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Article

# A Place for Women and Women's Issues: An Examination of Narratives on Postpartum Depression Self-Disclosure on Pinterest

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**Abstract:** This study aimed to expand and inform the growing body of research on Postpartum Depression, from a netnographic standpoint, for the social media platform of Pinterest. More specifically, it aimed to assess the type of content present on Pinterest regarding Postpartum Depression shared by women in 2018 and 2021, as well as examine the subjective experience of women who have experienced this mood disorder. Data were collected following a search using the keywords "Postpartum Depression" on Pinterest on two separate timestamps (2018 and 2021); pins were limited to those in English or French. Master themes were identified among all pins and those identified as "self-disclosure" were subsequently further analyzed. Self-disclosure data were separately analysed using thematic analysis, specifically adopting a deductive thematic approach for the 2021 data set stemming from the coding scheme created from analysis of the 2018 data. Major themes were identified, and an analysis of frequency was performed for each sub-theme, along with qualitative examples associated with each theme. A total of 483 Pinterest pins from two different time points of 2018 (169 pins) and 2021 (314 sample pins) were analyzed. Five primary categories were identified in both 2018 and 2021, with five additional categories being identified in the 2021 dataset. Comparative results from 2018 and 2021 self-disclosure pins show individuals' varying yet similar subjective manifestations of PPD, the potential need to adopt a multidisciplinary treatment approach, and the societal fears, such as mental health stigma, that are playing a part in help-seeking behavior hesitations. Our findings provide imperative insight into individuals' subjective experiences with PPD; experiences that involve a sensitive and vulnerable topic. Netnographic research, along with Pinterest, must be taken into consideration for future work delving into women's health issues, including those surrounding perinatal mental health.

**Keywords:** self-disclosure; postpartum depression; netnography; Pinterest; perinatal mental health; and women's health

## 1. Introduction

### 1.1. Postpartum Depression

Postpartum depression (PPD) is a mental health condition affecting individuals who have recently given birth and whose increasing global presence continues to become more apparent, with a current prevalence rate of 19.8% or higher in developing countries [1,2]. In Canada alone, it is estimated that 1 in 4 mothers will experience symptoms indicative of PPD or an anxiety disorder [3]. The high prevalence of PPD can in part be explained due to the vulnerable and challenging period leading up to parturition and the weeks or months that follow it [4]. It is a period where a mother experiences various changes, both at physiological and psychosocial levels, that may predispose some to mental health conditions, such as PPD [5]. Although prevalence of PPD is high at both a national and global level, there continues to be a lack of treatment-seeking behavior amongst new mothers experiencing worrisome symptoms [6]. The lack of treatment seeking behavior, and a lack

of receipt as well, may be a result of a multitude of factors including the mother's education, ethnicity, socioeconomic status, and previous history of mental health illness [6,7].

PPD's presence amongst the clinical communities is relatively new, with it being first included in the DSM-IV in 1994 through the addition of the postpartum onset specifier (i.e., four weeks peripartum) to the mood disorder criteria [8]. The current Diagnostic and Statistical Manual, version 5 (DSM-V), classifies PPD as a major depressive disorder with a peripartum specifier (i.e., onset occurs during pregnancy or within first 4 weeks-postpartum) with symptoms lasting more than two weeks [9]. Although such clinical improvements have been made, many have argued that there is currently not an optimal diagnostic guide, as the time range for PPD onset is statistically within the first year of birth, with a potential onset also early in the prenatal period [10]. The current high prevalence of PPD and the overall knowledge gap amongst the clinical communities are indicative of the necessity for further research to better understand the parameters and manifestation of this condition.

### *1.2. Netnography, Pinterest, and Postpartum Depression*

Netnography, a qualitative research methodology, encompasses an ethnographic approach when studying communities and cultures in the online world [11]. Its relatively emergence has gained popularity amongst the research community in its ability to allow researchers to qualitatively assess online communities; populations whose cyber properties would be otherwise difficult to study with the use of "traditional methods," such as questionnaires [12,13]. It is a methodology that exhibits an advantage when studying sensitive topics, such as mental health, as individuals can masquerade their identities within online communities and delve into such topics that may otherwise be undisclosed [13,14].

