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Kat LaFever April 10, 2023

The Relationship Between Gender Dysphoria and Perinatal Depression Among Transgender and Gender Expansive Individuals

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Abstract

The Relationship Between Gender Dysphoria and Perinatal Depression

Among Transgender and Gender Expansive Individuals

By Kat LaFever

Gender dysphoria, which is characterized by clinically significant emotional distress due to incongruence between one's sex assigned at birth and their gender identity, is most prevalent among trans and gender expansive (TGE) individuals. Given both the steadily increasing number of TGE people choosing to pursue parenthood through childbirth, and concerns about depression in this population, it is essential to know the extent to which gender dysphoria might be associated with depression during the perinatal period. This study examined the association between gender dysphoria and depression symptom levels within a sample of pregnant or postpartum TGE individuals and explored potential mediators of the relationship. We found a significant, positive association between gender dysphoria and depression symptom levels. Further, we found a significant, positive association between gender dysphoria and perinatal depression when reported feelings of positive affect are high. Finally, we found no suggestion of support for feelings of community belongingness as a moderating variable for this relationship. This study is the first to report on this association within a TGE cohort and will help guide medical providers in treating gender dysphoria in TGE individuals both during and after pregnancy.

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Contents

The Relationship Between Gender Dysphoria and Perinatal Depression Among Transgender and Gender Expansive Individuals

The number of trans and gender expansive (TGE) individuals choosing to pursue parenthood through childbirth has been steadily increasing (Nolan et al., 2019; James et al., 2016). Thus, it is essential to understand how this population navigates the challenges associated with the perinatal period, such as an elevated risk of depression. Of particular concern are two sets of findings. First, feelings of gender dysphoria are associated with elevated rates of depression within TGE people prior to transition (Collizi et al, 2015; Dhejne et al., 2016). Second, among general population samples, history of depression greatly increases risk of developing perinatal depression (Woody et al., 2017). Thus, an important next step in this line of research is to test the strength of the relationship between gender dysphoria and perinatal depression, i.e., depression that occurs during pregnancy or the first year postpartum, among TGE individuals. The present study addresses this important topic by investigating the extent to which there is an association between gender dysphoria and perinatal depression within a TGE population.

Within this paper, the term trans and gender expansive (TGE) is used to describe anyone whose gender identity or expression differs from the sex they were assigned at birth or whose identity exists outside of the gender binary. The purpose of this term is to include all gender identities that fall under the umbrella of “transgender” or “gender expansive,” including, but not limited to, transmasculine, nonbinary, genderqueer, genderfluid, and two-spirit individuals. The focus of this study includes TGE individuals who were born with and have retained their reproductive organs and implemented their reproductive ability. However, it is of significance to

acknowledge that much of the prior research focused upon this population has abided by the traditionally ascribed gender binary and has therefore been limited primarily to those who identify as transgender men, i.e., those who identify as male but who were assigned female at birth. Although this is reflected in many of the following cited studies, it is important to note that transgender men account for only a portion of the TGE people who pursue parenthood through childbirth.

Though the number of TGE individuals becoming pregnant and giving birth is currently unknown, the number of people who identify as TGE is growing (Nolan et al., 2019), indicating the need for clinicians to understand how to care for this community. Notably, the mental health of the TGE population merits particular attention due to the systemic bias, stigma, discrimination, health inequalities, and legal restrictions that this community faces (Drabish & Theeke, 2022; Fiani & Han, 2019; Kukura, 2022). The additional stress of experiencing stigmatization, known as "minority stress," can contribute the development of mental health problems, including depression (Coleman et al., 2012; Meyer, 2003; Valentine, 2018), and may contribute to the high rates of suicide found among this population (Clements-Nolle et al., 2006; Grant et al., 2010). Depression in TGE individuals can be additionally influenced by mood changes associated with hormone replacement treatment during medical transition (Rotondi, 2012). Because of these factors, it is important to examine whether TGE people may experience elevated depression symptom levels during the perinatal period, relative to general population samples.

Perinatal depression is typically defined as clinically significant depression symptom levels or depression diagnoses during pregnancy or up to a year after childbirth. Perinatal depression is common, with conservative estimates suggesting that at least 13% of individuals

experience a major depression episode or significant depression symptoms during this time period (Woody et al., 2017). Perinatal depression is associated with high levels of psychological distress and symptoms that may include, but are not limited to, feelings of extreme sadness, fatigue, and loss of enjoyment, and is correlated with anxiety and impairment in birthing parents (e.g., withdrawn parenting) (Obrochta et al., 2020; Gruhn et al., 2016; Goodman & Garber, 2017). Notably, individuals with a history of depression are at higher risk for developing perinatal depression symptoms (Meltzer-Brody et al., 2013; Liu & Tronick, 2013), suggesting that the high rates of depression among TGE people may increase their risk for developing perinatal depression.

Gender dysphoria, characterized by clinically significant emotional distress due to incongruence between one's sex assigned at birth and their gender identity, is a risk factor for depression (American Psychiatric Association, 2013; Colizzi et al., 2015). It is of significance that gender nonconformity itself is not a mental disorder (American Psychiatric Association, 2013), and although gender dysphoria is common among the TGE population, not all people who experience gender incongruence go on to develop gender dysphoria (Davy & Toze, 2018). Rather, gender dysphoria pertains to the element of significant distress that is often experienced when one's sex assigned at birth does not match one's gender identity and can be both measured as a diagnosis and operationalized as a scale score for research purposes. (American Psychiatric Association, 2013). In a study of n = 118 TGE individuals, Collizi et al. (2015) found that 46% of those that met the diagnostic criteria for gender dysphoria (American Psychiatric Association, 2013), also met diagnostic criteria for a major depressive disorder at some point in their lifetime (Dhejne et al., 2016), suggesting the importance of examining whether gender dysphoria is

associated with the increased prevalence of depression in TGE people relative to their cisgender counterparts.

