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MATERNAL-FETAL MEDICINE

Prenatal distress during the COVID-19 pandemic: clinical and research implications

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Abstract

Purpose The objective of this study was to identify risk and protective factors related to general prenatal distress and COVID-19-specific prenatal distress to inform intervention targets among women pregnant during the COVID-19 pandemic.

Methods The study relied on data obtained from U.S. pregnant women ($N = 701$) who participated in the Perinatal Experiences and COVID-19 Effects (PEACE) Study from May 21 to October 3, 2020. The present cross-sectional study examined the potential risk and protective factors associated with different features of prenatal distress among U.S. pregnant women during the COVID-19 pandemic.

Results Approximately two-thirds of expectant mothers indicated being more stressed about going to the hospital because of COVID-19. Generalized anxiety and PTSD were associated with higher levels of general and COVID-19-specific prenatal distress. Depression symptoms were associated with higher general prenatal distress. Higher levels of distress tolerance were associated with lower levels of general prenatal distress ($B = -0.192$, $p < .001$) and COVID-19-specific prenatal distress ($B = -0.089$, $p < .05$). Higher levels of instrumental social support were marginally associated with lower COVID-19-specific prenatal distress ($B = -0.140$, $p < 0.1$).

Conclusion Findings draw attention to prenatal distress experiences during the COVID-19 pandemic, including new types of distress arising from the pandemic itself. Women might benefit from the introduction of interventions such as mindfulness-based or relaxation therapy. Coverage of responsibilities and financial assistance is particularly needed during the COVID-19 pandemic. Limitations include a majority White and high socioeconomic sample. These findings provide specificity regarding potential targets for addressing prenatal distress.

Keywords Pregnancy · Pandemic · Mental health · Stress · Depression · Anxiety

Introduction

Ensuring the physical safety of mothers during pregnancy, labor, and delivery has been a major priority given the potential direct risks of SARS-CoV-2. Yet, the mental health and well-being of mothers, infants, and their families throughout the perinatal period have been overlooked. Concerns have primarily consisted of mitigating infection risks during pregnancy, and the viral transmission to the infant [1–3] although there are now increased calls for addressing the perinatal mental health issues as a result of the pandemic [4–6].

As women have continued to conceive during the pandemic, it is necessary to understand how their experience of pregnancy has been affected throughout the period, as demonstrated by calls to support women having a "pandemic pregnancy" [7–9]. While pregnancy and the anticipation of having a new baby may be regarded as a positive experience, many women find pregnancy itself to be emotionally and physically challenging. Pregnancy-specific stress or what we refer to here as general prenatal distress encompasses stress specific to maternal fears and worries related to pregnancy [10]. These include anxieties about the changes in one's roles, responsibilities, and relationships that occur alongside with having a baby [11], concerns such as

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physical symptoms or complaints that occur with changes in the body, as well as worries about the developing fetus and the health of the baby [12–14]. While pregnancy-specific distress may co-occur with general life stress, there is evidence that pregnancy-specific distress may independently predict birth outcomes [11], even more so than general stress experiences or stress unrelated to pregnancy itself [10, 15].

The COVID-19 pandemic represents a new source of stress with unique implications for parents and those preparing for childbirth [16], which we refer to as COVID-19-specific prenatal distress. There is evidence to indicate that this stress has led to additional stress during pregnancy. Women have expressed concerns related to visiting their physicians and the transmission of the virus to their children while holding or feeding the baby [17]. Stress regarding birth preparations and COVID-19 infection risk are linked to elevated anxiety during pregnancy [18].

Identifying the potential risk and protective factors implicated in the experience of general prenatal distress and COVID-19-specific prenatal distress are keys to developing strategies that support those who have been pregnant during the pandemic. Emotional social support [18], along with interpersonal characteristics such as relationship satisfaction or better rapport with one's mother during pregnancy is associated with lower pregnancy-specific distress [19]. However, instrumental support, or tangible assistance such as financial support or having someone assist with household chores [20], may be particularly critical during the pandemic, as quarantine measures limited access to resources, such as prenatal care or caregiver support. Psychological resilience refers to one's ability to thrive in the face of adversity or to bounce back from challenges or setbacks [19, 20], and distress tolerance refers to one's ability to manage and tolerate emotional distress. Both may be individual characteristics that protect one from experiencing stress, although it is unknown what role they play in reducing general prenatal distress or COVID-19-specific prenatal distress.