Social media platforms have increasingly become part of our everyday lives and its motivators for usage can include educating oneself on health and/or medicine [15]. One such platform is Pinterest, where users are able to organize and share posts, called pins, to the Pinterest community and/or to their own virtual pin board [16]. Users are predominantly Caucasian women, estimated to be between the ages of 18-49, who often view the social media platform as a "female site" that acts as an informational source and not merely as a connectivity tool [16-18]. User characteristics are representative of a population whose age and sex can allow for the possibility of child-bearing, and therefore of the potential risk of PPD [19]. Such user demographics are essential in the netnography of PPD on Pinterest, as it may not only provide a potential explanation of patterns and representations observed, but also support the notion that certain subpopulations may be underrepresented. The latter is illustrated through Pinterest's users primarily being of middle to upper class women, even though PPD is 11 times more prevalent in women of lower socioeconomic status [7,20]. Although a lack of complete PPD representativity may be present, Pinterest still shows great potential in identifying naturalistic trends [21] amongst new mothers through aspects such as self-disclosure.

### *1.3. Self-Disclosure*

Self-disclosure is defined as the intention and resulting behavior of an individual communicating personal information to at least one recipient [22]. It is a complex behavior that has psycho-social interplay and relies on situational risk, rejection and reward assessment [23]. This complex behavior can be influenced by a variety of factors associated with an individual's relationship with the recipient such as intimacy, perceived similarities and/or differences, as well as situational factors. [24]. A peek into its complexity is becoming more accessible than ever, with the Internet growing in popularity and individuals being able to anonymously self-disclose to an entire social network [14,25]. More specifically, popular social media platforms, such as Facebook, are becoming an excellent source of vast information regarding first-person self-disclosure [25].

The degree of self-disclosure has often been observed to be higher in an online setting than in a traditional face-to-face, with several factors influencing how and if an individual will share personal information [26]. For example, although the evidence surrounding the influence of gender is

conflicting [27], it has been observed that women tend to disclose strong emotions more explicitly than males, especially those of a vulnerable and negative nature [28–30]. The latter observation may in part be due to individuals using social media platforms to self-disclose and cope with stressful events, providing a means to improve one's mental health [31]. Self-disclosure is also influenced by the type of content found on differing social media platforms. These observations are relevant to note in netnography as it may provide an explanation as to why self-disclosure in the online communities, and the "personalities" that come with it, can vary across different social media platforms [32]. As different platforms, and their respective content, are used by individuals of varying demographics, it is often observed that individuals' self-disclosure behaviors will be based on the level of risk and reward that a specific platform may bring them [32].

Pinterest is no exception from these observations as it presents a unique user experience that can elicit certain behaviors and discourage others; behaviors including varying levels of self-disclosure during a stressful life event such as the peripartum period. This can provide a means of increasing our understanding of the social interplay of post-partum depression amongst women through an emphasis on self-disclosure, including those regarding PPD treatment. Thus, the objectives of this qualitative study are to assess the type of content present regarding PPD shared by women on Pinterest in 2018 and 2021, and to examine the subjective experience of women who have experienced PPD in 2018 and 2021.

## 2. Materials and Methods

### 2.1. Research Design

The qualitative methodology of netnography was applied to this study to better understand the type of content women in 2018 and 2021 were viewing on Pinterest, as well as their subjective experiences of PPD, when searching up the term "Postpartum Depression." Pins were excluded if their content was of any language other than French or English, and/or if their URL address was invalid.

Pins within the "self-disclosure" category were excluded if any of the two exclusion criteria were met: 1) writing in the image did not have proper label(s) and/or terms that gave hints at a first-person self-disclosure (i.e., "mine," "my," "someone's name," "story"), and/or 2) pin lead to a navigation page rather than content.

Ethics approval was not deemed necessary as the data obtained was freely available in the public domain of Pinterest and did not require the active participation of individuals. The publication of this manuscript ensured the absence of any identifiable information or direct quotes from pins that could facilitate user identification. Any identifiable details were either redacted or omitted. Representative pins were crafted as illustrative examples from our dataset throughout this article.

### 2.2. Data Collection

At two separate time points (April 5, 2018 and June 23, 2021), the term "Postpartum Depression" was entered into Pinterest's search engine. All resulting pins were gathered into separate documents to ensure consistency with the subsequent analysis.