Notably, many TGE people experience relief from gender dysphoria after transitioning (Darwin, 2017), which can include social transitioning (i.e., changing one's name, appearance, and/or pronouns), medical transitioning (i.e., use of gender-affirming hormone therapy, and/or gender-affirming surgical procedures), or both (Reynolds & Goldstein, 2014; Deutsch, 2014). However, due to the physical changes experienced during pregnancy, the perinatal period may be a time of increased gender dysphoria for individuals who identify as TGE (Light et al., 2014; Ellis et al., 2014). Qualitative research supports this theory, such as a study by Hoffkling et al. (2017) that interviewed $n = 10$ transgender men about their experiences throughout pregnancy. While some participants reported feeling more connected with their bodies throughout pregnancy, many participants noted that they experienced increased gender dysphoria during pregnancy both due to physical body changes and "to passing as a gender that does not align with their sense of self".

Reports estimate that roughly 25% of TGE individuals who were assigned female at birth retain and utilize their reproductive function (James et al., 2016; Hoffkling et al., 2017), although this rate varies among gender identities within the TGE umbrella (Nolan et al., 2019). Regardless of the timing of becoming pregnant relative to potential medical transition, estimates report that 25% to 50% of TGE individuals are parents (Stotzer et al., 2014; James et al., 2016). Though the number of TGE individuals who become parents through childbirth is currently unknown (Wierckx et al., 2010; Hatfford-Letchfield et al., 2019), the growing rate of individuals who identify as TGE indicate the need to understand depression as potentially one way to help meet the reproductive needs of this population (Nolan et al., 2019). Although there is still much that is

unknown about TGE parenthood (Hafford-Letchfield et al., 2019), many TGE parents report having children to be a treasured experience that negates some of the effects of stigmatization (Carone et al., 2021).

Although researchers have begun to qualitatively examine the perinatal experience of TGE individuals (Hoffkling et al., 2017; Light et al., 2014), we found no published quantitative studies that measured perinatal depression in the TGE population. Notably, health care professionals most often assess for perinatal depression by using a measurement that employs a 3-factor model, evaluating depression, anxiety, and anhedonia (Martin & Redshaw, 2018). By assessing these subcomponents of depression, clinicians are better able to provide treatment that targets a person's individual symptomology (Long et al., 2020) Because gender dysphoria is associated with clinically significant anxiety (Dhejne et al., 2016; Weinrich et al., 1995), it is of importance to evaluate this subcomponent within perinatal TGE individuals. Further, in a sample of $n = 24$ young cisgender males, gender dysphoria was found to be associated with anhedonia symptoms (Kinsella et al., 2011). Examining these subcomponents will provide clearer understanding about the relationship between gender dysphoria and perinatal depression in TGE people.

Additionally, identifying potential moderators of the association between gender dysphoria and perinatal depression may provide insight into this relationship. Many TGE people describe feeling isolated throughout the perinatal period (Light et al., 2014), and report less community support during pregnancy than their cisgender counterparts (Hoffkling et al., 2017; Riggs, 2016). Given the societal stigma that many within the TGE population experience, feelings of belonging to a community have been shown to be important to the mental health of TGE individuals (Barr et al., 2016; Davey et al., 2014; Light et al., 2014). In addition to

community belongingness, reported feelings of positive affect are associated with fewer depression symptoms within the TGE population (Fontanari et al., 2020), and in a study of *n* = 315 TGE youth, feelings of positive affect were negatively associated with levels of depression, anxiety, and gender dysphoria (Chen et al., 2023). Thus, it is important to investigate whether feelings of community belongingness and positive affect moderate the relationship between gender dysphoria and perinatal depression.

Because published literature on perinatal depression has focused exclusively on cisgender women, we currently do not know how rates of depression among perinatal TGE individuals compare to published norms, nor do we know whether depression symptom levels are related to gender dysphoria. In this study, first, we aimed to describe levels of gender dysphoria and perinatal depression within perinatal TGE individuals. Second, we investigated the strength of the association between gender dysphoria and perinatal depression symptom levels and the individual components of depression as measured by the Edinburgh Postnatal Depressional Scale (EPDS) and its subscales (Meltzer-Brody et al., 2013). Based on prior literature, we hypothesized that there would be a positive association between gender dysphoria and perinatal depression symptoms (Coleman et al., 2012; Meyer, 2003). Third, to better understand whether the relationship between gender dysphoria and perinatal depression may be stronger or weaker for certain individuals or under certain circumstances, we aimed to examine if this association is moderated by the variables of positive affect and community belongingness. We predicted that in individuals with high community belongingness or positive affect scores, the association between gender dysphoria and perinatal depression would be weaker than in individuals with low community belongingness or positive affect scores (Bockting et al., 2013; Davey et al., 2014).

Method

These analyses were taken from a larger study that sought to characterize depression in TGE individuals in the perinatal period.

Researcher Reflexivity Statement

Because the positionalities of the authors shape their research and influence how they approach the research process, we believe that it is important to begin with a discussion of our positionalities (Jamieson et al., 2023; Lakew, 2017). The first author is a White, queer-identifying, autistic person who conducted this research as an undergraduate and has experience working with neurodivergent LGBTQ+ populations as an autism and ADHD coach. The second and third authors are White, cisgender women, one of whom is a clinical psychologist with expertise in perinatal depression research, the other of whom is a doctoral candidate in clinical psychology with research and clinical experience in LGBTQ+ and perinatal depression research.

