parent with NPD could lead to the development of NPD through early relational trauma, emotional abuse and neglect (Goldner-Vukov and Moore, 2010). In fact, in families that produce children with NPD, parental figures impede the development of mirroring capacities and empathy. Parental figures admire children as narcissistic extensions, i.e., children are 'loved' if they succeed in bringing social affirmation to the parents.

Key features are a sense of self-grandiosity, exploitation of others and lack of empathy. Notwithstanding these core symptoms, NPD shows a fragile Ego, which supports an overreaction to critics and perceived threats to personal value. Moreover, that presentation is epitomic of *"overt"* NPD, but a *"covert"* subtype of NPD is often neglected. The grandiose, thick-skinned, overt subtype is characterized by overt grandiosity, attention seeking, entitlement, arrogance, and little observable anxiety. They can be socially charming, despite being oblivious to the needs of others, and are interpersonally exploitative. In contrast, the vulnerable, "fragile" or thin-skinned, covert subtype is inhibited, manifestly distressed,

hypersensitive to the evaluations of others while chronically envious and evaluating themselves in relation to others. Interpersonally, they are often shy, outwardly self-effacing, and hypersensitive to slights, while harboring secret grandiosity. Both types are extraordinarily self- absorbed. Many NPDs fluctuate between grandiose and depleted states, depending on life circumstances, while others may present with mixed features (Caligor et al., 2015).

NPD have a more serious prognosis than all other personality disorders functioning at the borderline level, and those who in addition present significant antisocial behavior have an even worse prognosis (Kernberg, 2007). NPD is among the more treatment refractory within the personality disorder spectrum. They have a poor social functioning, especially in the low level of satisfaction with heterosexual relationships, more re-hospitalization and probably a poorer global functioning at admission with a poorer overall follow-up functioning (Ellison William D 2013).

In addition numerous studies have shown a high degree of co-occurrence of NPD with other Axis II disorders, especially cluster B (borderline, anti-social, histrionic personality disorders), and Axis I disorders, particularly affective disorders (unipolar and bipolar depression), substance use disorders, anxiety disorders, and eating disorders (Zimmerman et al., 2005). It is not surprising to find that vulnerable narcissism is more strongly linked with non-suicidal self-injury and suicide attempts, but overt narcissist might attempt or threaten their lives in the light of being almighty or in case of unbearable narcissistic hurts (Campbell et al., 2005).

Both the kinds of NPD may present differently in therapeutic settings in terms of treatment

utilization. “Grandiose narcissism” characteristics most often reduced treatment utilization (e.g., more cancellations and no-shows, less medication use, less contact with partial hospitalizations and inpatient admissions) whereas “vulnerable narcissism” characteristics most often promoted treatment utilization (e.g., more contact with crisis services and partial hospitalizations). It is also associated with failure to complete treatment, with a drop out higher than 60% in patients with high NPD (Ogrodniczuk et al., 2009).

NPD are difficult patients to treat. They behave within the therapeutic relationship the same way as in other relationships. Gabbard suggests that individuals with the *grandiose narcissism* variant will use “the therapist as a sounding board, a listening ear that exists primarily to enhance the patient’s self-esteem.” These individuals pay little attention to verbal and nonverbal signals from the therapist and demonstrate a failure to connect with the therapist in a meaningful manner that is representative of their failure to connect with others outside the therapeutic setting. *Vulnerable narcissism* may be acutely sensitive and feel “wounded, ignored, or rejected by the therapist” and thus move to devalue the clinician. These patients may also be suspicious of the therapist and “perceive in the therapist’s eyes a wish to hurt, humiliate, and deride the patient” (Campbell et al., 2005).

NPD is the disorder associated with the highest number of attempted suicide (usually considered as a key feature of borderline personality disorder). Suicide attempters diagnosed with NPD are generally less impulsive and have suicide attempts characterized by higher lethality (Blasco-Fontecilla et al., 2009).

Malignant Narcissism (MN) is the worst presentation of NPD and it is characterized by a core Narcissistic personality disorder, antisocial behavior, ego-syntonic sadism, and a paranoid

orientation(Goldner-Vukov and Moore, 2010). Its prevalence is unknown. MN has been recognized in personalities like Hitler, Stalin and Mao as well as other tyrants by several authors (Goldner-Vukov and Moore, 2010). MN may come to treatment under duress from social services or correctional institutions. They occasionally come to get help for coexisting mental disorders, possibly at the request of partners or family members.

Moreover, according to Hare, some narcissistic features (grandiosity, lack of empathy, exploitativeness) are core symptoms of pychopathy, together with antisocial (impulsivity, deceitfulness, irresponsibility, lack of remorse), histrionic (shallow expression of emotion) and borderline (impulsivity) characteristics. In fact, he strictly underlined that interpersonal and affective facets of the Hare Psychopathy Checklist are representative of the narcissistic part of psychopathy (Hare et al., 2000).

The costs of NPD should be evaluated from a social and health point of view. Patients affected by NPD are established self-centered, using to exploit others to gain advantages and obtain their goals. Several researches, oriented on the evaluation of long-term consequences of working with NPDs, established that NPDs gain less on a long-term perspective and try to exploit resources more than their own convenience because they want to gain more than competitors immediately but compromise results both for competitors and themselves (Campbell et al., 2005). On the other end, the high incidence of admissions, suicide and disability pensions, reported above, account for the important costs of NPD on the Health System.

Despite its clinical importance, NPD is a disorder that is not analyzed enough. Consequently, precise prevalence as well as the contribution of genetic/environmental risk factors are to be

attested.

As a consequence, no standardized guidelines have been identified at the moment. Both the National Institute for Health and Care Excellence (NICE) and the American Psychiatric Association (APA) do not report specific guidelines for the management and treatment of narcissistic personality disorder, contrary to the publication of explicit guidelines for borderline and antisocial personality disorders.

Diagnosis

Criteria for the diagnosis of NPD, according to the *Diagnostic and Statistical Manual of Mental Disorders,* fifth edition (APA, 2013), are listed in Figure 1 (301.1, F60.81). Those criteria better describe an overt subtype of NPD patient. For the specific purpose of improving diagnosis, the DSM 5 enclosed, in its section III, a new model for the classification of personality disorders. That new model is a categorical-dimensional hybrid based on the assessment of core elements of personality functioning and of pathological personality traits. The specific criteria for NPD were intended to rectify some of the shortcomings of the DSM-IV representation by acknowledging both grandiose and vulnerable aspects, overt and covert presentations, and the dimensionality of narcissism (see Figure 1). Notwithstanding the clinical importance of NPD as exposed above, it has been one of the least studied personality disorders. As a result, there were some discrepancies regarding the reliability, validity, specificity, and sensitivity of diagnostic criteria, as well as the prevalence of the disorder, and to date there have been no randomized clinical trials examining the efficacy of any treatment for the disorder. As a serious consequence, NPD was initially slated to be omitted from DSM-5. However, in response to feedback from the clinical and research

community (Ronningstam, 2011; Shedler et al., 2010) this decision was reversed (Caligor et al., 2015).

In order to optimize the diagnostic process, key symptoms should be thoroughly examined. In fact, an in-depth analysis on the lack of empathy shows that NPD has a preserved cognitive empathy (the ability to take another person's perspective, and overlaps with the constructs of "Theory of Mind" and "mentalizing"), while its emotional empathy (Mehrabian and Epstein, 1972) (the emotional response to another person's emotional state) is restricted (Roepke and Vater, 2014).

Moreover, they basically have a fragile self- esteem, that is characterized by low implicit self-esteem and grandiose high explicit self-esteem. In order to prevent low implicit self- esteem from becoming more explicit, narcissistic patients may engage in defensive behavior. That defensive mechanism contradicts assumptions of unconscious feelings of insecurity in patients with NPD (Roepke and Vater, 2014).

Evaluation

Clinical evaluation can be integrated with structured and semi-structured interviews. The most acknowledged and widespread is the Structured Clinical Interview for DSM-IV Axis II Personality Disorders, (SCID-II), a semi-structured interview focused on the diagnosis of any single personality disorder listed in the Axis II of the DSM-IV-TR. Its specific section for NPD can be used to attest that disorder. Accordingly to the new version of the DSM, the DSM 5, a congruent edition of the SCID II, the SCID DP, has been developed and is currently available. The Narcissistic Personality Inventory (NPI) (Pincus et al., 2009) a 52-item self-report questionnaire, is also often used for research purpose. It has a two-factor

structure, with factors corresponding to narcissistic grandiosity (including the Exploitative, Self-Sacrificing Self- Enhancement, and Grandiose Fantasy subscales) and narcissistic vulnerability (comprised of the Contingent Self-Esteem, Hiding the Self, Devaluing, and Entitlement Rage subscales).

Treatment

Psychotherapy

The primary treatment for NPD is psychotherapy. NPD core features are associated with poor prognosis in therapy, including slow progress to behavioral change, premature patient-initiated termination, and negative therapeutic alliance.

Both Kohut and Kernberg indicated ***psychoanalisis*** (Higgitt and Fonagy, 1992) as the treatment of choice. Kernberg excludes NPD with a too fragile ego or the tendency towards impulsivity, recommending instead a supportive psychotherapy, while Kohut addresses the analysis of the self-object (someone who performs a necessary function for the patient, while being experienced as part of him/her) issue as the core for a successful treatment. In general, a ***dynamic psychotherapy*** (Higgitt and Fonagy, 1992) is strictly indicated, especially a ***Transference Focused Psychotherapy (TFP)***, which is a psychodynamic approach to psychotherapy developed to treat patients with a range of personality disorders at different levels of severity, including individuals with NPD. The central focus of TFP is the identification and naming of maladaptive, distorted self representations, along with their complementary distorted object representations, in the service of interpreting and ultimately resolving the splitting and other primitive defensive operations which prevent a more realistic, integrated, differentiated assessment of self and others. TFP constitutes an effective

treatment for a spectrum of narcissistic disorders from low to high functioning. In addition, since TFP emphasizes the identification with both self and object poles of the object relational dyads that comprise the internal world (e.g. grandiose self, devalued other; vulnerable self, idealized other), it is also effective in addressing the different phenotypic presentations, forms of expression, and/or fluctuating mental states from grandiose to vulnerable, from arrogant/entitled to depressed/depleted that may characterize narcissistic personality disturbances. ***Supportive psychotherapy*** (Higgitt and Fonagy, 1992), as previously reported by Kernberg, is more suitable in case of NPD patients with excessively weak ego. The potency of supportive techniques to bring about very substantial improvement is well documented by follow-up studies and experimental studies of psychotherapy.

Group psychotherapy **(Higgitt and Fonagy, 1992)** might be indicated in combination with individual psychotherapy. Some authors, like Horwitz, recommend a special combination of individual and group treatments, where both are administered by the same therapist. The group, in fact, may have the capacity to contain intense envy and narcissistic rage engendered by individual therapy and thus attenuate negative therapeutic reaction. Patients' insights and altruistic responses tended to follow therapists' empathic interventions in connection with narcissistic hurt experienced by a group member. The group may thus function to soothe and comfort patients by containing their anger and despair and yet remaining undamaged by them. Among several types of ***Cognitive Behavioral Therapy (CBT), the Schema Therapy (ST)***(Dieckmann and Behary, 2015) focuses on trauma in attachment domain. ST highlights that trauma might influence a proneness to vulnerable emotions in response to narcissistic injuries, that narcissistic patients show using maladaptive coping strategies ("schema

modes"), that result in emotional states with a superior, arrogant self-presentation and addictive or compulsive behavior as a self-regulatory function.

