

ANTEPARTUM DISTRESS DURING COVID-19 PANDEMIC: AN OBSERVATIONAL STUDY

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SUMMARY

Background: The present study investigates the impact of the Coronavirus diseases 2019 (Covid-19) pandemic on the subjective experience of pregnant women, as well as the impact of the pandemic on this population in terms of psychopathological correlates.

Subjects and methods: Pregnant women referring to the Section of Obstetrics and Gynecology of the General Hospital of Perugia, Italy, were recruited from 1st May, 2021 to 15th June, 2021. Socio-demographic and clinical data was collected, as well as information regarding the Covid-19 pandemic impact on the subjective experience of pregnancy. Psychopathology was evaluated by means of the State-Trait Anxiety Inventory Form Y (STAI-Y), the Symptom Checklist-90 (SCL-90) and the Prenatal Distress Measure (Pre-DM). Descriptive analyses were performed. Significant associations between distress symptoms and the collected sociodemographic and clinical variables were assessed by using the Pearson correlation ($p < 0.05$).

Results: 25 women were included in the study. Among these, 18 (72%) reported that the Covid-19 pandemic negatively impacted their experience of pregnancy. Were detected an average Pre-DM total score of 7.28 ± 4.33 and an average state anxiety scale value of 35.56 ± 9.21 and an average trait anxiety scale value of 34.04 ± 7.44 at the STAI-Y. A global severity index > 1 at SCL-90 was detected in 8.3% of the sample.

Conclusions: The identification of antepartum distress and the early treatment of perinatal psychopathology represent a priority during the Covid-19 pandemic era.

Key words: pregnancy - perinatal psychiatry - antepartum distress - COVID-19 pandemic

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INTRODUCTION

In this particular historical time pregnant women, who already represent a psychologically vulnerable population, are forced to deal with additional worries related to the Coronavirus disease 2019 (Covid-19) pandemic, that possibly adds up to the well-known risk factors for perinatal psychopathology. According to recent literature, in pregnant women evaluated after the declaration of the pandemic status higher rates of psychopathology, particularly anxiety, depressive, dissociative and trauma-related symptoms were detected (Berthelot et al. 2020, Wu et al. 2020). Similarly, midwives participating in an online survey reported that women contacted them during the pandemic due to worries concerning hospital visits, protective methods, baby safety, anxiety related to social media messages and fear of contracting the infection (Nanjundaswamy et al. 2020). Indeed, the threat of Covid-19 or its consequences on fetal development, together with the lack of information or misinformation, may contribute to increased stress, with associated consequences on maternal mental health. Data from past epidemics (such as SARS or MERS) suggest common potential symptomatic manifestations, such as confusion, depression, anxiety, post-traumatic stress disorder (PTSD) and insomnia (Rogers et al. 2020). Social distancing and limited social support increase the sense of loneliness and isolation (Tull et al. 2020), which in the case of pregnant women adds to the “disruption” of the expected routine of

prenatal and postnatal care for the mother and the baby, such as cancelled appointments, restrictions on the presence of a support person, reports of poorer quality of prenatal care, changes in birth plans or reduced access to healthcare services (Lebel et al. 2020). Additionally, home confinement may be responsible for the worsening of pre-existing mental disorders in pregnant women due to the reduced access to regular outpatient visits and because of high susceptibility to stress compared with those of the general population (Yao et al. 2020). Psychological distress is a condition of emotional distress, typically characterized by symptoms of depression and anxiety that the person experiences as a response to a specific stressor and that is temporally or permanently disruptive for the subject (Ridner 2004). This psychological condition often occurs during a woman's reproductive years (Altemus et al. 2014, Blehar 2003), as pregnancy and postpartum are periods characterized by physiological and psychosocial changes, which can lead to a greater risk of psychological distress (Biaggi et al. 2016, Smith et al. 2011). Depression, stress, and anxiety are common in pregnant women and often prenatal psychological distress is associated with postnatal psychological distress (Obrochta et al. 2020). At least 20% women experience depressive symptoms during pregnancy, while in the postpartum period the cases are about 15% (Alipour et al. 2012, Pearlstein et al. 2009). Anxiety, although it has been less studied during pregnancy and in the postnatal period, reaches levels of