We strongly acknowledge that transgender birthing parents deserve health care that meets their needs and that this has been the driving factor of our research. We recognize that the experiences of TGE individuals have been inaccurately pathologized and that this medicalized approach has had negative impacts on the clinical care this population has received (Baril & Trevenen, 2014; Sennott, S. L., 2010; Drabish & Theeke, 2022; Hoffkling et al., 2017). Because of this, we approached this study with the acknowledgement that societal stigma and oppression would play a role in the experiences of TGE individuals during the perinatal period, and we took steps to use thoughtful and respectful approaches throughout the research process, such as using gender neutral language in our data collection measures. Further, we reflected on the potential

implications of this study and attempted to point future research in directions that would have a meaningful impact on this population.

Study Design

Participants included pregnant or postpartum individuals who identified as TGE. Participants were required to be aged 18 or older, read and write proficiently in English, and be located within the United States. Participants who were more than one year postpartum were excluded from the study. Participants for this convenience sample were recruited online through social media (i.e., Facebook). The study was correlational, cross-sectional, and between-subjects. Surveys were administered via REDCap, a secure web-based data collection platform that meets HIPAA compliance standards. Participants provided informed consent prior to participating in the survey, and were then prompted to complete a demographics survey, followed by a page alerting them to their eligibility and compensation. Afterward, participants completed self-report surveys. The study took approximately 30 - 40 minutes to complete and participants were compensated for their time with a $30 Amazon gift card. Approval of all study materials and procedures were obtained by the Institutional Review Board prior to data collection.

Procedure and Measures

Participants completed a demographic survey that included questions about age, sex, and other sociodemographic information. Additionally, the demographics survey identified whether participants were currently pregnant or had given birth in the last year, and if so, identified the age of their child.

Gender Dysphoria and Perinatal Depression

We measured aspects of gender dysphoria using the Gender Congruence Scale (GCS), a subscale of the Jones et al. (2019) Gender Congruence and Life Satisfaction Scale (GCLS). The GCS is a 17-item scale with known good reliability and validity that is used as a screening tool for gender dysphoria symptoms and is suitable for TGE individuals at any stage of transition and for gender identities both within and outside the gender binary. Mean scores were calculated, with higher scores indicating greater gender congruence (i.e., positive feelings related to gender identity) and lower scores indicating gender incongruence (i.e., dysphoria, distress related to genitalia, chest, secondary sex characteristics, and social role recognition), by asking participants to analyze their feelings over the last six months and rate their responses using a five-point Likert scale (one = never; five = always). The term gender incongruence is typically used to describe feelings that one's gender identity does not align with their gender assigned at birth, while gender dysphoria refers to feelings of distress related to gender incongruence (Claahsen-van der Griten et al., 2021); the GCS is shown to measure aspects of both of these constructs (Jones et al., 2019). The initial estimate of internal consistency for our scale item was low ($\alpha = .27$). However, because study measures that display strong internal consistency may lose some of their validity during online use, we examined our data for suggestion of fraud (Lahoud et al., 2022). After taking measures to increase our confidence in the validity of our data, (Lawlor et al., 2021), we concluded that the poor internal consistency of the GCS was likely due to a user experience issue related to the $n = 5$ reverse-coded items on our measure. Eliminating the five reverse-scored items increased the internal consistency of this measure significantly ($\alpha = .85$). Therefore, we decided to remove the reverse-scored items of this measure for the purposes of our study, but we reported correlations of our study variables with and without the reverse-scored items (See Supplemental Measures for results with reverse-coded items).

To measure perinatal depression, we used the Edinburgh Postnatal Depression Scale (EPDS) (Cox et al., 1987). The EPDS is a 10-question screening tool for perinatal depression. Items were scored on a four-point Likert scale to identify how often participants experienced feelings of depression within the past seven days (with options ranging from "yes, most of the time" to "no, not at all"), with higher scores indicating higher depression symptoms. In consideration of our study procedures, we chose to eliminate item 10 ("The thought of harming myself has occurred to me"). Notably, research has shown that the nine-item EPDS has similar cutscores as the 10-item scale (Meltzer-Brody et al., 2010). The EPDS yields a total score (sum of all items, range = 0 – 30, or 0 – 27 without item 10) and three subscales that are also scored as a sum, measuring depression (range = 0 – 9), anhedonia (range = 0 – 9), and anxiety (range = 0 – 6). This three-factor solution has been shown to have excellent goodness-of-fit indices (Martin & Redshaw, 2018). Internal consistency was assessed using Cronbach's alpha and mean inter-item correlation. Despite strong evidence of this scale's reliability and validity (Meltzer-Brody et al., 2010), the coefficient alpha for our data was poor ($\alpha = .42$). In contrast to coefficient alpha values, which are sensitive to the number of items in a scale (Pallant, 2011), the average inter-item correlation is independent of the number of items and sample size when measuring internal consistency (Briggs & Cheek, 1986). The mean inter-item correlation for our data indicated an acceptable level of internal consistency ($M = .16$).

Moderator Variables

For aims two and three, we tested both the total score, as a continuous variable, and cutscores, as dichotomous variables, of our positive affect and community belongingness variables. We measured positive affect using the NIH Toolbox Positive Affect Survey (PAS) (Salsman et al., 2013). This 15-question self-report measures both activated (i.e., joy, happiness)

and unactivated (i.e., peace, serenity) aspects of positive affect using a five-point Likert scale (with answers ranging from “not at all” to “very much”) (Slotkin et al., 2012). The PAS is scored as a total score (ranging from 1 – 75), with higher scores suggesting higher levels of positive affect and lower scores indicating lower levels of positive affect. This measure is shown to have good internal consistency and reliability (Salsman et al., 2014), and the alpha coefficient for the current sample was acceptable ($\alpha = .63$).