A randomized sample was included from the 2021 data collection as its resulting total number of pins was too large for analysis. From the 2635 resulting Pinterest pins, a sample size of 336 Pinterest pins was calculated, allowing for a confidence level of 95% and a margin of error of 5%. Randomized selection of pins for the sample size was achieved with the online application "Research Randomizer" on Randomizer.org and selected pins were exported into an Excel file for subsequent data analysis.

### 2.3. Analysis

For data collected in 2018 and 2021, resulting pins were analyzed by following their content link and performing a conventional content analysis to identify themes. We employed a mixed approach of the process of having themes emerge from collected data via inductive coding followed by deductive thematic analysis [33].

For the 2018 data analysis, once a collection of themes was abstracted from the data, a code scheme was created, and codes were grouped together in hierarchies or relationships. A coding frame was created for each theme. For the 2021 data analysis, a deductive thematic approach was adopted from the codes created for the 2018 data. Themes were identified and an analysis of frequency was performed for each code, along with qualitative examples associated with each theme.

### 3. Results

#### 3.1. General Results

The search in 2018 resulted in a total of 169 pins. Assessment of each pin's content resulted in five master themes: 1) self-disclosure, 2) diagnosis, 3) resource recommendations, 4) self-care, and 5) partner support. The theme of "self-disclosure" was the most prevalent, as observed with 76 resulting pins (44.9%). Content for these ranged from coping stories to complete stories about the individual's experience with PPD. Of the remaining 93 pins, 24 (14.2%) were related to the diagnosis theme, 27 (15.9%) were about the recommendation of resources, 24 (14.2%) were directed at self-care, and 18 (10.65%) were directed at partner support.

The subsequent search in 2021 resulted in a total of 2635 Pinterest pins, a 15.6-fold increase of pins in three years. For the 336 pins within our sample, 22 (6.5%) were excluded due to invalid URL addresses. Analysis of the remaining 314 pins revealed the following ten master themes: 1) self-disclosure, 2) diagnosis, 3) resource recommendations, 4) self-care, 5) partner & friend support, 6) general information, 7) prevention, 8) paternal perinatal mental health, 9) related to other aspects of perinatal health, and 10) other. Contrary to 2018's observations, the theme of "related to other aspects of perinatal health" was the most prevalent, as observed with 108 resulting pins (32.1%). Of the remaining 206 pins, 83 (24.7%) were directed at self-care, 46 (13.7%) were self-disclosure, 18 (5.4%) were resource recommendations, 16 (4.8%) were about general information, 13 (3.9%) were related to diagnoses, 13 (3.9%) were about other topics, 10 (2.9%) were about prevention, 4 (1.2%) were concerning paternal perinatal mental health, and 3 (0.9%) were directed at partner and friend support.

The 46 self-disclosure pins were further subcategorized prior to deductive thematic analysis as their content did not solely focus on PPD and as a result, may highly influence the qualitative results obtained. Out of the 46 self-disclosure pins, 9 pins were excluded due to repeated content and/or including group disclosure within the content as well. The resulting 37 pins were further subcategorized as follows: 12 (32%) solely focused on PPD, 18 (49%) focused on PPD but was not the sole theme, and 7 (19%) did not focus on PPD at all. The 12 self-disclosure pins that solely focused on PPD were subsequently analyzed by deductive thematic analysis and results are presented in the subsequent subsection.

#### 3.2. Self-Disclosure

While most pins in 2018 were identified as "self-disclosure" ones, this was not observed in the 2021 sample. Note, that this observation has its limitations due to its data source being from a sample rather than from the population of pins. Additionally, results stated in this section for pins from 2021 are from those who solely focused on PPD in their content (i.e., 12 pins) so this may also be viewed as a limitation. These limitations are further addressed and expanded on in a later section. A summary of the major themes identified within the self-disclosure pins from 2018 and 2021 is presented in Tables 1.