To better prioritize intervention targets for reducing stress among women pregnant during a pandemic, this study sought to identify risk and protective factors associated with general prenatal distress and COVID-19-specific prenatal distress. The current study used data from the PEACE Study (Perinatal Experiences and COVID-19 Effects; www.peacestudy2020.com), an online assessment launched in May 2020 to gather information about the mental health and well-being of U.S. pregnant and postpartum women amidst the COVID-19 pandemic [21]. Our present analysis focused on women who were at least in their second trimester of pregnancy. Since certain factors may be more protective against certain types of stress, we examined associations between protective factors (resilience, distress tolerance, and emotional and instrumental social support) and two outcomes: general prenatal distress and COVID-19-specific prenatal distress, while controlling for sociodemographic factors, pre-existing mental health conditions [22], and current mental health symptoms.

Methods

Participants

Using the preliminary PEACE 2020 data collected from Wave 1 data collection ($N = 701$) from May 21, 2020 to October 3, 2020, the present cross-sectional study examined the potential risk and protective factors associated with prenatal distress among U.S. pregnant women during the pandemic. Pregnant women over the age of 18 in their second or third trimester of pregnancy were eligible to participate in the study. Participants were recruited using various methods including email, social media, word of mouth (i.e., listservs and Facebook groups). Eligible participants were given informed consent followed by a 30- to 40-min online REDCAP survey. The survey included standard measures that assess COVID-19-related experiences, family-social risk, resilience, perceived relationship with the fetus, and health outcomes. To ensure data quality, several attention checks and human verification were embedded throughout the survey. Furthermore, study staff visually inspected data to detect any response irregularities. All the study procedures were approved by the Institutional Review Board at Mass General Brigham.

Measures

Depression symptoms

Current depression symptoms were assessed through the Center for Epidemiologic Studies - Depression (CES-D) self-report measure [23]. This 20-item measure determines the frequency of symptoms associated with depression, such as restless sleep, poor appetite, and feeling lonely over the past week. Participants responded using the four response options: rarely or none of the time (less than 1 day); some or a little of the time (1–2 days); occasionally or a moderate amount of the time (3–4 days); and most or all of the time (5–7 days). Higher sum scores represent greater depression symptoms [24].

Anxiety symptoms

To assess participants' current anxiety symptoms, the Generalized Anxiety Disorder Scale (GAD-7) was used [25]. The 7-item self-report measure determines participants' frequency of anxiety symptoms during the past 2 weeks using the response options ranging from 0 (not at all) to

3 (nearly every day). Higher sum scores indicate elevated anxiety symptoms [26].

PTSD symptoms

Participants' current PTSD symptoms were assessed through the PTSD Checklist—Civilian Version (PCL-C) [27]. This standardized self-report rating scale comprises of 17 items that measure how much participants have been bothered by problems and experiences in response to stressful life events over the past month. Responses range from 1 (not at all) to 5 (extremely). Higher sum scores indicate greater PTSD symptoms.

Instrumental support

Using a 4-item subscale of the Two-Way Social Support Scale [28], participants' instrumental support was assessed. Items assessed the likelihood of receiving the following assistance, including "If stranded somewhere there is someone who would get me," "I have someone to help me if I am physically unwell," "There is someone who would give me financial assistance," and "There is someone who can help me fulfill my responsibilities when I am unable." A response scale of 0 (not at all) to 5 (always) was used, with the total sum score used for analyses. Higher scores indicate higher instrumental support.

Emotional support

The Multidimensional Scale of Perceived Social Support (MSPSS) is a self-report measure that assesses participants' perception of social support from partner, friends, and family [29]. The 12 questions on this measure includes items such as "I get the emotional help and support I need from my family," "I can count on my friends when things go wrong," and "There is a special person in my life who cares about my feelings." Responses were rated using scale options of 1 (very strongly disagree) to 7 (very strongly agree). Sum scores were used for analysis, with higher scores reflecting greater emotional support.

Resilience

Participants' psychological resilience was measured using the 10-item Connor–Davidson Resilience Scale (CD-RISC-10) [20]. The measure includes questions regarding one's ability to cope with adverse experiences such as "I am able to adapt when changes occur," or "I think of myself as a strong person when dealing with life's challenges and difficulties." Using a 5-point Likert scale ranging from 0 (not true at all) to 4 (truly nearly all the time), participants indicated how they felt in the past month. Sum scores were calculated for analysis, with higher scores reflecting greater resilience.