We used the Transgender Community Belongingness Scale (TCBS) to measure self-reported feelings of belongingness to the transgender community (Barr et al., 2016). The TCBS is a 9-item survey with excellent reliability and validity that asks participants to rate whether they agree with statements of connection with the transgender community using a seven-point Likert scale (one = “strongly disagree”, seven = “strongly agree”). The TCBS is scored as a total (ranging from 1 – 63), with higher scores indicating higher levels of community belongingness. The alpha coefficient for the current sample was acceptable ($\alpha = .66$).

Approach to Analyses

Data analyses were performed using IBM SPSS Statistics, version 28. To address our first aim, descriptive statistics were computed using means, standard deviations, and frequencies, or proportions, as appropriate, for our demographic variables. Our first aim was to describe levels of gender dysphoria and perinatal depression symptoms within TGE individuals. To do this, we calculated means and standard deviations of the GCS and EPDS scale and subscale scores. To address our second aim related to the association between perinatal depression and gender dysphoria, we ran a Pearson correlation between GCS and the EPDS scores. Our third aim was to determine whether the association between gender dysphoria and perinatal depression

was moderated by feelings of positive affect or community belongingness. We planned to conduct an a priori power analysis to determine if our sample size was adequate for detecting a moderation with a small effect size. If we determined that our sample size was adequate to detect such an effect, then we planned to test whether the correlation between GCS and EPDS scores was moderated by PAS or TCBS scores. In the event that our small sample size was not sufficiently powered to complete aim three, as a preliminary, descriptive step, we planned to group our positive affect or community belongingness variables into "high" and "low" scoring groups based on established cutscores (when available) or observed data patterns within our sample. Then we planned on testing correlations between perinatal depression and gender dysphoria in these high and low scoring groups of our two hypothesized moderators and comparing their relative effect sizes.

Data Validation and Cleaning

To ensure the validity of our data, we followed suggested guidelines for online data collection (Lawlor et al., 2021). Prior to data collection, we built data checks into our study to avoid data fraud. After collection, we examined patterns in the survey data and identified parameters for study ineligibility that helped us recognize suspicious responses. We determined that participants were ineligible if they met criterion including, but not limited to, failing to meet at least three out of five attention checks, or if they completed the entire survey in an unreasonably short time (20 minutes). We labeled participants as suspicious if they met criterion such as using an email format that is suggestive of fraud (i.e., random formatting or unusual email address domain), or indicating that they were assigned male at birth. We determined that if a participant met one or more ineligibility criteria, or three or more suspicious response criteria, they were deemed ineligible to participate.

Results

Participants

See Table 1 for demographic characteristics of our sample. For the purposes of this study, we examined gestational TGE parents. Because of this, we eliminated $n = 11$ individuals from our sample who indicated they were assigned male at birth. We further removed $n = 1$ subject who exceeded our cutoff of one year postpartum. After data cleaning, the total sample consisted of $n = 49$ participants, excluding $n = 1$ who failed to complete the PAS. About half of participants were currently pregnant and half had given birth within the past year. Less than a quarter of respondents reported using assisted reproductive technology to become pregnant. Of the participants who had already given birth, 92% listed Cesarean section as their mode of delivery; the average gestational age at birth was 38 weeks ($SD = 1.43$). The majority of participants indicated that transgender best described their gender identity, while remaining respondents identified as either nonbinary, male, or female; the majority of participants identified as White, while roughly a quarter identified as Black, and a small percentage identified ethnically as Hispanic or Latinx.

Aim 1: Rates of Gender Dysphoria and Perinatal Depression

See Table 2 for means and standard deviations of GCS and EPDS scales and subscales.

Aim 2: Association Between Gender Dysphoria and Perinatal Depression

See Figure 1 and Table 3. There was a moderately negative correlation between perinatal depression symptom levels and gender congruence, $r(47) = -.59$, $p < .001$. Specifically, lower levels of gender congruence were associated with higher depression symptom levels.

Aim 3: Positive Affect and Community Belongingness as Moderating Factors

We conducted an a priori power analysis to determine what sample size would be necessary to detect a moderation with a small effect size, using the statistical software G*Power, version 3.1. To be adequately powered ($1 - \beta \geq .8$), statistical software indicated a necessary sample size of $n = 395$. Thus, we used our alternative data analytic plan to examine the correlations separately by splitting our moderator variables for descriptive purposes.

Splitting Moderator Variables

To determine cutscores for our alternative data analytic plan, we first examined the literature for established cutscores; if no pre-existing norms or cutscores were available, we examined the frequency distributions of our data for naturally occurring splits. We used the established cutscore of 40 for the PAS (Slotkin et al., 2012). We could not locate an established cutscore for the TCBS. Because of a few ($n = 5$) outliers, we used the median, which was 36, as the cutscore for our sample.

Effect Sizes in High vs Low Positive Affect Groups

See Tables 4 and 5. We used Cohen (1988) conventions to describe the relative magnitude of our associations between high and low categories of each moderator variable. We found a strong, statistically significant, negative association between GCS and EPDS in the high scores group for the PAS. We found no significant association within the low scores group for the PAS. We then computed a significance test to determine whether there was a significant difference between the correlation coefficients of the high scores group and the low scores group; we found no statistical difference between these two correlations, $z = .88$, $p = .38$.

Effect Sizes in High vs Low Community Belongingness Groups

See Tables 4 and 6. We found a moderate, statistically significant, negative association between gender congruence and perinatal depression among both the high scores group and low scores group for TCBS.

Discussion

With this examination of an understudied group, we found a statistically significant, negative relationship between gender congruence and perinatal depression, with a moderate effect size, thus confirming our hypothesis that there is a significant and meaningful association between gender dysphoria and perinatal depression. There were also significant, negative associations between gender congruence and the three-factor subscales of the EPDS, namely, anxiety and depression, but not anhedonia. Again, these findings indicate a significant and meaningful relationship between gender dysphoria and anxiety and depression, but not necessarily anhedonia. We found a statistically significant, negative association between gender congruence and perinatal depression among the high scores group for positive affect, but we found no significance among the low scores group for positive affect, suggesting that there is a positive association between gender dysphoria and perinatal depression when levels of positive affect are high. However, we found no significant difference between the correlation coefficients of the high scores group and low scores group for positive affect, suggesting that we did not have sufficient power to detect an effect among the low scores group. Finally, because we found a significant, negative association between gender congruence and perinatal depression among both the high scores group and the low scores group for community belongingness, there is no suggestion of support for feelings of community belongingness as a moderating variable.