Pharmacotherapy

None of the drugs, specific for psychiatric disorders, have an indication for the treatment of personality disorders. Pharmacotherapies are generally prescribed for the treatment of specific symptoms, often gathered in cluster of symptoms (e.g. cognitive, mood, impulsivity). Atypical antipsychotics are, generally, the preferred treatment. They improve anger, hostility, irritability, impulsivity and the cognitive-perceptual abnormalities that underlie psychosis seen in Personality Disorders. Selective Serotonin Reuptake Inhibitors (SSRI's) reduce anger, impulsivity, aggression and affective instability. SSRI's act like a brake modulating limbic irritability and hyperarousal as well as improving frontal lobe function and judgement. Lithium, sodium valproate and carbamazepine improve mood, stabilize affect and reduce impulsivity and aggression perhaps by modulating serotonin pathways (Bateman et al., 2015).

Victims of child abuse and pregnancy

Child abuse is a major social concern afflicting 1 out of 8 children annually in the United States. Available retrospective and longitudinal data suggest that child maltreatment has a significant negative impact directly on victims' physical and mental health in childhood, adolescence, and as adults (Arias, 2004). Child abuse and neglect can cause permanent, heritable changes in the body's response to stress, which in turn inflicts profound changes in brain development (Jackson and Deye). Mental health outcomes may result in major depression, anxiety disorders, suicidal ideation, suicide attempt, alcohol dependence and illicit drug dependence (Fergusson et al., 2013; Leeners et al., 2014). Particularly, childhood sexual abuse is associated with higher rates of Post Traumatic Stress Disorder (PTSD) symptoms, decreased self-esteem and decreased life satisfaction. Childhood sexual abuse is also associated with decreased age of onset of sexual activity, increased number of sexual partners and increased medical contacts for physical health problems (Fergusson et al., 2013; Lara et al., 2015; Leeners et al., 2014). Child abuse is associated with 2.2-fold increased odds of lifetime Intimate Partner Violence (IPV). Compared with women who reported no child abuse, those who reported both, childhood physical and sexual abuse, have a 7.14-fold lifetime risk of

physical and sexual IPV (Barrios et al., 2015).

Childhood sexual and physical abuses are the most analyzed among different types of abuse, but the former is the only kind of abuse with a significant gender mediation. In fact, female victims of child abuse show a higher frequency of sexual abuse compared to male peers, with a ratio of 2-3:1 (Perez-Fuentes et al., 2013).

Women who experienced any child abuse might have significant long-term outcomes during their pregnancies. Compared to women without a history of child abuse, childhood-abused women more frequently report fear of childbirth (23% vs. 15%) and the wish for cesarean section (6.4% vs. 4.0%) (Heimstad et al., 2006; Lukasse et al., 2010a; Lukasse et al., 2010b, 2011). Women who report being exposed to physical or sexual child abuse or a combination of the two were at increased risk of strong worries about the baby's health compared to women who have not been similarly exposed (OR = 1.62) (Eide et al., 2010).

Women who suffered sexual abuse only in childhood had an increase of 20% of a risky pregnancy, only in adolescence had a 30% increase of a risky pregnancy; and women who experienced sexual abuse in both childhood and adolescence had a greater increase of 80% of a risky pregnancy (Young et al., 2011). They show a 1.65-fold increased odds of stress-related sleep disturbance and 2.11-fold increased odds of poor sleep quality during early pregnancy as compared with women who report no abuse. Women who report both physical and sexual abuse during childhood were more than twice as likely

to suffer from stress-related sleep disturbance (Young et al., 2011). Women exposed to childhood sexual abuse are significantly more often hospitalized during pregnancy. They present more often complications such as premature contractions (OR 2.54), cervical insufficiency (OR 3.36), and premature birth (OR 2.58)(Leeners et al., 2010). Approximately 3% of their pregnancies are complicated by gestational diabetes, and severe physical abuse is associated with a 42% greater gestational diabetes risk (risk ratio=1.42) compared to no physical abuse while forced sexual activity is associated with a 30% greater risk (Mason et al., 2016). Moreover, pre-pregnancy obesity in women attending prenatal care is associated with a self-reported history of emotional or physical abuse with those exposed to moderate or severe emotional or physical abuse having increased odds of being obese prior to pregnancy (Diesel et al., 2016; Hollingsworth et al., 2012; Nagl et al., 2016).

The prevalence of antepartum suicidal ideation is higher among women who reported experiencing any childhood abuse compared to those reporting none (89.3% vs 10.7%). After adjusting for potential confounders, including antepartum depression and lifetime intimate partner violence, those with a history of any childhood abuse show a 2.9-fold increased odds of reporting suicidal ideation. Women who experienced both physical and sexual childhood abuse have much higher odds of suicidal ideation (adjusted odds ratio= 4.04) (Zhong et al., 2016).

Child abuse has long-term effects involving a dysregulation in the Neuroendocrin

system, especially in Adrenal Cortical Axis. Women with child sexual abuse histories displayed increasing cortisol awakening response over pregnancy compared to women with child abuse and no abuse histories (Bublitz and Stroud, 2012), with possible implications on the fetals developing and wellbeing.

The perinatal period is a crucial time for both mothers' wellbeing and the establishment of a healthy relationship in the mother-child dyad. Short and long term physical and mental health consequences are documented in the newborns if their mothers suffered anxiety, depression or psychosis during pregnancy or in post partum. The contribution of personality disorders to perinatal psychiatric issues is less commonly examined.

Many risk factors contribute to psychopathology, on the whole (Adedeji et al., 2014; Altamura et al., 2011; Andrade et al., 2003; Azorin et al., 2013) and in post partum (Johnson et al., 1999). It appears undeniable that child abuse is among those factors, particularly sexual and physical abuses (Alink et al., 2012; Barstow, 1995; Becker-lausen and Rickel, 1995; Benedict et al., 1999; Di Giacomo et al., 2013; Gelaye et al., 2015; Grimstad and Schei, 1999; JL, 1992; Leeners et al., 2006; Leeners et al., 2010; Roberts et al., 2013). An intergenerational transmission of those mental outcomes might root in maternal expression of psychopathologies during their pregnancies. Child abuse has established serious outcomes in victims, but the possibility of passing down its influence in future generations is even more severe.

Different kinds of abuse are established responsible for the development of different

personality disorders (Cohen et al., 2014; Lobbestael et al., 2010) and for perinatal psychopathology, but, to our knowledge, an investigation on the effects of childhood abuse on perinatal mental health through the mediation of pathological personality has not been carried out yet.

Offspring outcomes: actual knowledge

A growing number of researches, done in the last years, focused on the effects of maternal psychopathology on their offspring. Data are disorganized, and, mostly, studies investigated possible outcomes due to maternal anxiety, depressive or psychotic disorders only.

To generalize, maternal diagnosis and functional impairment predicted offspring's functional impairment (Ruiz et al., 2018), psychological and developmental disturbances (Stein et al., 2014) and the number of co-occurring problems in mothers predict new-onset offspring disorder (Sellers et al., 2013).

Moreover, it is possible to detect more serious outcomes if mothers suffer from chronic psychiatric illnesses. In fact, the probability of children having any psychiatric disorder, as well as both internalizing and externalizing problems, increased from low to high chronicity (Matijasevich et al., 2015). If parents suffer from psychiatric diseases, the risks of offspring suicide attempt and violent offending are increased, with a stronger association for female offspring (Mok et al., 2016).

Maternal mood/anxiety disorders are associated diagnosed psychiatric disorders, as well as symptoms of specific anxiety disorders in offspring (Low et al., 2012).

Epigenetic seems to explain some of the links between maternal wellbeing and childs health outcomes, but future studies must address current limitations (Ryan et al., 2017).

Anxious mothers are proved to be less affectionate than healthy controls and less promoting psychological autonomy in their offspring (Challacombe and Salkovskis, 2009). Maternal anxiety disorders are related to offspring anxiety disorders, but not to offspring externalizing disorders (Martini et al., 2010).

If those mothers suffer from ***Obsessive Compulsive Disorder*** (OCD), their offspring will have lifetime overanxious disorder, separation anxiety disorder, OCD or "any anxiety disorder" (Black et al., 2003).

If mothers are diagnosed with social anxiety disorder, their children will have poorer cognitive abilities and language skills (Castelli et al., 2015).

Disorders of the depressive spectrum are shown to have short and long term consequences both if occurred during pregnancy or in post partum (Ahun et al., 2018; Davalos et al., 2012).

Maternal ***depressive symptoms*** are important risk factors for internalizing (Ahun et al., 2018) and externalizing (Pihlakoski et al., 2013) problems in the offspring. If mothers experience depression during post partum, their offspring may show psychic outcomes even in a long time period. Sleep problems in adolescence may represent one of the issues those children may struggle with (Taylor et al., 2017).

Untreated gestational depression and even depressive symptoms during pregnancy may have effects on the developing fetus (hyperactivity, irregular fetal heart rate), newborns (increased cortisol and norepinephrine levels, decreased dopamine levels, altered EEG patterns, reduced vagal tone, stress/depressive-like behaviors and increased rates of premature deaths and neonatal intensive care unit admission) and children (increased salivary cortisol level, internalizing and externalizing problems and central adiposity). During adolescence, an independent association exists between maternal antenatal mood symptoms and a slight increase in criminal behavior. In contrast, the relationship between gestational depression and increased risks of prematurity and low birth weight remains controversial (Gentile, 2017).

On the contrary, an improvement in depressive symptoms in pregnancy is associated with easier temperament in newborns (Netsi et al., 2015).

Those outcomes might be an expression of physical abnormalities due to psychic sufferance. For example, prenatal maternal mood may alter placental function and adversely impact fetal and child development (Janssen et al., 2016).

Anxiety and depression often influence each other, both in patients psychiatric history and in children outcomes. Children of women with antenatal depression have an increased risk of anxiety disorders in late adolescence while those of women with antenatal anxiety have an increased risk of co-morbid anxiety and depression (Capron et al., 2015).

Depressive symptoms a mother might experience in her post partum can influence offsprings well being as well. It is documented an impaired offspring cognitive outcomes in adolescence, while conflicting evidence was documented for internalizing, externalizing and overall psychopathology in offspring adolescence (Sanger et al., 2015). Moreover, they show worse physical health during early childhood (Raposa et al., 2014).

Their poorer physical health predict increased health related stress and poor social functioning at age 20, which, in turn, are associated with increased levels of depressive symptoms later in young adulthood (Raposa et al., 2014).

Maternal depression has also poorer outcomes if presented antisocial traits. The mediation of maternal hostility, in fact, predicts offspring disruptive behavior (Sellers et al., 2014).

If the analysis involves ***Bipolar disorder***, there are some differences in outcomes shown by offspring compared to Major Depression. Offspring of mothers affected by bipolar disorder show a cluster B personality disorder, in their mid-adolescence and early adulthood, more often than those of mothers affected by major depression during the perinatal period (Cullen et al., 2014).

Fewer studies focused on the possible outcomes of maternal personality disorders have been identified.

Not focusing on singular personality disorders, parental behavior in the home during child-rearing is associated with offspring personality disorder (Johnson et al., 2006).

Antisocial personality disorder predicts conduct disorder symptoms in offspring, both during childhood and adolescence (Conner et al., 2014). Mothers with ***Borderline personality disorder*** are more likely to engage in maladaptive interactions with their offspring, characterized by insensitive, overprotective and hostile parenting. Adverse offspring outcomes include borderline personality disorder symptoms, internalizing problems (including depression) and externalizing problems, insecure attachment patterns and emotional dysregulation (Eyden et al., 2016).

Alcohol and substance abuse during pregnancy, which is really frequent in some psychiatric disorders (e.g personality disorder) influences offsprings mental distress (Rognmo et al., 2012) as well as neurobehavioral alterations in infancy and behavioral problems from early childhood to adolescence (Sithisarn et al., 2012).