Distress tolerance

The Distress Tolerance Scale (DTS) assessed participants' ability to withstand and cope with emotional distress [30]. Examples of items include "Feeling distressed or upset is unbearable to me," "My feelings of distress are so intense that they completely take over." Using the 15-item measure, participants rated their ability to tolerate distress on a scale of 1 (strongly agree) to 5 (strongly disagree). Higher scores indicate greater levels of distress tolerance.

General prenatal distress

Pregnant women's specific worries and concerns were assessed using the Prenatal Distress Questionnaire (PDQ) [12]. A total of 12 questions captured participants' concerns regarding medical problems, physical symptoms, parenting, relationships, body changes, labor and delivery, and the baby's health. Using a 5-point Likert scale ranging from 0 ("never") to 4 ("always), participants reported parental distress regarding concerns about giving birth and the baby, concerns over body weight/image, and concerns over emotions and relationships. The Cronbach's alpha for the overall scale was 0.78 indicating good reliability. The mean score was used for analyses.

COVID-19-specific prenatal distress

Feelings of worry specific to pregnant women during the COVID-19 pandemic were determined using the subscales of a newly developed 8-item measure. Items included an assessment of worry/stress regarding concerns such as "I don't have a way to get to the hospital if I/my baby becomes sick and I need to see a doctor" or "not receiving adequate prenatal care due to COVID-19 (see Table 3 for the full list of items). Participants indicated how they felt on a 5-point scale, with 1 indicating (not worried/stressed at all) and 5 indicating (very worried/stressed.) Cronbach's alpha for measure items was 0.81, indicating good reliability. The mean score was used for analyses.

Duration of pandemic

The number of days from the date when COVID-19 was declared as a pandemic (March 13, 2020) to each participant's survey start date was calculated. Given possible changes in the experience of the pandemic over time, this variable was included as a covariate.

Data analytic plan

Using hierarchical multiple regression models, we examined the unique effects of risk and protective factors on pregnant women's general prenatal distress and COVID-19-specific prenatal distress. The regression models included covariates and predictor variables that were entered through the following steps: sociodemographic characteristics (Block 1), pre-existing mental health diagnoses (depression, generalized anxiety, PTSD; Block 2), current mental health symptoms (depression, generalized anxiety, PTSD; Block 3), and protective factors (instrumental support, emotional support, resilience, distress tolerance; Block 4).

Results

Table 1 displays key characteristics of our study sample. Women were on average 32.5 years of age, with the large majority college educated (90.5%), White (92.9%) and cohabitating with their partners (98.3%). More than 40% reported a household income of more than $150,000. This was the first pregnancy for about 47% of our sample. On average, the women were at 28 weeks of gestation at the time of the survey administration. The survey was completed between 69 and 201 days since the start of the pandemic in the U.S., which was designated as March 13, 2020.

Table 2 describes the mental health and psychosocial experiences based on the responses on survey measures. Within our sample, 18.1% had a pre-existing diagnosis of depression, 27.0% had a pre-existing diagnosis of generalized anxiety, and 4.1% had a pre-existing diagnosis of PTSD. The mean CES-D score was 14.45, the mean GAD-7 was 6.38, and the mean PCL-C score was 29.34. The mean level of instrumental support as assessed by the IS was 18.15, the mean of emotional support as assessed by the MSPSS was 71.07. The mean level of psychological resilience as assessed by the CD-RISC was 27.30, and the mean level of distress tolerance as assessed by the DTS was 3.58. The mean score for general prenatal stress, as assessed by the 12-item PDQ was 1.66. The mean score for COVID-19-specific prenatal distress was 2.54.

Table 3 displays the rates at which respondents indicated being "worried/stressed" or "very worried/very stressed" for various COVID-19-specific prenatal distress. Notably, 67.2% of respondents indicated being worried/stressed about going to the hospital because of COVID-19. The next item that showed the highest rate of worry/stress pertained to accessing the hospital if the respondent or her baby became sick (45.1%), followed by worries about COVID-19 stress interfering with maternal bonding (33.3%), fears about transmitting the virus to the baby (29.7%), and contracting COVID-19 during labor and delivery (24.1%). Among respondents, 16.8% indicated being worried/stressed about their birth partner or support person not being able to be with them during labor and delivery, and 16.6% being worried/stressed about becoming very sick and not having a trusted member or friend to care for their baby. A small minority of participants indicated being worried/stressed about not receiving adequate prenatal care due to COVID-19.