Implications

Our results are congruent with our hypothesis that there is a positive relationship between gender dysphoria and perinatal depression. These findings expand the current understanding of depression during the perinatal period in TGE individuals, and, more broadly, add to our knowledge of gender dysphoria. These results also contribute to the growing literature on how the TGE community navigates the perinatal period and expand upon prior studies that have explored the perinatal period through qualitative research (Hoffkling et al., 2017; Light et al., 2014). Additionally, this study and the larger study from which these analyses were taken are, to our knowledge, the first to attempt to quantitatively examine perinatal depression within the TGE population, and to show an association between gender dysphoria and depression among pregnant and postpartum TGE individuals. These findings will allow for a better understanding of the potential challenges that TGE people face throughout the perinatal period and will allow for better clinical outcomes for this community.

The strongest implication of this study, that there is a positive association between gender dysphoria and perinatal depression, aligns with previous findings indicating that rates of clinical depression are higher among those who experience gender dysphoria relative to their cisgender counterparts (Dhejne et al., 2016; Collizi et al., 2015). Our findings expand this knowledge to pregnant and postpartum TGE individuals. Future longitudinal research is needed to test the potential mediating role of gender dysphoria in the risk for perinatal depression among TGE individuals, such as examining whether gender dysphoria precedes perinatal depression or vice versa. Notably, almost half (42%) of our sample reported elevated depression symptom levels as measured by the standard cutscore threshold (≥12) for the EPDS (Cox et al., 1987;

Martin & Redshaw, 2018), further indicating the need for researchers to continue measuring the prevalence of perinatal depression within this population with larger samples.

We hypothesized that the relationship between gender dysphoria and perinatal depression would be moderated by feelings of positive affect and community belongingness. However, due to our small sample size, we were limited to examining this aim by splitting our sample by those who scored high versus low on our positive affect and community belongingness variables, and then testing the association between gender dysphoria and perinatal depression separately among those groups. Based on prior literature, we predicted that in participants with higher levels of positive affect or community belongingness scores, the association between gender dysphoria and perinatal depression would be weaker than in individuals with low positive affect or community belongingness scores (Bockting et al., 2013; Davey et al., 2014). Contrary to this prediction, our findings indicate that when positive affect is high, we can reasonably conclude that there is a strong, positive association between gender dysphoria and perinatal depression. However, due to our small sample size, we cannot reasonably conclude what the association between gender dysphoria and perinatal depression is among those who score low in positive affect. Therefore, we cannot determine whether there is suggestion of support for positive affect as a moderating variable of the relationship between gender dysphoria and perinatal depression.

Because we found no difference between the magnitude of the association between perinatal depression symptoms or gender dysphoria as a function of community belongness, there is no suggestion of support for community belongingness as a moderating variable. Because we did not have sufficient power to test moderators, these findings should be interpreted cautiously, particularly since they are not consistent with prior research that has indicated that peer support acts to moderate the relationship between psychological distress and experiences of

stigma within the TGE population (Bockting et al., 2013), or that social support is strongly associated with levels of life satisfaction within TGE individuals (Davey et al., 2014). Further, we found a small but substantial number (n = 5) of high scoring outliers for our community belongingness variable. While it is possible that these outliers resulted from inaccurate data entry or errors in measurement (Lahoud et al., 2022), it is also plausible that these outliers represent true values from within the TGE population of individuals who have found meaningful connection within their community. Because previous studies have indicated that feelings of community belongingness play an important role in the mental well-being of TGE people (Barr et al., 2016; Davey et al., 2014), it is essential for future studies to continue to investigate whether community belongingness could act as a moderator on the association between gender dysphoria and perinatal depression.

Limitations

This study was primarily limited by a small sample size, due predominately to limited resources. Subsequently, our sample size was not sufficiently powered to test for moderators of the association between gender dysphoria and perinatal depression. Additionally, online data collection includes drawbacks such as self-selection bias among participants, undercoverage bias of perinatal TGE individuals without Internet access, participant drop-out, and fraudulent data (Lawlor et al., 2021). Though we followed suggested guidelines for data collection to the best of our ability to avoid data fraud, we cannot unequivocally verify the validity of our data.

This study included TGE people with a range of gender identities. While representative of the TGE population, our limited sample size did not allow for a nuanced consideration of the variance within these identities. Therefore, the findings of this study may not be equally

generalizable across all identities within the TGE population. Further, the generalizability of this study is limited by the lack of racial and ethnic diversity within this sample. Roughly 80% of the participants identified their race as white and ethnicity as non-Hispanic or non-Latinx. Because we recruited participants for our study from one particular social media website, participants were limited to those who have internet access and an active Facebook account. Therefore, there are likely limitations of the generalizability of these findings with regard to TGE People of Color. Finally, because this study was cross-sectional, it cannot infer a temporal association between gender dysphoria and perinatal depression, nor can it support conclusions about causality. Rather, it is limited to identifying that such a relationship exists and noting the need to further investigate this association.

Directions for Future Research

We plan to explore the data used for this study and its parent study more thoroughly. Specifically, we intend to investigate additional variables, such as gender expression, discrimination exposure, and relationship satisfaction as factors that potentially influence perinatal depression rates in the TGE population, and to compare these rates to a cohort of cisgender peers. We also intend to include qualitative data through open-ended questions that allow participants to share their personal experiences navigating pregnancy and the perinatal period. These findings will provide additional contributions to the literature on TGE birthing parents.