13-21% and 11-17% respectively (Fairbrother et al. 2015). In addition, the effects of maternal psychopathology on the fetus are well-established, both in the short term, such as preterm delivery and increased risk of complications during delivery, and in the long term, such as reduced attention and emotional/ behavioral alterations (Barker et al. 2011, Beck 1996, Coleman et al. 2008, Huizink et al. 2002). The early identification of these disorders in the perinatal period should thus be considered as a global health priority, as well as the possibility to provide early interventions to this specific population (Hirsch et al. 2017). For this purpose, Allison and colleagues created a screening tool to identify distress in postpartum, the self-administered 10-item scale Postpartum Distress Measure (PDM), which represents a helpful tool to identify postpartum distress under a broad framework, including obsessive-compulsive symptoms (Allison et al. 2011). In 2017, Hirsch and colleagues aimed to evaluate the applicability of PDM in the antepartum period, thus laying the foundations for the development of the 10-item Prenatal Distress Measure (Pre-DM) (Hirsch et al. 2017). The present study aims to detect any symptoms of distress in pregnancy and highlight the correlations with the Covid-19 pandemic.

SUBJECTS AND METHODS

Subjects

Women between the 31st and 39th week of gestation were recruited at the Gynecology and Obstetrics University Clinics of the General Hospital of Perugia “Santa Maria della Misericordia” between May 1st, 2021 and June 15th, 2021. Women aged < 18, with intellectual disabilities and neurocognitive disorders, and with inadequate comprehension of Italian language were excluded from the study. All women gave their informed consent for participating in the study and the researched received approval from the Local Ethics Committee of the Umbria region. Good Epidemiologic Practice (GEP) - IEA Guidelines (<http://ieaweb.org>) for proper conduct in epidemiologic research were followed, as well as legal and regulatory national requirements.

Methods

Subjects who accepted to be involved in the study filled out a special form for the collection of socio-demographic and clinical information related to the subjective experience of pregnancy with particular reference to the pandemic. The three self-administered tests that were used for this study were the State-Trait Anxiety Inventory Form Y (STAI-Y), the Symptom Checklist-90 (SCL-90) and the Prenatal Distress Measure (Pre-DM).

The STAI-Y consists of two scales (Y-1 and Y-2), each one composed of 20 items rated with a score from 1 to 4, which investigate state and trait anxiety. The total score, ranging from 20 to 80, identifies three levels of anxiety: low (20-39), intermediate (40-59), high (60-80)

(Spielberger et al. 1970, Spielberger et al. 1983, Pedrabissi & Santinello 1989). The SCL-90 is composed of 90 items scored with a Likert scale from 0 to 4 points and evaluates 10 symptomatic dimensions: somatization, obsessive compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, sleep disorders, in addition to a global severity index. Scores ≥ 1 are considered to be of clinical interest (Derogatis & Cleary 1977, Derogatis 1994, Prunas et al. 2012). The Pre-DM is a 10-item screening tool designed to detect psychological distress and obsessive compulsive symptoms in the antepartum period. Items 1 to 6 evaluate general distress, items 7 to 10 are indicative of the obsessive compulsive symptoms presence, the sum of the score of all items provides the total score. Items are scored on a 0–3 scale, with 0 representing no symptom endorsement and 3 representing the presence of symptoms most of the time. A clinical cut-off has not yet been established (Hirsch et al. 2017). Since there is no Italian version of the test, the author's consent was required for the Italian translation and use.

Statistical analyses

The collected data were entered in an electronic dataset created ad-hoc for the study. Descriptive analyses were carried out to evaluate the distribution of the variables within the sample. Quantitative variables were analyzed using the mean as a measure of centrality and the standard deviation as a measure of variability. Absolute and percentage frequencies were used for the qualitative variables. Significant correlations were identified between sociodemographic and clinical data and scores obtained on tests administered using Pearson's correlation coefficient. The level of statistical significance was established as $p < 0.05$. All analyzes were performed using the Statistical Package for Social Science v. 20 (SPSS 20) data collection and processing software.

RESULTS

The population of the present study consisted of 25 women with a mean age of 31 ± 2.54 . Women were in their 36th week of pregnancy on average. Most women in the sample were Italian ($n=23$, 92%), in a stable relationship ($n=14$, 56%, cohabiting; $n=11$, 44%, married), 17 (68%) were employed and 14 (58.3%) were graduated. Concerning the reproductive history, 52% ($n=13$) of the sample declared to be at the first pregnancy, while 48% ($n=12$) already had one or more children, all born after physiological pregnancies culminated in a natural delivery (75%) or C-section (25%); the percentage of past obstetric complications was 16.7%. Among the interviewed women, 5 (20.8%) reported one or more abortions, while none reported previous voluntary interruption of pregnancy (VIP). Two women (8%) reported medical illnesses at the time of the interview and 5 (20%) were having a medically complicated pregnancy. In 60% of

Table 1. Answers to the question "which of these pandemic factors are affecting your experience of pregnancy?"