Table 4 demonstrates the extent to which our sociodemographic characteristics, pre-existing mental health diagnoses, current mental health symptoms, and risk and protective factors accounted for reported general prenatal distress as assessed by the PDQ and COVID-19-specific prenatal distress as measured by our 8-item measure. Race as a covariate was excluded from models likely due to multicollinearity.

We first report factors associated with general prenatal distress. Those who had a college education ($B = 0.110$ $p < 0.05$), and who attained a masters ($B = 0.163$, $p < 0.1$),

Table 1 Key sample characteristics from Wave I of the PEACE Study, data collected between May 21 and October 3, 2020

Predictors	Means ± SD or %
Maternal age (years)	32.51 ± 3.9
Maternal education	
Less than college	9.5%
College	31.8%
Masters	39.9%
Doctorate	18.8%
Household income (USD/year)	
< $74,999	14.5%
$75,000 – 149,999	44.5%
$150,000 – 224,999	25.4%
> $225,000	15.6%
Maternal race	
White	92.9%
Black or African American	1.0%
Hispanic or Latino	3.1%
Asian and Pacific Islander	3.0%
Other	0%
First pregnancy	
No	53.2%
Yes	46.8%
Pregnancy trimester	
2nd	40.2%
3rd	59.8%
Gestational weeks	28.25 ± 7.60
Cohabitating	
No	1.7%
Yes	98.3%
Pandemic duration (days)	119.87 (range 69.0–201.0)

$N = 701$

Table 2 Key variable characteristics from Wave I of the PEACE Study, data collected between May 21 and October 3, 2020

Predictors	Means ± SD or %
Pre-existing mental health diagnosis	
Depression	18.1%
Generalized anxiety	27.0%
PTSD	4.1%
Current mental health symptoms	
Depression (CES-D)	14.45 ± 8.92
Generalized anxiety (GAD-7)	6.38 ± 4.97
PTSD (PCL-C)	29.34 ± 10.31
Protective factors	
Instrumental support (IS)	18.15 ± 2.56
Emotional support (MSPSS)	71.07 ± 11.7
Resilience (CD-RISC)	27.30 ± 6.15
Distress tolerance (DTS)	3.58 ± 0.79
Outcomes	
General prenatal distress	1.66 ± 0.55
COVID-19-specific prenatal distress	2.54 ± 0.80

$N = 701$

or doctorate ($B = 0.148$, $p < 0.1$), were marginally or more likely to report general prenatal distress compared to those with less than a college education. Cohabitating with a partner was marginally associated with lower general prenatal stress ($B = -0.061$, $p < 0.1$), whereas the report of this pregnancy being the first was significantly associated with higher levels of general prenatal distress ($B = 0.156$, $p < 0.001$). Those who took the survey later in the pandemic had higher levels of general prenatal distress ($B = 0.066$, $p < 0.05$). Pre-existing mental health diagnoses showed no association with general prenatal distress. When accounting for sociodemographic variables, pandemic duration, and pre-existing mental health, higher levels of depression symptoms, generalized anxiety, and PTSD were associated with higher levels of general prenatal distress (depression: $B = 0.259$, $p < 0.001$, generalized anxiety: $B = 0.114$, $p < 0.05$, and PTSD: $B = 0.117$, $p < 0.05$). When controlling for these mental health symptoms, distress tolerance was found to significantly predict general prenatal distress, with higher levels of distress tolerance being associated with lower levels of general prenatal distress ($B = -0.192$, $p < 0.001$). All the predictors accounted for 42.0% of the model variance.