This study should serve as a first step in providing a foundation from which to build upon the knowledge concerning the perinatal experiences of people other than cisgender women. Given the deficiency of research investigating how the TGE population navigates the perinatal

period, there are many avenues for future research. Investigations should continue to report on the rates of perinatal depression in the TGE population and to investigate potential mediating and moderating variables, such as the use of gender affirming hormone treatment prior to pregnancy. In addition, research should explore whether other factors associated with this population, such as higher rates of poverty and discrimination, and less social and financial support, are correlated with perinatal depression rates (Dhejne et al., 2016; Grant et al., 2010; Rotondi, 2012). Notably, participants in our study reported high rates of delivery via Cesarean section (92%), which aligns with prior findings that a disproportionate number of TGE people prefer Cesarean section over genital delivery (Kukura, 2022; Ellis et al., 2014; Hoffkling et al., 2017). Future research should explore whether individualized, gender affirming care would allow more TGE birthing parents to feel safer choosing a genital delivery over the riskier surgical option (Brown, 2012).

The primary finding of this study, that there is a relationship between gender dysphoria and perinatal depression, should be explored more rigorously, especially considering the small sample size of this study. Further studies should also evaluate the association between gender dysphoria and the individual components of the EPDS with a larger sample size, to provide further evidence for these associations. Given that we found a positive association between gender dysphoria and the depression and anxiety subscales, future research could examine whether treatments for perinatal depression symptoms should include an intentional focus on management of anxiety symptoms. While depression and anxiety have distinct symptomology, they share a component of feelings of distress (Brouwers et al., 2001). Therefore, understanding the role of anxiety in the relationship between gender dysphoria and perinatal depression will be essential to providing proper support for TGE gestational parents.

Future investigations of the association between gender dysphoria and perinatal depression should further build upon this study by providing clearer and stronger demographic information regarding this population. Specifically, future analyses should determine whether rates of gender dysphoria and depression symptoms throughout the perinatal period vary among subpopulations within the greater TGE umbrella. Correspondingly, because TGE people who present more masculine in appearance experience higher rates of discrimination throughout the perinatal period than those who present more feminine (Lefevor et al., 2018; Darwin, 2017), it is important to examine whether gender presentation is associated with an increase in gender dysphoria and perinatal depression symptoms. Future studies should also expand upon racial and ethnic diversity withing these investigations. Current research indicates that rates of depression symptoms in TGE People of Color are higher compared to White TGE people or cisgender People of Color (Lefevor et al., 2019), and that rates of perinatal depression symptoms in cisgender Women of Color are higher compared to cisgender White women (Keefe et al., 2015), indicating the need for future studies to examine whether depression rates are higher in TGE People of Color throughout the perinatal period. These studies will provide stronger evidence about the relationship between gender dysphoria and perinatal depression that is more generalizable to the broader TGE population.

Importantly, this study highlights the need for better clinical care for TGE gestational parents throughout the perinatal period. Presently, many TGE individuals report feeling discouraged from seeking medical care due to experiences of stigma and discrimination (White Hughto et al., 2015; Hoffkling et al., 2017; Ellis et al., 2015). Bias and stereotyping rooted in binary, cisnormative assumptions occur even among the best-intentioned health providers, and these experiences have a negative impact on the health outcomes of TGE people (Bauer et al,

2009; Riggs, 2013). Many clinicians presently lack the education and guidance necessary to adequately provide for this population throughout perinatal period (Hoffkling et al., 2017), and subsequently, many TGE individuals report needing to educate their doctors in how to care for them (Grant, 2010). Reports estimate that only roughly 30% of medical schools within the U.S. provide education about gender transition (Obedin-Maliver, 2011), and even fewer address the topic of fertility and pregnancy among TGE people (James-Abra, 2015). The burden should not be upon TGE individuals to educate their healthcare providers, especially during times of vulnerability, such as the perinatal period. Providers must be willing to educate themselves on how to properly care for this population and to unlearn approaches based in discrimination.

Finally, future studies on this population should strive to center the experiences of TGE people and, if possible, to include TGE collaborators. Past research focused on TGE identities has often appeared pathologizing and voyeuristic in nature (Baril & Trevenen, 2014; Sennott, S. L., 2010). However, it is possible for cisgender researchers to examine the TGE population in ethical, respectful ways that allow for positive change, rather than adding to the systemic oppression experienced by this population (Vincent, 2018; Bauer et al., 2009). As researchers, we must be intentional in how we speak about and describe this population, so as to avoid medicalizing their identities. Identifying as TGE does not in itself lead to poor mental health outcomes, rather, these outcomes are the result of a cissexest, heterosexist, misogynist, and ableist society (Coleman et al., 2012). However, parenthood is a role that is often reported as rewarding and provides individuals with a sense of purpose in life (Umberson et al., 2010). For TGE parents, many of whom overcame numerous barriers in their journey to parenthood, this experience might be an especially fulfilling life event that might negate some of the effects of stigmatization (Tornello, 2019; Carone et al., 2021). It is therefore critical to understand the

experiences of this population in order to best support them through their pregnancy and parenting journey.

Conclusion

We found a strong association between gender dysphoria and perinatal depression within a population of perinatal TGE individuals. However, because little is known about the factors that might predict or moderate this relationship, future research should explore what variables moderate the association between gender dysphoria and perinatal depression and should identify what treatments best help TGE gestational parents, to guide clinicians in caring for this population. Such research and intentionally implemented, gender affirming clinical practices have the potential to significantly improve the lives of perinatal TGE people and thus positively increase their experiences throughout their parenthood journey.