The ***psychotic spectrum*** deserves some specifics. Other than all the difficulties linked to pharmacotherapy during pregnancy, it is frequent for mothers with chronic psychosis to have their children under foster or social service care.

Some data is worth being reported. First of all, the risk of psychosis may be more often transmitted from parent to opposite-sex offspring (e.g., from father to daughter) than to same-sex offspring (e.g., from father to son). The opposite-sex-specific parent-of-origin effects

may suggest X chromosome-linked genetic transmission or inherited chromosomal modifications in the etiology of psychotic symptoms (Aylott et al., 2018).

Mounting evidence indicates that schizophrenia is associated with adverse intrauterine experiences. An adverse or suboptimal fetal environment can cause irreversible changes in brain that can subsequently exert long-lasting effects through resetting a diverse array of biological systems including endocrine, immune and nervous (Debnath et al., 2015).

The maternal PPPs were not associated with any negative consequences for offspring development, and the offspring of PPP cases evidenced a number of more positive mental developmental characteristics than did other index offspring(McNeil and Blennow, 1988).

Aims

The principal aim of the present project drifts towards the identification of possible mental and behavioral consequences in offspring, due to maternal psychopathology. Mainly, the focus will be on maternal personality disorders and their effects in children of affected mothers and the comparison with children of mothers with anxiety or depression and children of mothers affected by the same pathologies but without issues toward motherhood.

Moreover, we will try to identify eventual mediators within personality causal role if any.

Methods

Sample

Clinical Sample: We recruited all the women (n=150) consecutively referred and admitted to the Perinatal Psychiatric Outpatient Department from January, 2011 to December, 2016. Patients might be referred by their psychiatrists, gynecologists or midwives during pregnancy or in the first year of post partum due to the manifestation of psychic suffering.

During their first appointment, they were routinely administered SCID II, Childhood Trauma Questionnaire (CTQ), World Health Organization Quality of Life Instruments (WHOQOL-BREF), Edimburgh Postnatal Depression Scale (EPDS), Beck Depression Interview (BDI) and Beck Anxiety Interview (BAI).

All the patients were evaluated from a clinical point of view and tested as described.

Patients children: All the patients were asked to complete a caregiver report form, the Child Behavior Checklist (CBCL), once their children were at least 18-month-old.

Control samples: We recruited 152 patients belonging to Outpatients Psychiatric Department (OUTPTS) who did not have psychiatric issues linked to their pregnancy or in the relationship with their children and 198 healthy controls with no history of mental health issues among the general population.

5.1 Statistical Analysis

We used SPSS 24 and performed Chi-square test for non-continuous variables and T test for continue variables.

5.2 Ethics

Informed consent of the participants was obtained after the nature of the procedures had been fully explained. None of the participants received a compensation for their contribution. The investigation was carried out in accordance with the latest version of the Declaration of Helsinki. The study was authorized and approved by ASST Monza Hospital Ethical Committee (protocol PSI_PER n 981).

5.3 Test

SCID II(First M, 1997)**:** it is a structural interview created to explore possible disorders belonging to the Axis II of the DSM-IV. It consists of a self- questionnaire with 119 items, followed by an interview based on the answers given to each item.

Childhood Trauma Questionnaire (CTQ)(Bernstein et al., 1994): it is a self-report instrument covering 28 items, to rate the severity of different kind of childhood abuse (CA): emotional abuse and neglect (EA and EN), physical abuse and neglect (PA and PN) and sexual abuse (SA).

World Health Organization Quality of Life Instruments (WHOQOL-BREF)(Carpiniello et al., 2006): The WHOQOL-BREF instrument contains 26 items, which measure the following broad domains: physical health (W-PH), psychological health (W-PSY), social relationships (WS), and environment (WE).

Edimburgh Postnatal Depression Scale (**EPDS)**(Cox et al., 1987): The EPDS has been developed to assist primary care health professionals to detect mothers suffering from postnatal depression. It consists of ten short statements with four possible responses. The mother chooses which one is closest to how she has been feeling during the past week. The cut-off score is 12 or higher.

Beck Depression Interview (BDI)(Beck AT, 1996): inventory of 21 items, which analyzes the presence and intensity of depressive symptoms during the previous two weeks, scoring from 0 to 3 (from "complete absence" of such symptoms to "complete interference" of the symptoms with daily life). Results are divided into 5 groups: 0-4: possible neglect; 5-9: low-level depression; 10-18: mild-moderate; 19-29: moderate-severe; 30-63: severe. It must be noted that results with a score over 40 could be due to a voluntary exaggeration.

Beck Anxiety Interview (BAI)(Beck AT, 1993): inventory of 21 items, which analyzes how the person felt during the previous week. Each item scores from "not at all" (0 points); "mildly": It did not bother me much (1 point); "moderately": It was very unpleasant, but I could stand it (2 points); to "severely": I could barely stand it (3 points). Ranges of results are divided into 4 groups: 0-7: minimal level of anxiety; 8-15: mild anxiety; 16-25: moderate anxiety; 26-63: severe anxiety.

Child Behavior Checklist (CBCL) is a widely used caregiver report form identifying problem behavior in childrenFor the preschool version of the CBCL (CBCL/1½-5),

parents or others who interact with the child in regular contexts rate the child's behavior. Respondents rate the child's behavior on a 3-point scale (*not true*, *somewhat or sometimes true*, and *very true or often true*), and are instructed to rate the behavior as it occurs now or within the previous two months. This delineation differs from the instructions on other age-versions, due to the fact that rapid development and behavioral changes in the preschool age range are common. The preschool checklist contains 100 problem behavior questions.

CBCL scores are divided in:

1. EMOTIONALLY REACTIVE
2. ANXIOUS/DEPRESSED
3. SOMATIC COMPLAINTS
4. WITHDRAWN
5. SLEEP PROBLEMS
6. ATTENTION PROBLEMS
7. AGGRESSIVE BEHAVIOUR
8. EXTERNALIZE: 1+2+3+4
9. INTERNALIZE: 6+7
10. OTHER PROBLEMS: OTHER+ 5
11. TOTAL

Reference

Beck AT, S.R., 1993. Beck Anxiety Inventory Manual. Harcourt Brace and Company, San Antonio.

Beck AT, S.R., Brown GK, 1996. BDI-II, Beck depression inventory: manual. , 2 ed. Harcourt Brace, **Boston**.

Bernstein, D.P., Fink, L., Handelsman, L., Foote, J., Lovejoy, M., Wenzel, K., Sapareto, E., Ruggiero, J., 1994. Initial reliability and validity of a new retrospective measure of child abuse and neglect. Am J Psychiatry 151 (8), 1132-1136.

Carpiniello, B., Pinna, M., Carta, M.G., Orru, M.G., 2006. Reliability, validity and acceptability of the WHOQOL-Bref in a sample of Italian psychiatric outpatients. Epidemiol Psichiatr Soc 15 (3), 228-232.

Cox, J.L., Holden, J.M., Sagovsky, R., 1987. Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. Br J Psychiatry 150, 782-786.

First M, G.M., Spitzer RL, Williams JBW, Benjamin LS, 1997. Structured Clinical Interview for DSM-IV Axis II Personality Disorders, (SCID-II). American Psychiatric Press, Inc, Washington, D.C.

Results

Subjects belonging to the three groups were respectively 108 in "LUCE" group (patients from Perinatal Psychiatric Outpatients Department), 152 in OUTPTS (patients from Outpatients Psychiatric Department) and 198 HC (healthy controls). Their age, marital status and education were not statistically different. Significantly, OUTPTS abused of alcohol and drugs and smoked more than the other groups. Moreover, they were significantly less employed compared to "LUCE" and HC. Interestingly, OUTPTS did not report any miscarriage or voluntary termination of pregnancy, while "LUCE" showed almost a double rate compared to HC. Patients' family psychiatric history was significantly higher in "LUCE" and OUTPTS compared to HC, showing almost a double rate in psychiatric patients (see Tables 1, 2).

Table 1

%	"LUCE"	OUTPTS	HC
N	108	152	198
% DAUGHTERS	50.9	62.5	48.5
NATIONALITY- Italian	89.8	75	93.9
MARITAL STATUS-Married/common law	87	75.7	78.8
EDUCATION-High School/University Degree	81.4	87.5	84.9
WORK-employed	75	50	81.9
ALCOHOL ABUSE	5.6	25	/
DRUG ABUSE	5.6	12.5	/
SMOKING	18.5	50	6.1
E/P	68.5	37.5	60.6
MISCARRIAGE	26.9	/	18.2
TERMINATION OF PREGNANCY	12	/	6.1
FAMILY HISTORY	30.6	37.5	18.2

Mean Score	BDI	p	POST HOC	P	BAI	p	POST HOC	P	AGE	p	POST HOC	P	EPDS	p	POST HOC	P
"LUCE"	14.92	**<.0001**	"LUCE" vs OUTPTS	.088	16.36	**<.0001**	"LUCE" vs OUTPTS	.397	34.44	.233	"LUCE" vs OUTPTS	1	13	**<.0001**	"LUCE" vs OUTPTS	**<.0001**
OUTPTS	12.88		"LUCE" vs HC	**<.0001**	18.38		"LUCE" vs HC	**<.0001**	34		"LUCE" vs HC	.556	3.75		"LUCE" vs HC	**<.0001**
HC	6.59		HC vs OUTPTS	**<.0001**	6.97		HC vs OUTPTS	**<.0001**	35.25		HC vs OUTPTS	.490	3.48		HC vs OUTPTS	1

Table 2

Diagnosis and pharmacological treatments

The patients belonging to "LUCE" and OUTPTS were affected mainly by personality disorders (60% and 62.5% respectively). Patients without a disorder in their personality showed mood and anxiety disorders, with few cases of eating disorders in both the gropus. None of the patients had a psychotic disorder.

"LUCE" were prescribed antidepressants [sertraline 50-150 mg/daily (85.9%), escitalopram 10 mg/daily (4.7%), fluoxetine 20 mg/daily (1.9%), fluvoxamine 50 mg/daily (1.9%) and paroxetine 20 mg/daily (2.8%)] and antipsychotics [haloperidol 2 mg/daily (2.8%) and olanzapine 2.5 mg (0.9%). Topiramate and valproate were suspended during pregnancy in patients with pre-pregnancy intake. OUTPTS had an intake of antidepressants [sertraline 50-150 mg/daily (57%) and paroxetine (14.7%)] and antipsychotics [haloperidol 1-3 mg/daily (14.7%)]. Valproate was suspended if previously taken. None of the HC took psychotropic drug during pregnancy.

Test results in the three groups (see Tables 2,3)

The risk for post-partum depression (positivity to EPDS) involved half of “LUCE” patients and it was significantly more frequent compared to both the other groups. EPDS mean score is significantly higher in “LUCE” compared to the other two groups.

“LUCE” showed a significantly worse level of depression while none of the OUTPTS and HC reached a severe level of depression. BDI mean score were significantly different at the ANOVA, but confirmed significance at the POST HOC (Bonferroni) when HC was compared to “LUCE” or OUTPTS and not between “LUCE” and OUTPTS.

OUTPTS showed the worst level of anxiety, with the highest rate of patients affected by severe anxiety. Mean scores showed a significant difference at ANOVA, but maintained significance at the POST HOC (Bonferroni) only between HC/“LUCE” and HC/OUTPTS. All kinds of abuse were represented in “LUCE”, while OUTPTS did not show physical neglect and HC showed only sexual abuse and emotional neglect. OUTPTS showed a significant higher rate of PA and SA compared to “LUCE”, the latter, a significant higher rate of EN.