Next, we examined factors associated with COVID-19-specific prenatal distress. No sociodemographic or pre-existing depression and generalized anxiety mental health diagnoses were associated with COVID-19-specific prenatal distress. A pre-existing PTSD diagnosis was marginally associated with COVID-19-specific prenatal distress. Current generalized anxiety and PTSD symptoms were associated with COVID-19-specific prenatal distress (generalized anxiety: $B = 0.193$, $p < 0.01$; PTSD: $B = 0.155$, $p < 0.1$), although the association with PTSD symptoms was marginal. After controlling for sociodemographic variables, pre-existing mental health conditions and current mental health symptoms, instrumental support and distress tolerance were found to be marginally and significantly associated with COVID-19-specific prenatal distress respectively, with higher levels of instrumental support and distress tolerance associated with lower levels of COVID-19-specific prenatal distress (instrumental support: $B = -0.140$, $p < 0.1$, distress tolerance: $B = -0.089$, $p < 0.05$). All the predictors accounted for 26.8% of the model variance.

Discussion

Our objective was to understand expectant mothers' experiences related to general prenatal distress and distress specific to the COVID-19 pandemic, based on data obtained from

Table 3 COVID-19-specific prenatal distress prevalence by item from Wave I of the PEACE Study, data collected between May 21 and October 3, 2020

COVID-19-specific prenatal distress items	"Worried/stressed" or "Very worried/stressed" (%)
I am worried about holding, caring for, and (breast)feeding my baby because I fear I may transmit the virus to my baby	29.7%
I am worried I might become very sick, and I would not have another trusted family member or friend to care for my baby if that happens	16.6%
I am worried I do not have a way to get to the hospital if I/my baby becomes sick and I need to see a doctor	45.1%
I am worried that COVID-19-related stress will affect my ability to bond with my baby	33.3%
I am worried about contracting COVID-19 during labor and delivery	24.1%
I am worried I am not receiving adequate prenatal care due to COVID-19	2.9%
I am worried that my birth partner or support person may not be able to be with me during labor and delivery	16.8%
I feel more stressed about going to the hospital because of COVID-19	67.2%

$N = 701$

Table 4 Multiple regression predicting general prenatal distress and COVID-19-specific prenatal distress based on mental health history and symptoms

Blocks of variables entered in three steps	General prenatal distress (PDQ total)			COVID-19-specific prenatal distress		
	B	R^2	ΔR^2	*B*	R^2	ΔR^2
(1) Covariates		0.031	0.031*		0.019	0.019
Maternal age	− 0.023			− 0.031		
Maternal education (ref = less than college)						
College	0.110*			0.023		
Masters	0.163†			0.093		
Doctorate	0.148†			0.024		
Household income (ref = < $74,999)						
$75,000—149,999	− 0.013			− 0.005		
$150,000—224,999	− 0.006			0.026		
> $225,000	0.049			0.001		
Cohabitating with partner (ref = no)	− 0.061†			− 0.023		
First pregnancy (ref = no)	0.156***			0.015		
Gestational weeks	− 0.018			0.046		
Pandemic duration	0.066*			− 0.051		
(2) Pre-existing mental health diagnosis		0.061	0.030***		0.048	0.029**
Depression	0.021			− 0.011		
Generalized anxiety	− 0.032			− 0.008		
PTSD	0.001			− 0.067†		
(3) Current mental health symptoms		0.380	0.319***		0.243	0.195**
Depression	0.259***			0.061		
Generalized anxiety	0.114*			0.193**		
PTSD	0.117*			0.155†		
(4) Protective factors		0.420	0.040***		0.268	0.024***
Instrumental support	− 0.051			− 0.140†		
Emotional support	− 0.021			0.039		
Resilience	− 0.064			− 0.051		
Distress tolerance	− 0.192***			− 0.089*		

Model does not include maternal race due to multicollinearity

$N = 701$

†$p < 0.1$

*$p < 0.05$

**$p < 0.01$

***$p < 0.001$

May to October 2020 during the COVID-19 pandemic. The baseline scores for general prenatal distress and COVID-19-specific prenatal distress indicate that women in general did not report high levels of general prenatal distress during our study period comparable to other work on general prenatal distress [31]. Rather, higher rates of COVID-19-related concerns were observed at an item level with more than two-thirds of women reported experiencing more stress about going to the hospital because of the COVID-19 pandemic and almost half worried about access to health care during the pandemic. Almost one-third of women were worried about transmitting the virus to the baby and that their stress would affect their ability to bond with their baby.