**Table 1.** Main and sub-themes of self-disclosure by authors on Pinterest comparing 2018 and 2021 pins.

Main Themes / sub-themes	Description	% Pins Expressed 2018	% Pins Expressed 2021
<b>1. Major Manifestations of PPD</b>			
Depression	Feeling of overwhelming sadness, uncontrollable crying	90%	75%
Guilt	Feeling of overwhelming guilt and shame, often connected to the motherhood script	83%	33%
General Anxiety	Anxiety, anxiety attacks, overwhelming worry, dread	70%	25%
Breastfeeding Issues	Difficulty achieving breastfeeding, anxiety and guilt connected to the “breast is best” mantra	63%	33%
General Apathy	Apathetic feelings toward all aspects of authors life, lack of motivation to participate	60%	17%
Invasive thoughts: Harming Child	Invasive thoughts about harming the child, often when interacting with the child	53%	0%
Suicide/Abandonment Ideation	Invasive thoughts about killing oneself or abandoning the family/child	40%	25%
Exhaustion	Overwhelming feeling of tiredness, exhaustion, expressions of sleep issues	40%	25%
Feeling overwhelmed	General feeling of being overwhelmed by responsibilities, expectations	36%	33%
<b>2. Minor manifestations of PPD</b>			
Obsessive-Compulsive Behaviour	Often in cleaning, expressions of feeling compelled to obsessively clean or perform caregiving tasks	20%	8%
Invasive Thoughts: Child’s Death	Invasive thoughts, which often triggered worry, panic, or anxiety, about the child dying	20%	0%
Apathy: Caregiver Specific	Lack of motivation to perform specifically caregiving tasks, but does not infect the rest of the authors life	20%	17%
Self-Harm Behaviour	Performance of self-harm behaviour, and/or suicide attempt	13%	8%
<b>3. Primary effective treatments attributed to recovery</b>			
Medication	Taking medication	30%	58%

Social support	Receiving support from friends, partners, family or other PPD sufferers	30%	25%
Therapy	Either individual or group	23%	25%
<b>4. Secondary effective treatments attributed to recovery</b>			
Social support	Receiving support from friends, partners, family or other PPD sufferers	46%	25%
Medication	Taking medication	36%	0%
Individual Therapy	Attending private therapy with a professional	30%	8%
Self-care	Engaging in self-care, creating coping mechanisms to be functional	16%	17%
Group Therapy	Attending group therapy with other PPD sufferers	6%	8%
Online support	A specific type of social support or group therapy whereby the authors receive these via electronic communication	6%	8%

### 3.2.1. Major Manifestations of PPD

Among the self-disclosure pins, the main theme of “major manifestations of PPD” was identified and further described as the most common symptoms/descriptions of their subjective experiences with PPD. As summarized in Table 1, in 2018 nine sub-themes were identified for authors’ subjective major manifestations of PPD: 1) “depression”, 2) “guilt,” 3) “general anxiety,” 4) “breastfeeding issues,” 5) “general apathy,” 6) invasive thoughts: harming child,” 7) “suicide/abandonment ideation,” 8) “exhaustion,” and 9) “feeling overwhelmed.” Within those obtained from both the 2018 and 2021 searches, the sub-theme of “depression” (i.e., “feeling of overwhelming sadness, uncontrollable crying) was expressed most frequently by authors. However, compared to pins from 2018, those from the 2021 search showed a decrease in overall expression of all sub-themes. Although these nine sub-themes were identified in 2018, deductive thematic analysis of the 2021 pins showed that although the frequency of expression was comparatively different, all sub-themes were still being expressed by authors in their self-disclosure pins, except for the sub-theme of “invasive thoughts: harming child.”

### 3.2.2. Minor Manifestations of PPD

Within the self-disclosure pins, the subcategory of “minor manifestations of PPD” was identified and defined as the less commonly expressed symptoms/descriptions of their subjective experiences of PPD. As summarized in Table 1, in 2018 four sub-themes were identified: 1) “obsessive-compulsive behavior,” 2) “invasive thoughts: child’s death,” 3) “apathy: caregiver specific,” and 4) “self-harm behavior.” Within this content, a change was observed regarding the primary expression made by authors from “obsessive-compulsive behavior” (2018) to “apathy: caregiving specific” (2021). Just as with major manifestations, although the sub-themes in this category were identified in 2018, deductive thematic analysis of the 2021 pins showed that all themes were still being expressed by authors except for “invasive thoughts: child’s death. Additionally, the overall expression of all themes relating to this subcategory was observed to have decreased from 2018 to 2021.