%	"LUCE" N=108	OUTPTS N=152	HC N=198	p	"LUCE" EPDS+	OUTPTS EPDS+	"LUCE" vs OUTPTS p	"LUCE" vs OUTPTS-EPDS+ p
EPDS	48.1	12.5	3	**<.0001**	X	X	**<.0001**	X
W-PHY	42.6	/	21.2	**<.0001**	57.7		**<.0001**	**<.0001**
W-PSY	64.8	50	24.2	**<.0001**	86.5	100	**.001**	.199
WS	58.3	62.5	30.3	**<.0001**	71.2		.618	**<.0001**
WE	17.6	25	18.2	.290	25		.364	**.012**
BDI LOW	25	25	15.2	**<.0001**	23.1	100	.723	**<.0001**
BDI MODERATE	38.9	25	3		53.8	/	**.005**	**<.0001**
BDI SEVERE	8.3	/	/		15.4	/	**<.0001**	**<.0001**
BAI MODERATE	28.7	12.5	3	**<.0001**	50	/	**<.0001**	.145
BAI SEVERE	7.4	25	/		13.5	/	**.002**	.117
BH	28.7	/	6.1	**<.0001**	40.4	/	**<.0001**	**<.0001**
CTQ EA	4.6	12.5	/	**<.0001**	7.7	/	.105	.159
CTQ PA	8.3	37.5	/	**<.0001**	15.4	100	**<.0001**	**<.0001**
CTQ SA	15.7	42.8	3	**<.0001**	15.4	100	**<.0001**	**<.0001**
CTQ EN	69.4	37.5	51.5	**<.0001**	75	/	**<.0001**	**<.0001**
CTQ PN	1.9	/	/	**.013**	/	/	.052	

Table 3

CBCL results in the three groups (see Table 4)

Children of "LUCE" patients showed difficulties in all the domains, both at a borderline and clinical level, but for withdrawn (IV) at a borderline level. Offspring belonging to OUTPTS did not show any issue at a clinical level, while HC children showed a clinically significant withdrawn in a small percentage of offspring (in mothers with B&N PDs and in mothers free from any psychiatric illness; both EPDS neg, the former with a low level of depression). OUTPTS's children demonstrated issues at a borderline level in somatic complaints (III) and attention problems (VI). Both those rates are higher than those of "LUCE" children, but, as already reported, none of them reached a clinical importance.

%	"LUCE"	OUTPTS	HC	p	"LUCE" EPDS+	OUTPTS EPDS+	"LUCE" vs OUTPTS p	"LUCE" - EPDS+ vs OUTPTS-EPDS+ p	"LUCE" vs "LUCE"-EPDS+ p
IC Emotionally reactive	3.7	/	/		5.8	/			.118
IB Emotionally reactive	11.1	/	/	**<.0001**	9.6	/			.457
IIC Anxious/Depressed	2.8	/	/		5.8	/			.118
IIB Anxious/Depressed	5.6	/	/	**<.0001**	3.8	/			.249
IIIC Somatic complaints	0.9	/	/		1.9	/			.372
IIIB Somatic complaints	7.4	25	6.1	**<.0001**	9.6	/	**<.0001**		**.041**
IVC Withdrawn	8.3	/	6.1		17.3	/			**.005**
IVB Withdrawn	/	/	/	.452	/	/			
VC Sleep problems	2.8	/	/		5.8	/			.118
VB Sleep problems	0.9	/	6.1	**.007**	1.9	/			.372
VIC Attention problems	2.8	/	/		3.8	/	.462		.204
VIB Attention problems	3.7	12.5	/	**<.0001**	5.8	/	**<.0001**		.118
VIIC Aggressive Behavior	0.9	/	/		1.9	/			.372
VIIB Aggressive Behavior	3.7	/	/	**.009**	5.8	/			.118

Table 4

Test in personality disorders

In HC group the percentage of subjects negative to the SCID II is higher than that of positive. The other two groups showed exactly the opposite (see Table 5). Subjects with borderline personality disorders showed a higher rate of positivity to EPDS, moderate depression, moderate and severe anxiety. Subjects affected by both borderline and narcissistic personality disorders showed the highest rate of SA, those with borderline PD showed importantly higher rates of EA and PA. Most of the subjects affected by both borderline and narcissistic personality disorders as well as by borderline PD belonged to OUTPTS (57.2%).

SCID II	NEG (N=220)	NARCISSISTIC (N=59)	BORDERLINE (N=72)	N+B (N=53)	PARA (N=2)	PA (N=18)	OC (N=21)	ISTR (N=12)	SCHZ (N=1)
"LUCE"	43	22	22	3	2	6	9		1
OUTPTS	57	19	38	38					
HC	120	18	12	12		12	12	12	

Table 5

SCID II	"LUCE"	"LUCE"-EPDS+	OUTPTS	OUTPTS-EPDS+
NEG	43	15	57	19
NARCISSISTIC	22	8	19	/
BORDERLINE	22	15	38	/
NARCISSISTIC&BORDERLINE	3	2	38	/
PARANOID	2	2	/	/
PASSIVE-AGGRESSIVE	6	4	/	/
OBSSESSIVE/COMPULSIVE	9	6	/	/
SCHIZOID	1	/	/	/

Table 6

SCID II	NEG (N=220)	NARCISSISTIC (N=59)	BORDERLINE (N=72)	N+B (N=53)	PARA (N=2)	PA (N=18)	OC (N=21)	ISTR (N=12)	SCHZ (N=1)
EPDS	34 (15.5)	8 (13.6)	21 (29.2)	2 (3.8)	2 (100)	4 (22.2)	6 (28.6)		
W-PHY	36 (16.4)	22 (37.3)	17 (23.6)	7 (13.2)	2 (100)	1 (5.6)	3 (14.3)		
W-PSY	58 (26.4)	21 (35.6)	41 (56.9)	47 (88.7)	2 (100)	11 (61.1)	14 (66.7)		
WS	64 (29.1)	29 (49.2)	60 (83.3)	46 (86.8)	2 (100)	3 (16.7)	14 (66.7)		
WE	50 (22.7)	3 (5.1)	33 (45.8)	6 (11.3)	2 (100)	1 (5.6)			
BDI LOW	55 (25)	10 (16.9)	10 (13.9)	7 (13.2)	1 (50)	1 (5.6)	11 (52.4)		
BDI MODERATE	12 (5.5)	15 (25.4)	50 (69.4)	1 (1.9)	1 (50)	4 (22.2)	3 (14.3)		
BDI SEVERE	2 (0.9)	3 (5.1)	4 (5.6)						
BAI MODERATE	14 (6.4)	4 (6.8)	32 (44.5)	1 (1.9)					
BAI SEVERE	19 (8.6)	1 (1.7)	25 (34.7)	1 (1.9)	1 (50)	2 (5.6)	3 (14.3)		
BH	12 (5.5)	15 (25.4)	10 (13.9)	1 (1.9)		4 (22.2)	1 (4.8)		
CTQ EA	/	1 (1.7)	23 (31.9)						
CTQ PA	22 (10)	1 (1.7)	42 (58.3)				1 (4.8)		
CTQ SA	24 (10.9)	4 (6.8)	30 (41.7)	39 (73.6)	1 (50)		1 (4.8)		
CTQ EN	102 (46.4)	52 (88.1)	42 (58.3)	3 (5.7)	2 (100)	12 (66.7)	8 (38.1)	12 (100)	1 (100)
CTQ PN	/	2 (3.4)	/	/					

Table 7

CBCL results in personality disorders (Table 8)

Clinical issues are shown especially by children of mothers affected by Passive-aggressive, Paranoid, Narcissistic&Borderline, Obsessive-Compulsive and Narcissistic PDs. In particular, children of PA mothers seemed more emotionally reactive, those of N+B mothers more prone to withdrawn.

SCID II	NEG (N=220)	NARCISSISTIC (N=59)	BORDERLINE (N=72)	N+B (N=53)	PARA (N=2)	PA (N=18)	OC (N=21)	ISTR (N=12)	SCHZ (N=1)
I B Emotionally reactive	7 (3.2)	3 (5.1)	2 (2.8)						
I C	1 (0.5)	1 (1.7)			1 (50)	1 (5.6)			
II B Anxious/Depressed	5 (2.3)	1 (1.7)							
II C					1 (50)	1 (5.6)	2 (4.8)		
III B Somatic complaints	41 (18.6)	2 (3.4)	7 (9.7)		1 (50)		7 (33.3)		
III C							1(4.8)		
IV B Withdrawn									
IV C	8 (3.6)	2 (1.7)	2 (2.8)	6 (11.3)	1 (50)	1 (5.6)	2 (9.5)		
V B Sleep problems	12 (5.5)						1 (4.8)		
V C	1 (0.5)		1(1.4)			1 (5.6)			
VI B Attention problems	3 (1.4)		19 (26.4)			1 (5.6)			
VI C		2 (3.4)	1 (1.4)						
VII B Aggressive Behavior	1 (0.5)	1 (1.7)	1 (1.4)		1 (50)				
VII C						1 (5.6)			

Table 8

Comparing SCID_II-NEG patients to other PDs (see Table 9), we highlighted significant differences at a clinical level. Children of Passive-Aggressive PD mothers show significance in most of the clinical domains compared to SCID_II-NEG. In particular, it is interesting to underline a significance in clinical anxiety/depression, withdrawn and aggressive behavior. Children of Narcissistic mothers have significantly more clinical attention problems while

children of Obsessive-Compulsive PD mothers have significantly more clinical anxiety/depression and somatic complaints. Clinical withdrawn differences children of mothers with several PDs compared to those of SCID_II-NEG mothers.

Table 9

	NEG vs NARCISSISTIC	NEG vs BORDERLINE	NEG vs N&B	NEG vs PARA	NEG vs PA	NEG vs OC	NEG vs ISTR	NEG vs SCHT
IC Emotionally reactive	.284	.645	.760	.911	**.001**	.717	.784	
IB Emotionally reactive	.412	.698	.410	.763	.367	.330	.461	
IIC Anxious/Depressed	/	/	/	/	**<.0001**	**.005**	/	
IIB Anxious/Depressed	.840	.298	.489	.800	.448	.413	.536	
IIIC Somatic complaints	/	/	/	/	/	**.002**	/	
IIIB Somatic complaints	**.019**	.998	***.051***	.472	.122	.179	.080	
IVC Withdrawn	.121	**<.0001**	**.006**	**.020**	**.037**	.732	.617	
IVB Withdrawn	/	/	/	/	/	/	/	
VC Sleep problems	.222	.760	.911	***.059***	.717	.784		
VB Sleep problems	.075	.100	.273	.688	.230	.652	.327	
VIC Attention problems	**.004**	.081	/	/	/	/	/	
VIB Attention problems	.384	**<.0001**	.594	.846	.315	.528	.633	
VIIC Aggressive Behavior	/	/	/	/	**.003**	/	/	
VIIB Aggressive Behavior	.284	.222	.760	.911	***.059***	.717	.784	

The mediation of psychic sufferance in pregnancy and post-partum

In order to identify possible differences in children outcomes due to maternal psychic sufferance in perinatal, we selected only patients with a positive EPDS and compared "LUCE"-EPDS^{+} to OUTPTS-EPDS^{+}. "LUCE"-EPDS^{+} showed a lower mean score at the BDI and a significantly higher mean score at the BAI. Moreover, they were significantly older than OUTPTS-EPDS^{+} (see Table 10).

Interestingly, all the patients positive to EPDS in the OUTPTS group were not affected by any personality disorder (see Table 6).