	Yes (n, %)	No (n, %)
Fear of contracting infection/consequences of a possible infection on fetal development	10 (55.6%)	8 (44.4%)
Fear related to limitations of gynaecological examinations/hospital access	13 (72.2%)	5 (27.8%)
Alert status powered by information/social media	2 (11.1%)	16 (88.9%)
Professional/economic concerns	3 (16.7%)	15 (83.3%)
Limited family and social support	8 (44.4%)	10 (55.6%)
Mismatch between imagined and actual pregnancy experience	3 (15.8%)	16 (84.2%)

Table 2. Pre-DM scores

	Medium	Deviation std.	Minimum	Maximum
General distress scale (item 1-6)	2.84	3.064	0	11
Obsessive-compulsive symptoms scale (item 7-10)	4.44	2.583	0	10
Total score	7.28	4.335	0	16

cases the current pregnancy was planned, and women neither experienced difficulties in the conception, nor recurred to practices of medically assisted fertilization (MPA). In terms of mental health, two (8%) of the respondents reported a positive psychiatric history and 6 (24%) had a positive family psychiatric history. As for perinatal psychiatric history, 3 women (25%) out of the 12 who had already had children declared that they had suffered from perinatal psychiatric disorders, but none had required support from a mental health professional. None of the respondents had ever undergone psychopharmacological treatment. All the pregnant women declared to feel satisfied with the relationship with their partner, while 2 (8%) women felt not to have received adequate support from the partner during pregnancy. When assessing the psychological impact of the pandemic on maternity, it affected the experience of pregnancy in 72% (n=18) of the sample. The psychological factors linked to the pandemic indicated as responsible are shown in table 1.

The average score was 35.56±9.20 in STAI-Y1 (state anxiety scale) and 34.04±7.43 in STAI-Y2 (trait anxiety scale). SCL-90 scores were ≥ 1 in sleep disorders (45.8%), somatization (25%), obsession-compulsion (20.8%), hostility and paranoid ideation (16.7%), interpersonal sensitivity and depression (12.5%), anxiety (8.3%), psychoticism (4.2%). The global severity index was ≥ 1 in 8.3% of the women who performed the test. The mean scores of the Pre-DM are shown in table 2.

When performing the Pearson correlation for assessing the associations between the investigated variables, a negative correlation was found between the age of the pregnant woman and the influence of the pandemic on the pregnancy experience (p=0.042). Women with positive psychiatric history revealed less concern about the limitations of gynaecological examinations/hospital access (p=0.014). In our sample the fear of contracting the infection/consequences of a possible contagion on fetal development was associated with the state anxiety measured with the STAI-Y (p=0.040) and with the obsessive-compulsive symptoms scale (p=0.005) and the total score (p=0.039) of the pre-DM. The alert state

fuelled by media/social media was negatively associated with foreign nationality (p=0.002) and positively associated with depression (p=0.000), hostility (p=0.000), psychoticism (p=0.002) and compulsion obsession (p=0.018) detected with the SCL-90. An association was found between concerns related to professional and economic aspects and: obsession-compulsion (p=0.018) and psychoticism (p=0.002) at the SCL-90, the general distress scale (p=0.010) and the total score at the Pre-DM (p=0.008), a complicated pregnancy (p=0.008). The worry for limited family and social support was associated to the obsession-compulsion parameter of SCL-90 (p=0.037), to the multiparity (p=0.003) and to the condition of working woman (p=0.017). Considering the results of the Pre-DM, the general distress scale scores correlated with the scores of the state anxiety (p=0.004) and trait anxiety (p=0.012) of the STAI-Y and with the detection of depression (p=0.031), anxiety (p=0.029), hostility (p=0.046) and the global severity index at the SCL-90 (p=0.029); the obsessive-compulsive symptoms scale was associated with paranoid ideation (p=0.024) and interpersonal sensitivity (p=0.016) detected with SCL-90, with the state anxiety scores of STAI-Y (p=0.021) and with the course of a complicated pregnancy (p=0.005); the total score was associated with the scores of state (p=0.000) and trait anxiety (p=0.006) at the STAI-Y, with the scores of interpersonal sensitivity (p=0.003), anxiety (p=0.022), hostility (p=0.009), paranoid ideation (p=0.015) and with the global severity index (p=0.022) at the SCL-90 and with a history of complicated pregnancy (p=0.039).