We also sought to understand the factors related to general prenatal distress and COVID-19-related prenatal distress. Contrary to expectations, no significant associations were observed between resilience with either general prenatal distress or COVID-19-specific prenatal distress after controlling for psychiatric symptoms; rather, it was distress tolerance that appeared to protect against general prenatal distress and COVID-19-specific prenatal distress. The lack of association with resilience is intriguing given that prior work has shown high psychological resilience to be associated with lower prenatal distress [32]. The positive appraisals of a situation, which may be similar to psychological resilience given its connotation of benefit or growth from adversity, has also been negatively associated with

pregnancy-specific distress [9, 33]. It may be that resilience and any consideration of growth from adversity might have been less relevant when the women took the survey [34, 35] given the uncertain nature of the pandemic at that point in time. While fewer studies have directly examined distress tolerance in relation to pregnancy stress, the observed associations between distress tolerance and both prenatal distress outcomes are sensible. A core component of distress tolerance is the tolerance of aversive, physiological responses to distress, in contrast to a psychological resilience, which involves cognitive processes such as the reframing of one's capacity to handle a challenge. Accordingly, general prenatal distress has been linked to greater physiological arousal [10, 32, 33, 36]. While avoidant coping is not necessarily a conceptual converse to distress tolerance, prior work shows that it appears to be associated with higher levels of reported prenatal distress [12, 36–38] supporting the observed association between increased distress tolerance and reduced prenatal distress.

Instrumental support but not emotional support was marginally associated ($p < 0.1$) with COVID-19-specific prenatal distress. The distinction of social support types may be relevant when understanding the needs of pregnant women during the pandemic. Emotional social support provides one with a sense of self-worth [39], as well as belonging and connectedness with others [35], and is imperative for the physical, mental, and emotional well-being [40, 41]. Instrumental support may be more relevant during a pandemic the need for access and resources although additional research is needed to determine its role for pregnant women.

It is important to note the limitations of this work. First, although we were able to collect data nationwide, the study utilized a convenience sampling approach. This is likely to have led to an over-representation of White women and those who are higher in socioeconomic status (higher incomes and educational levels). Caution must be taken in the generalizability of our findings to all pregnant women in the U.S., particularly given the disparities faced by racial/ethnic minorities and those of lower socioeconomic status throughout the pandemic [5, 42]. Disparities regarding how stress and mental health are discussed between providers and patients within prenatal care settings have existed prior to the pandemic [43]. It is possible that non-White and lower SES women are more likely to report greater levels of distress [36, 44]. In light of this, data from the pandemic which focuses on the stress experiences among non-White and lower SES pregnant women are urgently needed. Second, the cross-sectional design does not allow us to draw causal inferences between our predictors and outcome variables, nor does it allow us to understand how these findings extend into the postpartum period. Pre-existing data has shown prenatal stress to be strongly associated with postpartum mental health [45]; therefore, further work to examine subsequent outcomes are warranted. Third, the results are solely based on the self-report, including the self-screening for mental health symptoms, which is subjective and not diagnostic. Thus, our data, as with other survey studies, may be subject to problems related to recall bias. Fourth, the incorporation of data related to neonatal characteristics would enhance our understanding of the different factors that might contribute to prenatal distress, and an important future direction for research given the implications of the pandemic on families of high-risk infants (e.g., those requiring care in the NICU) [46, 47].

In spite of these limitations, our work draws attention to understanding the prenatal distress experiences during the COVID-19 pandemic, highlighting the nuances of distress from current conditions. Our findings suggest that under the conditions of the pandemic, women who experience prenatal distress might benefit from the introduction of interventions that address distress tolerance such as mindfulness-based or relaxation therapy [42] and supports that help to cover responsibilities or provide financial assistance. Providers are encouraged to speak to patients about their mood [43], to inquire with their patients whether they have such support, and to consult with social work or other specialists to determine if there are ways to meet the tangible needs of pregnant women. These findings provide specificity regarding potential targets for addressing prenatal distress that takes place during the COVID-19 pandemic and as such, should compel us to assess such risks and protective factors. Being aware of the contributing factors to prenatal distress is needed so that practitioners can refer patients to appropriate interventions to reduce distress.

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Author contributions CHL: protocol/project development, data analysis, data collection, manuscript writing. SH: data collection or management and manuscript writing. CE: protocol/project development and manuscript editing. LM: protocol/project development and manuscript editing.

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Data availability Data are not available due to lack of permission from research participants.

Code availability SPSS software codes were used.

Declarations

Conflict of interest There are no conflicts of interest to declare for any author.

Ethical approval All the procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all the individual participants included in the study.

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