"LUCE"-EPDS^{+} had more serious test results compared to "LUCE", OUTPTS and OUTPTS-EPDS^{+} but for a frequence of 100% of PA and SA in OUTPTS-EPDS^{+} (see Table 4). Most of the difference between "LUCE"-EPDS^{+} and OUTPTS-EPDS^{+} were statistically significant, but for W-Psy, EA and BAI moderate or severe.

EPDS +	BDI mean	p	BAI mean	p	AGE mean	p
"LUCE" N=49	16.71	.091	18.43	**.028**	33.67	**<.0001**
OUTPTS N=19	19		15		30	

Table 10

The mediation of psychic sufferance in pregnancy and post-partum on CBCL results (Table 4)

None of the children of OUTPTS-EPDS^{+} showed psychic issues at a clinical level but only sleep problems at a borderline level. On the contrary, children of "LUCE"-EPDS^{+} showed clinical issues in all the domains.

EPDS mediation in "LUCE" children demonstrated a significant higher level of clinical withdrawn.

An in-depth analysis (See Table 11) of the role of EPDS in comparing children of SCID_II-NEG and each PDs (possible at a clinical level only in "LUCE") showed significance in anxiety/depression between PARA or PA and SCID_II-NEG and in aggressive behavior between PA and SCID_II-NEG.

EPDS+ in "LUCE"	NEG vs NARCISSISTIC	NEG vs BORDERLINE	NEG vs N&B	NEG vs PARA	NEG vs PA	NEG vs OC	NEG vs ISTR	NEG vs SCHT
IC Emotionally reactive	.455	.309	.707	.074	.288	.517		
IB Emotionally reactive	.651	.283	.486	.486	.330	.237		
IIC Anxious/Depressed				**.005**	**.047**	.105		
IIB Anxious/Depressed	.636	.309	.707	.707	.596	.517		
IIIC Somatic complaints						.105		
IIIB Somatic complaints	.955	.143	.582	.201	.440	.844		
IVC Withdrawn	.955	1	.582	.201	.570	.292		
IVB Withdrawn								
VC Sleep problems	.455	1	.707	.707	.288	.517		
VB Sleep problems						.105		
VIC Attention problems	.161	.309						
VIB Attention problems	.280	.143	.582	.582	.570	.347		
VIIC Aggressive Behavior					**.047**			
VIIB Aggressive Behavior	.455	1	.707	.074	.596	.517		

Table 11

Even though what was previously reported in Table 11, a further analysis showed lack of significant differences in any CBCL domain in each PDs if EPDS+ and – were compared (see Table 12).

EPDS POS vs NEG in "LUCE"	NEG	NARCISSISTIC	BORDERLINE	N+B	PARA	PA	OC	ISTR	SCHZ
I B Emotionally reactive	.890	.929	.288						
I C	.220					.439			
II B Anxious/Depressed	.314	.274							
II C						.439	.537		
III B Somatic complaints	.078	.274					.537		
III C							.537		
IV B Withdrawn									
IV C	.078	.274	.440			.439	.346		
V B Sleep problems			.596				.537		
V C			.596			.439			
VI B Attention problems	.078					.439			
VI C	.220	.274	.596						
VII B Aggressive Behavior	.220								
VII C						.439			

Table 12

Discussion

Women referred to Perinatal Outpatients Psychiatric Department ("LUCE") due to psychic sufferance in perinatal have been examined to determine if and which psychiatric disorder may influence offspring mental wellbeing and the presence of possible contributing factors. Due to these purposes, they were compared to women referred to Outpatients Psychiatric Department (OUTPTS) who had no issues specifically linked to pregnancy or relational with their newborn. Moreover, a group of healthy controls (HC) without a psychiatric history or problems with their offspring were recruited.

It seems essential to underline that diagnosis, pharmacological treatments and most of the sociodemographic characteristics were not different between "LUCE" and OUTPTS. As a consequence, these factors cannot explain possible differences identified between their respective offspring.

In general, "LUCE" and OUTPTS did not show differences in the scores of anxiety or depression they presented, but "LUCE" had significantly more cases of depression classified as moderate or severe and anxiety classified as moderate or severe. "LUCE" reported less EA and significantly less PA and SA compared to OUTPTS, while the latter reported significantly less EN.

Children outcomes in the three groups

The correlation between such results and psychic outcomes in their offspring has to take into account the fact that children of "LUCE" patients showed issues in all the domains of CBCL,

both at a clinical and borderline level, but for withdrawn (IV) at a borderline level. On the contrary, OUTPTS children did not show any issue at a clinical level and only two areas at a borderline level [somatic complaints (III) and attention problems (VI)]. Children of HC mothers showed a fewer percentage of clinical issues in withdrawn (IV), as well as few percentages of borderline problems in somatic complaints (III) and sleeping (V).

The role of Personality Disorders

Personality disorders are prevalent among psychiatric patients of both the clinical groups. OUTPTS includes only narcissistic PD, borderline PD and patients with comorbidity between those disorders. "LUCE" has a fuller range of personality disorders within the group. Borderline and Narcissistic patients showed worse clinical profiles in terms of anxiety and depression even when compared with patients affected by anxiety or depressive illness [SCID_II-NEG]. Results in Paranoid PDs should be cautiously considered since represented only by two patients albeit both in the "LUCE" group. Patients with Borderline PD report the highest rate of child abuse, even if SA is significantly higher in those with a comorbidity between Borderline and Narcissistic PDs. Such results are coherent with previous studies about risks factors in the development of personality disorders.

Interestingly, none of the patients with a personality disorder within OUTPTS showed a positivity for the risk of developing post-partum depression. In other terms, SCID_II-NEG in OUTPTS showed a risk for post-partum depression if already depressed or anxious. On the contrary, "LUCE" expresses their sufferance linked to pregnancy with an ubiquitary percentage of positive EPDS in SCID_II-NEG and different PDs.

Furthermore, most of the children of PDs have significantly worse clinical profiles compared to children of mothers without a disorder in their personality, independently from their group ("LUCE", OUTPTS or HC) and positivity to EPDS.

The key role of psychic sufferance linked to motherhood

If we quote a positivity at the EPDS as an expression of psychic sufferance linked to perinatal or motherhood, it is possible to consider that positivity as a possible mediator.

That mediator lets to highlight a significant worse score for anxiety in "LUCE"-EPDS+ compared to OUTPTS-EPDS+ and a very significant older age.

First of all, if we compare CBCL results between "LUCE" and "LUCE"-EPDS+, we document increased percentages in all the domains at a clinical level. Such increase was statistically significant in somatic complaint at a borderline level and very significant in withdrawn at a clinical level. It could be possible to infer that a positivity to EPDS express a more serious distress toward motherhood.

The analysis of CBCL results between SCID_II-NEG and each personality disorders in "LUCE"-EPDS+ highlights a significant difference in clinical anxiety/depression (IV) between PARA/NEG and PA/NEG and in clinical aggressive behavior (VII) between PA/NEG. These results demonstrated that a positivity to EPDS influences paranoid and passive-aggressive PDs in conditioning their childrens wellbeing more than in other PDs. On the contrary, none of the domain had a significant variation in "LUCE" between EPDS+ and EPDS- in all the PDs and in SCID_II-NEG. As a consequence, the role of a possible post partum depression is resized within each group of PDs but represents an expression of a worse clinical picture in some PDs compared to patients without personality issues.

Psychic sufferance other than post partum depression

Results and considerations reported above induce some hints. Women affected by psychiatric disorders who show specific issues towards pregnancy and motherhood influence their childrens mental wellbeing exclusively for their difficulties to relate with the newborn and his/her needs and feelings or to a change of role that motherhood involves. The differences with children of patients with the same diagnosis who did not show difficulties towards motherhood clearly highlight this speculation.

Perinatal depression is not the only form of showing psychic sufferance. A difficulty in the mother-child relationship can be expressed as psychiatric issue independently from a classic depression. Personality disorders can frequently have relational and emphatic difficulties that might be expressed in that dyadic relationship. Depressive feelings toward perinatal contribute to enhance childrens psychic outcomes but the main cause appears to be the mother's difficulty to face and meet the newborns needs and her own new role and identity.

Conclusion

The present study aimed at investigating possible psychic effects in offspring of mothers affected by personality disorders due to maternal psychopathology. We selected psychiatric patients from both Perinatal and Outpatients Departments and healthy controls. A comparison among their children let to highlight two main preliminary conclusions: children of mothers with PDs have worse outcomes and children of mothers with a psychic sufferance in the peripartum have a worse profile compared to those of mothers with the same diagnosis and pharmacological treatment. The mediation of a positivity for the risk of developing postpartum depression does not seem enough to justify such results. Even though women with that positivity have children that show higher sufferance, it is the difficulty in mother-child bond or toward motherhood (expressed by women admitted to Perinatal Department) that constitutes the best explanation to their childrens higher difficulties.

Our results suggest and stress the importance of an early identification and treatment of mothers with psychic sufferance during pregnancy in order to prevent or at least reduce their childrens psychic outcomes.

Reference

2015. The American College of Obstetricians and Gynecologists Committee Opinion no. 630. Screening for perinatal depression. Obstet Gynecol 125 (5), 1268-1271.

Adedeji, A.A., Ganiyu, A.A., Kamyuka, F.K., Runkundo, G.Z., Oonge, B., Namulema, J., Barigye, C., Yusuf, S., Vicente-Crespo, M., 2014. Prevalence, age-dependent characteristics and response to therapy of patients with mental, neurologic and substance use disorders attending Kampala International University Teaching hospital (KIUTH), Ishaka, Uganda. Clinical Neuropsychiatry 11 (2), 68-75.

Ahun, M.N., Consoli, A., Pingault, J.B., Falissard, B., Battaglia, M., Boivin, M., Tremblay, R.E., Cote, S.M., 2018. Maternal depression symptoms and internalising problems in the offspring: the role of maternal and family factors. Eur Child Adolesc Psychiatry 27 (7), 921-932.

Alink, L.R., Cicchetti, D., Kim, J., Rogosch, F.A., 2012. Longitudinal associations among child maltreatment, social functioning, and cortisol regulation. Dev Psychol 48 (1), 224-236.

Altamura, A.C., Serati, M., Albano, A., Paoli, R.A., Glick, I.D., Dell'Osso, B., 2011. An epidemiologic and clinical overview of medical and psychopathological comorbidities in major psychoses. Eur Arch Psychiatry Clin Neurosci 261 (7), 489-508.

Andrade, L., Caraveo-Anduaga, J.J., Berglund, P., Bijl, R.V., De Graaf, R., Vollebergh, W., Dragomirecka, E., Kohn, R., Keller, M., Kessler, R.C., Kawakami, N., Kilic, C., Offord, D., Ustun, T.B., Wittchen, H.U., 2003. The epidemiology of major depressive episodes: results from the International Consortium of Psychiatric Epidemiology (ICPE) Surveys. Int J Methods Psychiatr Res 12 (1), 3-21.

Reference

APA, 2013. Diagnostic and statistical manual of mental disorders (5th ed.). American Psychiatric Association, Washington, DC.

Arias, I., 2004. The legacy of child maltreatment: long-term health consequences for women. J Womens Health (Larchmt) 13 (5), 468-473.

Ashford, M.T., Olander, E.K., Ayers, S., 2016. Computer- or web-based interventions for perinatal mental health: A systematic review. J Affect Disord 197, 134-146.

Aylott, A., Zwicker, A., MacKenzie, L.E., Cumby, J., Propper, L., Abidi, S., Bagnell, A., Fisher, H.L., Pavlova, B., Alda, M., Uher, R., 2018. Like father like daughter: sex-specific parent-of-origin effects in the transmission of liability for psychotic symptoms to offspring. J Dev Orig Health Dis, 1-8.