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Appendix

Table 1

Sociodemographic Characteristics of Participants

Variables		(*n = 49*)
Mean parental age (y)		27.89 (3.44)
Gender identity (%)	Male	10%
	Female	10%
	Transgender	69%
	Nonbinary	12%
Residence	Rural	8%
	Suburban	45%
	Urban	45%
Race	Black	20%
	White	80%
Ethnicity	Hispanic/Latinx	12%
Employment	Employed	76%
	Seeking work	2%
	SAHP[a]	22%
Income	0 - $49,999	57%
	$50,000 - $99,999	43%
	Public assistance	51%
Education	High school	6%
	Some college	37%
	Associates	47%
	Bachelors	10%
Partnered		98%
Use of ART[b]		22%

Note. [a]SAHP = stay at home parent, [b]ART = assisted reproductive technology.

Table 2

Demographic Characteristics of GCS and EPDS

	GCS[a]	EPDS[b] Total	EPDS Anhedonia	EPDS Anxiety	EPDS Depression
N	49	49	49	49	49
M	2.92	11.12	4.16	2.22	3.61
SD	.56	2.67	1.07	1.19	1.48
Range	--	0 – 27	0 – 9	0 – 6	0 – 9

Note. [a]GCS = Gender Congruence Scale, [b]EPDS = Edinburgh Postnatal Depression Scale.

Table 3

Correlations for GCS and EPDS

Variables	1	2	3	4	5
1. GCS[a]	--				
2. EPDS[b] Total	-.59**	--			
3. EPDS Anhedonia	-.23	.53**	--		
4. EPDS Anxiety	-.38**	.45**	.06	--	
5. EPDS Depression	-.38**	.71**	.08	-.06	--

Note. $N = 49$, ** $p < .01$.

[a]GCS = Gender Congruence Scale, [b]EPDS = Edinburgh Postnatal Depression Scale.

Table 4

Demographic Characteristics of PAS and TCBS

		PAS[a]	TCBS[b]
N	Valid	48	49
	Missing	1	0
M		35	11.12
SD		7.14	2.67
Range		1 – 75	1 – 63

Note. [a]PAS = Positive Affect Scale. [b]TCBS = Transgender Community Belongingness Scale.

Table 5

Correlations for GCS and EPDS with PAS Cutscores

PAS[a] > 40 *N* = 38	1	2	3	4	5
1. GCS[b]	--				
2. EPDS[c] Total	-.623**	--			
3. EPDS Anhedonia	-.170	.456**	--		
4. EPDS Anxiety	-.346*	.387**	-.086	--	
5. EPDS Depression	-.465**	.765**	.091	-.055	--
PAS ≤ 40 *N* = 10	**1**	**2**	**3**	**4**	**5**
1. GCS	--				
2. EPDS Total	-.363	--			
3. EPDS Anhedonia	-.301	.780**	--		
4. EPDS Anxiety	-.047	.709*	.481	--	
5. EPDS	-.056	.400	.000	-.083	--
6. Depression					

Note. $^{*}p < .001$, $^{**}p < .01$.

[a]PAS = Positive Affect Scale, [b]GCS = Gender Congruence Scale, [c]EPDS = Edinburgh Postnatal Depression Scale.

Table 6

Correlations for GCS and EPDS with TCBS Cutscores

TCBS[a] > 36 *N* = 20	1	2	3	4	5
6. GCS[b]	--				
7. EPDS[c] Total	-.537**	--			
8. EPDS Anhedonia	-.124	.622**	--		
9. EPDS Anxiety	-.317	.318	-.030	--	
10. EPDS Depression	-.367	.576**	.124	-.354	--
TCBS ≤ 36					
***N* = 29**	**1**	**2**	**3**	**4**	**5**
7. GCS	--				
8. EPDS Total	-.645**	--			
9. EPDS Anhedonia	-.323	.476**	--		
10. EPDS Anxiety	-.458*	.617**	.166	--	
11. EPDS Depression	-.410**	.810**	.040	.300	--

Note. $^{*}p < .001$, $^{**}p < .01$.

[a]TCBS = Transgender Community Belongingness, [b]GCS = Gender Congruence Scale, [c]EPDS = Edinburgh Postnatal Depression Scale.