DISCUSSION

The present study assessed possible manifestations of psychopathological discomfort in the antepartum period, as well as the effects of the ongoing pandemic on the subjective experience of maternity. Pregnancy is notoriously a delicate period for women's mental health, normally at risk of emotional and psychological difficulties (Lebel et al. 2020). In consideration of the unprecedented emergency, the pandemic may have induced psychological

distress in women who are facing a pregnancy in this particular historical moment, as already revealed by previous literature (Lebel et al. 2020, Berthelot et al. 2020, Wu et al. 2020). The present study seems to confirm this finding. Previous studies have highlighted specific pandemic-related mom concerns, such as worries about hospital visits, baby safety, anxiety related to social media messages, fear of contracting the infection (Nanjundaswamy et al. 2020), limited social support (Tull et al. 2020), the delusion about the disruption of the routines related to the prepartum period to the postpartum in relation to the mother and the newborn (Lebel et al. 2020). In this study, pandemic-related factors that influenced the psychological state of pregnant women were: fear of limitations of visits gynaecological/hospital access, fear of infection and/or consequences of a possible contagion on fetal development, limited family and social support, concerns related to occupational/economic aspects, the lack of correspondence between the experience of pregnancy imagined and real and the state of alert powered by information/social media. According to Motrico and colleagues, one of the main emotional responses of pregnant women during Covid-19 pandemic it turned out to be fear (Motrico et al. 2020). The impact of the aforementioned factors on the psychological condition of women was assessed by means of specific psychopathological scales. The fear of contracting the infection and the effects of possible contagion on fetal development, for example, were associated with state anxiety detected with the STAI-Y and with the obsessive-compulsive symptoms scale and the total Pre-DM score. Moreover, concerns related to professional and economic aspects were associated with obsessive-compulsive dimension and psychoticism of the SCL-90 and with the general distress scale and the total score of the Pre-DM. The effects of the pandemic appear to be more incisive on women with previous psychological vulnerability, who in this period are even more at risk of psychological distress due to the reduced access to regular outpatient visits and the high susceptibility to stress (Yao et al., 2020). This is of particular concern, considering that the effects of isolation and the pandemic state were already demonstrated to be severe on the general population (Xiong et al. 2020). For these reasons, pregnant women may deserve an even more accurate and specific observation, which allows the early identification of psychological distress in order to direct women towards specific assistance and treatment paths for perinatal disorders. This observation must be as careful as possible, as it is known that women with perinatal psychological distress often do not ask for help (Button et al. 2017). From this point of view, the Pre-DM seems to be a very useful screening tool for the early detection of distress in the antepartum. In the present study, correlations were appreciated between the results of the Pre-DM and those of the other tests administered, tests validated in many languages, normally used in clinical practice. As reported by the authors of the Pre-DM, there is still no cut-off for establishing the presence

of clinically significant depressive and anxious symptoms with such instrument, and scores obtained can be read in dimensional terms, with higher scores corresponding to higher levels of distress (Hirsch et al. 2017). Further research on the Pre-DM is recommended, since it may represent as a useful screening tool in the field of maternal mental health that could present clinical validity in offering complete health care to pregnant women. The study conducted must take into account two main limitations: the small size of the sample and the recruitment carried out at one single General Hospital, where women with physiological pregnancies were mainly evaluated. Moreover, data from this study do not cover the whole pandemic period and should thus be considered preliminary.

CONCLUSIONS

According to the findings of this study, psychological distress during pregnancy represents a relevant, overlooked mental health issue during this particular historical period. The Pre-DM may act as a valid screening tool for antepartum distress, useful in the early identification of discomfort that may arise during the pregnancy. The implementation of a systematic monitoring and the targeting of specific clinical intervention may help in avoiding the short and long-term effects of suffering on the health of the woman herself and her child.

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Contribution of individual authors:

Patrizia Moretti and Agata Di Buò conceived and designed the study;

Agata Di Buò, Agnese Minuti, Eleonora Valentini, Ilaria Cerasoli, Niccolò Mancini & Sara Radici carried out data collection;

Agata Di Buò & Giulia Menculini performed the statistical analysis;

Benedetta Moro, Agata Di Buò, Agnese Minuti, Eleonora Valentini, Ilaria Cerasoli & Niccolò Mancini wrote the first draft of the manuscript;

Giulia Menculini corrected the first draft of the manuscript;

Sandro Gerli, Patrizia Moretti & Alfonso Tortorella supervised all phases of the study design and writing of the manuscript.

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