Azevedo, P., Costa, J., Vaz-Carneiro, A., 2014. [Analysis of the Cochrane Review: Use of systemic corticosteroids for acute exacerbations of chronic obstructive pulmonary disease. Cochrane Database Syst Rev. 2014, 9:CD001288]. Acta Med Port 27 (5), 537-540.

Azorin, J.M., Kaladjian, A., Adida, M., Fakra, E., Belzeaux, R., Hantouche, E., Lancrenon, S., 2013. Factors associated with borderline personality disorder in major depressive patients and their relationship to bipolarity. Eur Psychiatry 28 (8), 463-468.

Barrios, Y.V., Gelaye, B., Zhong, Q., Nicolaidis, C., Rondon, M.B., Garcia, P.J., Sanchez, P.A., Sanchez, S.E., Williams, M.A., 2015. Association of childhood physical and sexual abuse with intimate partner violence, poor general health and depressive symptoms among pregnant women. PLoS One 10 (1), e0116609.

Barstow, D., 1995. Childhood sexual abuse: an overview of its shattering effects. The Journal of practical nursing 45 (2), 40-42.

Bateman, A.W., Gunderson, J., Mulder, R., 2015. Treatment of personality disorder. Lancet 385 (9969), 735-743.

Reference

Beck AT, S.R., 1993. Beck Anxiety Inventory Manual. Harcourt Brace and Company, San Antonio.

Beck AT, S.R., Brown GK, 1996. BDI-II, Beck depression inventory: manual. , 2 ed. Harcourt Brace, **Boston**.

Becker-lausen, E., Rickel, A.U., 1995. Integration of teen pregnancy and child abuse research: identifying mediator variables for pregnancy outcome. J Prim Prev 16 (1), 39-53.

Bender, D.S., Dolan, R.T., Skodol, A.E., Sanislow, C.A., Dyck, I.R., McGlashan, T.H., Shea, M.T., Zanarini, M.C., Oldham, J.M., Gunderson, J.G., 2001. Treatment utilization by patients with personality disorders. Am J Psychiatry 158 (2), 295-302.

Benedict, M.I., Paine, L.L., Paine, L.A., Brandt, D., Stallings, R., 1999. The association of childhood sexual abuse with depressive symptoms during pregnancy, and selected pregnancy outcomes. Child Abuse Negl 23 (7), 659-670.

Bernstein, D.P., Fink, L., Handelsman, L., Foote, J., Lovejoy, M., Wenzel, K., Sapareto, E., Ruggiero, J., 1994. Initial reliability and validity of a new retrospective measure of child abuse and neglect. Am J Psychiatry 151 (8), 1132-1136.

Black, D.W., Gaffney, G.R., Schlosser, S., Gabel, J., 2003. Children of parents with obsessive-compulsive disorder -- a 2-year follow-up study. Acta Psychiatr Scand 107 (4), 305-313.

Blasco-Fontecilla, H., Baca-Garcia, E., Dervic, K., Perez-Rodriguez, M.M., Lopez-Castroman, J., Saiz-Ruiz, J., Oquendo, M.A., 2009. Specific features of suicidal behavior in patients with narcissistic personality disorder. J Clin Psychiatry 70 (11), 1583-1587.

Reference

Bloch, M., Schmidt, P.J., Danaceau, M., Murphy, J., Nieman, L., Rubinow, D.R., 2000. Effects of gonadal steroids in women with a history of postpartum depression. Am J Psychiatry 157 (6), 924-930.

Bosanquet, K., Bailey, D., Gilbody, S., Harden, M., Manea, L., Nutbrown, S., McMillan, D., 2015. Diagnostic accuracy of the Whooley questions for the identification of depression: a diagnostic meta-analysis. BMJ Open 5 (12), e008913.

Bublitz, M.H., Stroud, L.R., 2012. Childhood sexual abuse is associated with cortisol awakening response over pregnancy: preliminary findings. Psychoneuroendocrinology 37 (9), 1425-1430.

Byatt, N., Levin, L.L., Ziedonis, D., Moore Simas, T.A., Allison, J., 2015. Enhancing Participation in Depression Care in Outpatient Perinatal Care Settings: A Systematic Review. Obstet Gynecol 126 (5), 1048-1058.

Caligor, E., Levy, K.N., Yeomans, F.E., 2015. Narcissistic personality disorder: diagnostic and clinical challenges. Am J Psychiatry 172 (5), 415-422.

Campbell, W.K., Bush, C.P., Brunell, A.B., Shelton, J., 2005. Understanding the social costs of narcissism: the case of the tragedy of the commons. Pers Soc Psychol Bull 31 (10), 1358-1368.

Capron, L.E., Glover, V., Pearson, R.M., Evans, J., O'Connor, T.G., Stein, A., Murphy, S.E., Ramchandani, P.G., 2015. Associations of maternal and paternal antenatal mood with offspring anxiety disorder at age 18 years. J Affect Disord 187, 20-26.

Carpiniello, B., Pinna, M., Carta, M.G., Orru, M.G., 2006. Reliability, validity and acceptability of the WHOQOL-Bref in a sample of Italian psychiatric outpatients. Epidemiol Psichiatr Soc 15 (3), 228-232.

Castelli, R.D., Quevedo Lde, A., Coelho, F.M., Lopez, M.A., da Silva, R.A., Bohm, D.M., Souza, L.D., de Matos, M.B., Pinheiro, K.A., Pinheiro, R.T., 2015. Cognitive and

language performance in children is associated with maternal social anxiety disorder: A study of young mothers in southern Brazil. Early Hum Dev 91 (12), 707-711.

Challacombe, F., Salkovskis, P., 2009. A preliminary investigation of the impact of maternal obsessive-compulsive disorder and panic disorder on parenting and children. J Anxiety Disord 23 (7), 848-857.

Cohen, L.J., Tanis, T., Bhattacharjee, R., Nesci, C., Halmi, W., Galynker, I., 2014. Are there differential relationships between different types of childhood maltreatment and different types of adult personality pathology? Psychiatry Res 215 (1), 192-201.

Conner, K.R., Bossarte, R.M., Lu, N., Kaukeinen, K., Chan, G., Wyman, P., Tu, X.M., Goldston, D.B., Houston, R.J., Bucholz, K.K., Hesselbrock, V.M., 2014. Parent and child psychopathology and suicide attempts among children of parents with alcohol use disorder. Arch Suicide Res 18 (2), 117-130.

Couto, T.C., Brancaglion, M.Y., Alvim-Soares, A., Moreira, L., Garcia, F.D., Nicolato, R., Aguiar, R.A., Leite, H.V., Correa, H., 2015. Postpartum depression: A systematic review of the genetics involved. World J Psychiatry 5 (1), 103-111.

Cox, J.L., Holden, J.M., Sagovsky, R., 1987. Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. Br J Psychiatry 150, 782-786.

Cullen, K.R., Eberly, L.E., Heller, M.D., Schlesinger, A., Gold, P.W., Martinez, P.E., Klimes-Dougan, B., 2014. Personality disorders in offspring of mothers with mood disorders: results from a longitudinal family study. Psychiatry Res 218 (3), 303-310.

Davalos, D.B., Yadon, C.A., Tregellas, H.C., 2012. Untreated prenatal maternal depression and the potential risks to offspring: a review. Arch Womens Ment Health 15 (1), 1-14.

Debnath, M., Venkatasubramanian, G., Berk, M., 2015. Fetal programming of schizophrenia: select mechanisms. Neurosci Biobehav Rev 49, 90-104.

Reference

Dennis, C.L., Chung-Lee, L., 2006. Postpartum depression help-seeking barriers and maternal treatment preferences: a qualitative systematic review. Birth 33 (4), 323-331.

Dennis, C.L., Dowswell, T., 2013. Psychosocial and psychological interventions for preventing postpartum depression. Cochrane Database Syst Rev(2), Cd001134.

Dennis, C.L., Hodnett, E., 2007. Psychosocial and psychological interventions for treating postpartum depression. Cochrane Database Syst Rev(4), Cd006116.

Di Giacomo, E., Alamia, A., Cicolari, F., Cimolai, V., Clerici, M., 2013. [Child sexual abuse: an irremediable hurt?]. Riv Psichiatr 48 (4), 273-284.

Dieckmann, E., Behary, W., 2015. [Schema Therapy: An Approach for Treating Narcissistic Personality Disorder]. Fortschr Neurol Psychiatr 83 (8), 463-477; quiz 478.

Diesel, J.C., Bodnar, L.M., Day, N.L., Larkby, C.A., 2016. Childhood maltreatment and the risk of pre-pregnancy obesity and excessive gestational weight gain. Matern Child Nutr 12 (3), 558-568.

Distel, M.A., Willemsen, G., Ligthart, L., Derom, C.A., Martin, N.G., Neale, M.C., Trull, T.J., Boomsma, D.I., 2010. Genetic covariance structure of the four main features of borderline personality disorder. J Pers Disord 24 (4), 427-444.

Donegan, N.H., Sanislow, C.A., Blumberg, H.P., Fulbright, R.K., Lacadie, C., Skudlarski, P., Gore, J.C., Olson, I.R., McGlashan, T.H., Wexler, B.E., 2003. Amygdala hyperreactivity in borderline personality disorder: implications for emotional dysregulation. Biol Psychiatry 54 (11), 1284-1293.

Earls, M.F., 2010. Incorporating recognition and management of perinatal and postpartum depression into pediatric practice. Pediatrics 126 (5), 1032-1039.

Eide, J., Hovengen, R., Nordhagen, R., 2010. Childhood abuse and later worries about the baby's health in pregnancy. Acta Obstet Gynecol Scand 89 (12), 1523-1531.

Reference

Ellison William D , L.K.N., Cain Nicole M. , Ansell Emily B. , Pincus Aaron L., 2013. The Impact of Pathological Narcissism on Psychotherapy Utilization, Initial Symptom Severity,

and Early-Treatment Symptom Change: A Naturalistic Investigation. J Pers Assess 1-10.

Esscher, A., Essen, B., Innala, E., Papadopoulos, F.C., Skalkidou, A., Sundstrom-Poromaa, I., Hogberg, U., 2016. Suicides during pregnancy and 1 year postpartum in Sweden, 1980-2007. Br J Psychiatry 208 (5), 462-469.

Eyden, J., Winsper, C., Wolke, D., Broome, M.R., MacCallum, F., 2016. A systematic review of the parenting and outcomes experienced by offspring of mothers with borderline personality pathology: Potential mechanisms and clinical implications. Clin Psychol Rev 47, 85-105.

Fergusson, D.M., McLeod, G.F., Horwood, L.J., 2013. Childhood sexual abuse and adult developmental outcomes: findings from a 30-year longitudinal study in New Zealand. Child Abuse Negl 37 (9), 664-674.

Fernandez Montalvo, J., Echeburua, E., 2006. [Pathological gambling and personality disorders: a pilot-study with the MCMI-II]. Psicothema 18 (3), 453-458.

First M, G.M., Spitzer RL, Williams JBW, Benjamin LS, 1997. Structured Clinical Interview for DSM-IV Axis II Personality Disorders, (SCID-II). American Psychiatric Press, Inc, Washington, D.C.

Gaynes, B.N., Gavin, N., Meltzer-Brody, S., Lohr, K.N., Swinson, T., Gartlehner, G., Brody, S., Miller, W.C., 2005. Perinatal depression: prevalence, screening accuracy, and screening outcomes. Evid Rep Technol Assess (Summ)(119), 1-8.