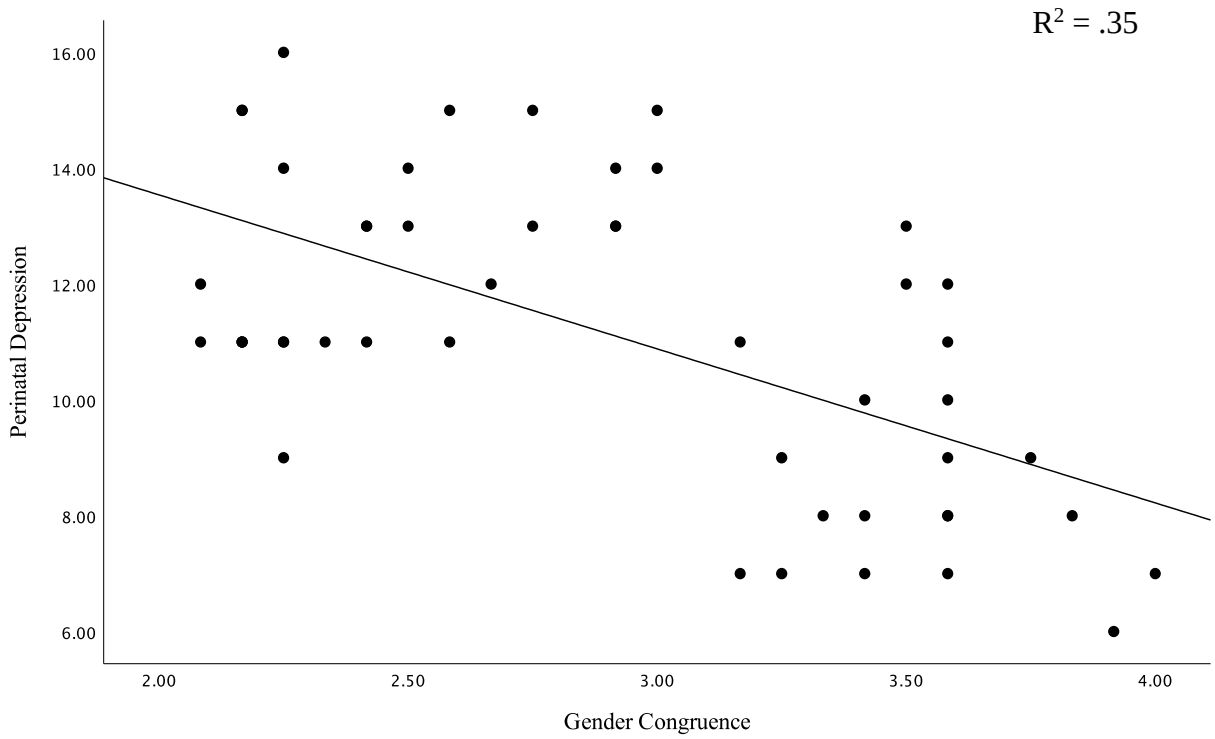


Figure 1. Correlation between gender congruence and perinatal depression.

Supplemental Measures

Supplemental Table 1

Demographic Characteristics of GCS and EPDS

	GCS[a] Total	EPDS[b] Total	EPDS Anhedonia	EPDS Anxiety	EPDS Depression
N	49	49	49	49	49
M	2.95	11.12	4.16	2.22	3.61
SD	.25	2.67	1.07	1.19	1.48
Range	--	0 – 27	0 – 9	0 – 6	0 – 9

Note. [a]GCS = Gender Congruence Scale with reverse-scored items included, [b]EPDS = Edinburgh Postnatal Depression Scale.

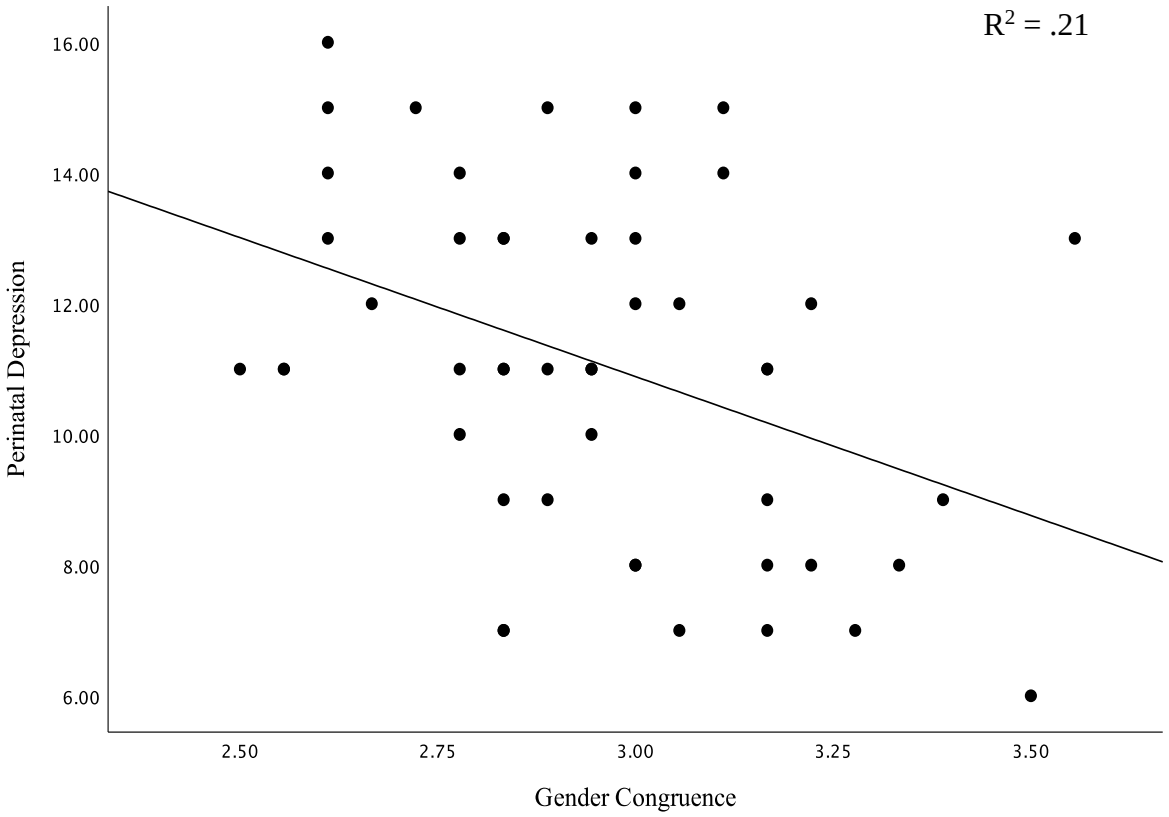
Supplemental Table 2

Correlations for GCS and EPDS

Variables	1	2	3	4	5
1. GCS[a] Total	--				
2. EPDS[b] Total	-.46**	--			
3. EPDS Anhedonia	-.20	.53**	--		
4. EPDS Anxiety	-.37**	.45**	.06	--	
5. EPDS Depression	-.28*	.74**	.08	-.06	--

Note. N = 49. *Note.* [a]GCS = Gender Congruence Scale with reverse-scored items included, [b]EPDS = Edinburgh Postnatal Depression Scale

* $p < .001$, ** $p < .01$.



Supplemental Figure 1. Correlation between gender congruence and perinatal depression with reverse-scored items of the GCS included.