Gelaye, B., Kajeepeta, S., Zhong, Q.Y., Borba, C.P., Rondon, M.B., Sanchez, S.E., Henderson, D.C., Williams, M.A., 2015. Childhood abuse is associated with stress-

related sleep disturbance and poor sleep quality in pregnancy. Sleep Med 16 (10), 1274-1280.

Gentile, S., 2007. Use of contemporary antidepressants during breastfeeding: a proposal for a specific safety index. Drug Saf 30 (2), 107-121.

Gentile, S., 2017. Untreated depression during pregnancy: Short- and long-term effects in offspring. A systematic review. Neuroscience 342, 154-166.

Goldner-Vukov, M., Moore, L.J., 2010. Malignant Narcissism: from fairy tales to harsh reality. Psychiatr Danub 22 (3), 392-405.

Goodman, J.H., 2004. Postpartum depression beyond the early postpartum period. J Obstet Gynecol Neonatal Nurs 33 (4), 410-420.

Grant, B.F., Chou, S.P., Goldstein, R.B., Huang, B., Stinson, F.S., Saha, T.D., Smith, S.M., Dawson, D.A., Pulay, A.J., Pickering, R.P., Ruan, W.J., 2008. Prevalence, correlates, disability, and comorbidity of DSM-IV borderline personality disorder: results from the Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions. J Clin Psychiatry 69 (4), 533-545.

Grilo, C.M., Sanislow, C.A., Skodol, A.E., Gunderson, J.G., Stout, R.L., Bender, D.S., Yen, S., Shea, M.T., Morey, L.C., Zanarini, M.C., McGlashan, T.H., 2007. Longitudinal diagnostic efficiency of DSM-IV criteria for borderline personality disorder: a 2-year prospective study. Can J Psychiatry 52 (6), 357-362.

Grimstad, H., Schei, B., 1999. Pregnancy and delivery for women with a history of child sexual abuse. Child Abuse Negl 23 (1), 81-90.

Gross, R., Olfson, M., Gameroff, M., Shea, S., Feder, A., Fuentes, M., Lantigua, R., Weissman, M.M., 2002. Borderline personality disorder in primary care. Arch Intern Med 162 (1), 53-60.

Groves, J.E., 1981. Current concepts in psychiatry: borderline personality disorder. N Engl J Med 305 (5), 259-262.

Guintivano, J., Arad, M., Gould, T.D., Payne, J.L., Kaminsky, Z.A., 2014. Antenatal prediction of postpartum depression with blood DNA methylation biomarkers. Mol Psychiatry 19 (5), 560-567.

Gunderson, J.G., Stout, R.L., McGlashan, T.H., Shea, M.T., Morey, L.C., Grilo, C.M., Zanarini, M.C., Yen, S., Markowitz, J.C., Sanislow, C., Ansell, E., Pinto, A., Skodol, A.E., 2011a. Ten-year course of borderline personality disorder: psychopathology and function from the Collaborative Longitudinal Personality Disorders study. Arch Gen Psychiatry 68 (8), 827-837.

Gunderson, J.G., Zanarini, M.C., Choi-Kain, L.W., Mitchell, K.S., Jang, K.L., Hudson, J.I., 2011b. Family study of borderline personality disorder and its sectors of psychopathology. Arch Gen Psychiatry 68 (7), 753-762.

Hare, R.D., Clark, D., Grann, M., Thornton, D., 2000. Psychopathy and the predictive validity of the PCL-R: an international perspective. Behav Sci Law 18 (5), 623-645.

Heimstad, R., Dahloe, R., Laache, I., Skogvoll, E., Schei, B., 2006. Fear of childbirth and history of abuse: implications for pregnancy and delivery. Acta Obstet Gynecol Scand 85 (4), 435-440.

Higgitt, A., Fonagy, P., 1992. Psychotherapy in borderline and narcissistic personality disorder. Br J Psychiatry 161, 23-43.

Hollingsworth, K., Callaway, L., Duhig, M., Matheson, S., Scott, J., 2012. The association between maltreatment in childhood and pre-pregnancy obesity in women attending an antenatal clinic in Australia. PLoS One 7 (12), e51868.

Howard, L.M., Molyneaux, E., Dennis, C.L., Rochat, T., Stein, A., Milgrom, J., 2014. Non-psychotic mental disorders in the perinatal period. Lancet 384 (9956), 1775-1788.

Reference

Jackson, A.M., Deye, K., Aspects of Abuse: Consequences of Childhood Victimization. Current Problems in Pediatric and Adolescent Health Care 45 (3), 86-93.

Janssen, A.B., Kertes, D.A., McNamara, G.I., Braithwaite, E.C., Creeth, H.D., Glover, V.I., John, R.M., 2016. A Role for the Placenta in Programming Maternal Mood and Childhood Behavioural Disorders. J Neuroendocrinol 28 (8).

JL, J., 1992. Child Sexual Abuse Victimization and Later Sequelae During Pregnancy and Childbirth. J Child Sex Abus 1 (1), 103-112.

Johnson, J.G., Cohen, P., Brown, J., Smailes, E.M., Bernstein, D.P., 1999. Childhood maltreatment increases risk for personality disorders during early adulthood. Arch Gen Psychiatry 56 (7), 600-606.

Johnson, J.G., Cohen, P., Chen, H., Kasen, S., Brook, J.S., 2006. Parenting behaviors associated with risk for offspring personality disorder during adulthood. Arch Gen Psychiatry 63 (5), 579-587.

Kendler, K.S., Aggen, S.H., Czajkowski, N., Roysamb, E., Tambs, K., Torgersen, S., Neale, M.C., Reichborn-Kjennerud, T., 2008. The structure of genetic and environmental risk factors for DSM-IV personality disorders: a multivariate twin study. Arch Gen Psychiatry 65 (12), 1438-1446.

Kernberg, O.F., 2007. The almost untreatable narcissistic patient. J Am Psychoanal Assoc 55 (2), 503-539.

King-Casas, B., Sharp, C., Lomax-Bream, L., Lohrenz, T., Fonagy, P., Montague, P.R., 2008. The rupture and repair of cooperation in borderline personality disorder. Science 321 (5890), 806-810.

Kupper, N., Willemsen, G., Riese, H., Posthuma, D., Boomsma, D.I., de Geus, E.J., 2005. Heritability of daytime ambulatory blood pressure in an extended twin design. Hypertension 45 (1), 80-85.

Lam, R.W., Parikh, S.V., Ramasubbu, R., Michalak, E.E., Tam, E.M., Axler, A., Yatham, L.N., Kennedy, S.H., Manjunath, C.V., 2013. Effects of combined pharmacotherapy and psychotherapy for improving work functioning in major depressive disorder. Br J Psychiatry 203 (5), 358-365.

Lara, M.A., Navarrete, L., Nieto, L., Le, H.N., 2015. Childhood abuse increases the risk of depressive and anxiety symptoms and history of suicidal behavior in Mexican pregnant women. Rev Bras Psiquiatr 37 (3), 203-210.

Leeners, B., Rath, W., Block, E., Gorres, G., Tschudin, S., 2014. Risk factors for unfavorable pregnancy outcome in women with adverse childhood experiences. J Perinat Med 42 (2), 171-178.

Leeners, B., Richter-Appelt, H., Imthurn, B., Rath, W., 2006. Influence of childhood sexual abuse on pregnancy, delivery, and the early postpartum period in adult women. J Psychosom Res 61 (2), 139-151.

Leeners, B., Stiller, R., Block, E., Gorres, G., Rath, W., 2010. Pregnancy complications in women with childhood sexual abuse experiences. J Psychosom Res 69 (5), 503-510.

Lenzenweger, M.F., Lane, M.C., Loranger, A.W., Kessler, R.C., 2007. DSM-IV personality disorders in the National Comorbidity Survey Replication. Biol Psychiatry 62 (6), 553-564.

Lindahl, V., Pearson, J.L., Colpe, L., 2005. Prevalence of suicidality during pregnancy and the postpartum. Arch Womens Ment Health 8 (2), 77-87.

Lobbestael, J., Arntz, A., Bernstein, D.P., 2010. Disentangling the relationship between different types of childhood maltreatment and personality disorders. J Pers Disord 24 (3), 285-295.

Low, N.C., Dugas, E., Constantin, E., Karp, I., Rodriguez, D., O'Loughlin, J., 2012. The association between parental history of diagnosed mood/anxiety disorders and

psychiatric symptoms and disorders in young adult offspring. BMC Psychiatry 12, 188.

Lukasse, M., Vangen, S., Oian, P., Kumle, M., Ryding, E.L., Schei, B., 2010a. Childhood abuse and fear of childbirth--a population-based study. Birth 37 (4), 267-274.

Lukasse, M., Vangen, S., Oian, P., Schei, B., 2010b. Childhood abuse and caesarean section among primiparous women in the Norwegian Mother and Child Cohort Study. Bjog 117 (9), 1153-1157.

Lukasse, M., Vangen, S., Oian, P., Schei, B., 2011. Fear of childbirth, women's preference for cesarean section and childhood abuse: a longitudinal study. Acta Obstet Gynecol Scand 90 (1), 33-40.

Martini, J., Knappe, S., Beesdo-Baum, K., Lieb, R., Wittchen, H.U., 2010. Anxiety disorders before birth and self-perceived distress during pregnancy: associations with maternal depression and obstetric, neonatal and early childhood outcomes. Early Hum Dev 86 (5), 305-310.

Mason, S.M., Tobias, D.K., Clark, C.J., Zhang, C., Hu, F.B., Rich-Edwards, J.W., 2016. Abuse in Childhood or Adolescence and Gestational Diabetes: A Retrospective Cohort Study. Am J Prev Med 50 (4), 436-444.

Massion, A.O., Dyck, I.R., Shea, M.T., Phillips, K.A., Warshaw, M.G., Keller, M.B., 2002. Personality disorders and time to remission in generalized anxiety disorder, social phobia, and panic disorder. Arch Gen Psychiatry 59 (5), 434-440.

Matijasevich, A., Murray, J., Cooper, P.J., Anselmi, L., Barros, A.J., Barros, F.C., Santos, I.S., 2015. Trajectories of maternal depression and offspring psychopathology at 6 years: 2004 Pelotas cohort study. J Affect Disord 174, 424-431.

McNeil, T.F., Blennow, G., 1988. A prospective study of postpartum psychoses in a high-risk group. 6. Relationship to birth complications and neonatal abnormality. Acta Psychiatr Scand 78 (4), 478-484.

Mehrabian, A., Epstein, N., 1972. A measure of emotional empathy. J Pers 40 (4), 525-543.

Mehta, D., Newport, D.J., Frishman, G., Kraus, L., Rex-Haffner, M., Ritchie, J.C., Lori, A., Knight, B.T., Stagnaro, E., Ruepp, A., Stowe, Z.N., Binder, E.B., 2014. Early predictive biomarkers for postpartum depression point to a role for estrogen receptor signaling. Psychol Med 44 (11), 2309-2322.

Milgrom, J., Gemmill, A.W., Bilszta, J.L., Hayes, B., Barnett, B., Brooks, J., Ericksen, J., Ellwood, D., Buist, A., 2008. Antenatal risk factors for postnatal depression: a large prospective study. J Affect Disord 108 (1-2), 147-157.

Mok, P.L., Pedersen, C.B., Springate, D., Astrup, A., Kapur, N., Antonsen, S., Mors, O., Webb, R.T., 2016. Parental Psychiatric Disease and Risks of Attempted Suicide and Violent Criminal Offending in Offspring: A Population-Based Cohort Study. JAMA Psychiatry 73 (10), 1015-1022.

Munk-Olsen, T., Laursen, T.M., Pedersen, C.B., Mors, O., Mortensen, P.B., 2006. New parents and mental disorders: a population-based register study. Jama 296 (21), 2582-2589.

Nagl, M., Steinig, J., Klinitzke, G., Stepan, H., Kersting, A., 2016. Childhood maltreatment and pre-pregnancy obesity: a comparison of obese, overweight, and normal weight pregnant women. Arch Womens Ment Health 19 (2), 355-365.

National Institute for Health and Care Excellence, 2014. Antenatal and postnatal mental health: clinical management and service guidance., London.

Netsi, E., Evans, J., Wulff, K., O'Mahen, H., Ramchandani, P.G., 2015. Infant outcomes following treatment of antenatal depression: Findings from a pilot randomized controlled trial. J Affect Disord 188, 252-256.

Norhayati, M.N., Hazlina, N.H., Asrenee, A.R., Emilin, W.M., 2015. Magnitude and risk factors for postpartum symptoms: a literature review. J Affect Disord 175, 34-52.

Ogrodniczuk, J.S., Piper, W.E., Joyce, A.S., Steinberg, P.I., Duggal, S., 2009. Interpersonal problems associated with narcissism among psychiatric outpatients. J Psychiatr Res 43 (9), 837-842.

Orsolini, L., Bellantuono, C., 2015. Serotonin reuptake inhibitors and breastfeeding: a systematic review. Hum Psychopharmacol 30 (1), 4-20.

Palmer, N.B., Salcedo, J., Miller, A.L., Winiarski, M., Arno, P., 2003. Psychiatric and social barriers to HIV medication adherence in a triply diagnosed methadone population. AIDS Patient Care STDS 17 (12), 635-644.

Pascual, J.C., Corcoles, D., Castano, J., Gines, J.M., Gurrea, A., Martin-Santos, R., Garcia-Ribera, C., Perez, V., Bulbena, A., 2007. Hospitalization and pharmacotherapy for borderline personality disorder in a psychiatric emergency service. Psychiatr Serv 58 (9), 1199-1204.

Paulson, J.F., Bazemore, S.D., 2010. Prenatal and postpartum depression in fathers and its association with maternal depression: a meta-analysis. Jama 303 (19), 1961-1969.

Perez-Fuentes, G., Olfson, M., Villegas, L., Morcillo, C., Wang, S., Blanco, C., 2013. Prevalence and correlates of child sexual abuse: a national study. Compr Psychiatry 54 (1), 16-27.

Pihlakoski, L., Sourander, A., Aromaa, M., Ronning, J.A., Rautava, P., Helenius, H., Sillanpaa, M., 2013. Do antenatal and postnatal parental psychological distress, and

recognized need of help predict preadolescent's psychiatric symptoms? The Finnish Family Competence Cohort study. Child Psychiatry Hum Dev 44 (2), 305-319.

Pincus, A.L., Ansell, E.B., Pimentel, C.A., Cain, N.M., Wright, A.G.C., Levy, K.N., 2009. Initial construction and validation of the Pathological Narcissism Inventory. Psychol Assess 21 (3), 365-379.

Raposa, E., Hammen, C., Brennan, P., Najman, J., 2014. The long-term effects of maternal depression: early childhood physical health as a pathway to offspring depression. J Adolesc Health 54 (1), 88-93.

Roberts, A.L., Lyall, K., Rich-Edwards, J.W., Ascherio, A., Weisskopf, M.G., 2013. Association of maternal exposure to childhood abuse with elevated risk for autism in offspring. JAMA Psychiatry 70 (5), 508-515.

Roepke, S., Vater, A., 2014. Narcissistic personality disorder: an integrative review of recent empirical data and current definitions. Curr Psychiatry Rep 16 (5), 445.

Rognmo, K., Torvik, F.A., Ask, H., Roysamb, E., Tambs, K., 2012. Paternal and maternal alcohol abuse and offspring mental distress in the general population: the Nord-Trondelag health study. BMC Public Health 12, 448.

Ronningstam, E., 2011. Narcissistic personality disorder in DSM-V--in support of retaining a significant diagnosis. J Pers Disord 25 (2), 248-259.

Rothrock, J., Lopez, I., Zweilfer, R., Andress-Rothrock, D., Drinkard, R., Walters, N., 2007. Borderline personality disorder and migraine. Headache 47 (1), 22-26.

Ruiz, S.K., Harris, S.J., Martinez, P., Gold, P.M., Klimes-Dougan, B., 2018. Young adult's attachment style as a partial mediator between maternal functioning and young adult offsprings' functioning. J Affect Disord 232, 393-399.

Ryan, J., Mansell, T., Fransquet, P., Saffery, R., 2017. Does maternal mental well-being in pregnancy impact the early human epigenome? Epigenomics 9 (3), 313-332.

Sanger, C., Iles, J.E., Andrew, C.S., Ramchandani, P.G., 2015. Associations between postnatal maternal depression and psychological outcomes in adolescent offspring: a systematic review. Arch Womens Ment Health 18 (2), 147-162.

Sansone, R.A., Lam, C., Wiederman, M.W., 2010. Road rage: relationships with borderline personality and driving citations. Int J Psychiatry Med 40 (1), 21-29.

Sellers, R., Collishaw, S., Rice, F., Thapar, A.K., Potter, R., Mars, B., Harold, G.T., Smith, D.J., Owen, M.J., Craddock, N., Thapar, A., 2013. Risk of psychopathology in adolescent offspring of mothers with psychopathology and recurrent depression. Br J Psychiatry 202, 108-114.

Sellers, R., Harold, G.T., Elam, K., Rhoades, K.A., Potter, R., Mars, B., Craddock, N., Thapar, A., Collishaw, S., 2014. Maternal depression and co-occurring antisocial behaviour: testing maternal hostility and warmth as mediators of risk for offspring psychopathology. J Child Psychol Psychiatry 55 (2), 112-120.

Shedler, J., Beck, A., Fonagy, P., Gabbard, G.O., Gunderson, J., Kernberg, O., Michels, R., Westen, D., 2010. Personality disorders in DSM-5. Am J Psychiatry 167 (9), 1026-1028.

Silbersweig, D., Clarkin, J.F., Goldstein, M., Kernberg, O.F., Tuescher, O., Levy, K.N., Brendel, G., Pan, H., Beutel, M., Pavony, M.T., Epstein, J., Lenzenweger, M.F., Thomas, K.M., Posner, M.I., Stern, E., 2007. Failure of frontolimbic inhibitory function in the context of negative emotion in borderline personality disorder. Am J Psychiatry 164 (12), 1832-1841.

Sithisarn, T., Granger, D.T., Bada, H.S., 2012. Consequences of prenatal substance use. Int J Adolesc Med Health 24 (2), 105-112.

Soeteman, D.I., Hakkaart-van Roijen, L., Verheul, R., Busschbach, J.J., 2008. The economic burden of personality disorders in mental health care. J Clin Psychiatry 69 (2), 259-265.

Stanley, B., Siever, L.J., 2010. The interpersonal dimension of borderline personality disorder: toward a neuropeptide model. Am J Psychiatry 167 (1), 24-39.

Stein, A., Pearson, R.M., Goodman, S.H., Rapa, E., Rahman, A., McCallum, M., Howard, L.M., Pariante, C.M., 2014. Effects of perinatal mental disorders on the fetus and child. Lancet 384 (9956), 1800-1819.

Stewart, D.E., Vigod, S., 2016. Postpartum Depression. N Engl J Med 375 (22), 2177-2186.

Taylor, A.K., Netsi, E., O'Mahen, H., Stein, A., Evans, J., Pearson, R.M., 2017. The association between maternal postnatal depressive symptoms and offspring sleep problems in adolescence. Psychol Med 47 (3), 451-459.

Trestman, R.L., Ford, J., Zhang, W., Wiesbrock, V., 2007. Current and lifetime psychiatric illness among inmates not identified as acutely mentally ill at intake in Connecticut's jails. J Am Acad Psychiatry Law 35 (4), 490-500.

Tweed, R.G., Dutton, D.G., 1998. A comparison of impulsive and instrumental subgroups of batterers. Violence Vict 13 (3), 217-230.

Twenge, J.M., Campbell, W.K., Freeman, E.C., 2012. Generational differences in young adults' life goals, concern for others, and civic orientation, 1966-2009. J Pers Soc Psychol 102 (5), 1045-1062.

Vaillant, G.E., 1992. The beginning of wisdom is never calling a patient a borderline; or, the clinical management of immature defenses in the treatment of individuals with personality disorders. J Psychother Pract Res 1 (2), 117-134.

Walter, M., Gunderson, J.G., Zanarini, M.C., Sanislow, C.A., Grilo, C.M., McGlashan, T.H., Morey, L.C., Yen, S., Stout, R.L., Skodol, A.E., 2009. New onsets of substance use

disorders in borderline personality disorder over 7 years of follow-ups: findings from the Collaborative Longitudinal Personality Disorders Study. Addiction 104 (1), 97-103.

Wisner, K.L., Moses-Kolko, E.L., Sit, D.K., 2010. Postpartum depression: a disorder in search of a definition. Arch Womens Ment Health 13 (1), 37-40.

Wisner, K.L., Parry, B.L., Piontek, C.M., 2002. Clinical practice. Postpartum depression. N Engl J Med 347 (3), 194-199.

Wisner, K.L., Sit, D.K., McShea, M.C., Rizzo, D.M., Zoretich, R.A., Hughes, C.L., Eng, H.F., Luther, J.F., Wisniewski, S.R., Costantino, M.L., Confer, A.L., Moses-Kolko, E.L., Famy, C.S., Hanusa, B.H., 2013. Onset timing, thoughts of self-harm, and diagnoses in postpartum women with screen-positive depression findings. JAMA Psychiatry 70 (5), 490-498.

Yazici, E., Kirkan, T.S., Aslan, P.A., Aydin, N., Yazici, A.B., 2015. Untreated depression in the first trimester of pregnancy leads to postpartum depression: high rates from a natural follow-up study. Neuropsychiatr Dis Treat 11, 405-411.

Young, M.E., Deardorff, J., Ozer, E., Lahiff, M., 2011. Sexual abuse in childhood and adolescence and the risk of early pregnancy among women ages 18-22. J Adolesc Health 49 (3), 287-293.

Zanarini, M.C., Frankenburg, F.R., Hennen, J., Silk, K.R., 2004. Mental health service utilization by borderline personality disorder patients and Axis II comparison subjects followed prospectively for 6 years. J Clin Psychiatry 65 (1), 28-36.

Zhong, Q.Y., Wells, A., Rondon, M.B., Williams, M.A., Barrios, Y.V., Sanchez, S.E., Gelaye, B., 2016. Childhood abuse and suicidal ideation in a cohort of pregnant Peruvian women. Am J Obstet Gynecol 215 (4), 501.e501-508.

Reference

Zimmerman, M., Mattia, J.I., 1999. Differences between clinical and research practices in diagnosing borderline personality disorder. Am J Psychiatry 156 (10), 1570-1574.

Zimmerman, M., Rothschild, L., Chelminski, I., 2005. The prevalence of DSM-IV personality disorders in psychiatric outpatients. Am J Psychiatry 162 (10), 1911-1918.

Zimmerman, M., Ruggero, C.J., Chelminski, I., Young, D., 2010. Psychiatric diagnoses in patients previously overdiagnosed with bipolar disorder. J Clin Psychiatry 71 (1), 26-31.

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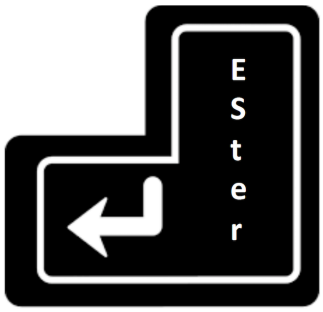
il tasto 

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