### 3.2.3. Primary Effective Treatments

Within the self-disclosure pins, the main theme of “primary effective treatments” was identified and defined as the most reported effective primary treatments for PPD. As summarized in Table 1, the three sub-themes of 1) “medication,” 2) “social support,” and 3) “therapy” were identified within pins. Most authors expressed that a combination of treatments was instrumental in their recovery and in 2018, all three were almost equally expressed by authors as the primary assistance in recovery. However, the 2021 self-disclosure pins showed authors primarily expressing medication as being instrumental to their recovery; a sub-theme expressed more than twice that for social support and therapy.

### 3.2.4. Secondary Effective Treatments

Within the self-disclosure pins, the main theme of “secondary effective treatments” was identified and defined as content relating to secondary or tertiary effective treatments that contributed to recovery from PPD. As summarized in Table 1, the sub-themes of 1) “social support,” 2) “medication,” 3) “individual therapy,” 4) “self-care,” 5) “group therapy,” and 6) “online support” were identified. The 2018 self-disclosure pins showed that many authors expressed that, as with primary effective treatments, a combination of all secondary treatments mentioned was instrumental in aiding in their recovery. In the 2021 pins, this observation was not seen to the same extent and “medication” was not once expressed by authors as a secondary effective treatment. Furthermore, there was an overall decrease in author expression of secondary effective treatments in the 2021 self-disclosure pins compared to those of 2018.

### 3.2.5. Experiences and Barriers to Receiving Effective Treatment(s)

Another main theme identified within the self-disclosure pins was “barriers to receiving effective treatment(s).” This content focused on what occurred once individuals sought help, either professionally or socially, including their overall experience and expressed fears amongst those who hesitated in seeking professional help. The results regarding both aspects are summarized in Tables 2 and 3.

**Table 2.** Exploration of the Treatment sub-theme comparing 2018 and 2021 pins.

Sub-Theme	Description	Example	% of Authors (2018)	% of Authors (2021)
<b>Expressions by authors to having received effective treatment</b>				
<b>Experience of authors who sought professional support (2018) = 21 authors</b>				
<b>Experience of authors who sought professional support (2021) = 8 authors*</b>				
Negative Reflection	Had a negative reflection of receiving professional help	“I wish I hadn’t...”, “It was awful”, “it didn’t help”	14% (3/21)	0% (0/8)
Did not receive treatment	Was dismissed. Went to seek help but did not receive it	“They dismissed me”, “they said it was normal”	28% (6/21)	0% (0/8)
Positive Reflection	Had a positive, effective interaction with the medical professional	“I was glad I went”, “I recommend it”	47% (10/21)	12% (1/8)

Received effective treatment	Authors received effective treatment for their PPD from a medical professional	"It made it better", "it helped"	71% (15/21)	63% (5/8)
<b>Experiences of authors who sought social support (2018) = 19 authors</b> <b>Experiences of authors who sought social support (2021) = 2 authors*</b>				
Negative Reflection	Had a negative interaction with their friend/partner/family member	"I wish I hadn't...", "It was awful", "it didn't help"	5% (1/19)	0% (0/2)
Did not receive support	Was dismissed	"They dismissed me", "they said it was normal"	36% (7/19)	0% (0/2)
Positive Reflection	Had a positive, effective interaction with their friend/partner/family member	"I was glad I went", "I recommend it"	31% (6/19)	50% (1/2)
Received effective treatment	Authors received effective support from who they went to for support	"It made it better", "it helped"	63% (12/19)	50% (1/2)

\* = percentage of authors is based on this total number but not all shared their experiences.

**Table 3.** Expressed fears by authors that contributed to hesitation in help seeking behaviour.

Sub-Theme	Description	Example	% of Authors (2018)	% of Authors (2021)
Mental illness stigma	Author expressed believing in mental illness stigma, or fear of being judged by it	"Mental illness isn't a real thing", "I wasn't crazy", "they would think I was weak"	57% (11/19)	0% (0/2)
Consequence fear	Fear of consequences of seeking support	"I was afraid they'd take my child away", "I was afraid of being judged"	37% (7/19)	0% (0/2)
Distrust/Fear of medical system	Fear/distrust in doctors, medication, or the general mental health institutions	"I don't trust doctors", "I don't trust medication"	37% (7/19)	50% (1/2)
Lack of awareness	Lack of awareness of mental illness in PPD, a normalization of post-partum "blues"	"I didn't know it wasn't normal"	47% (9/19)	0% (0/2)

In both the 2018 and 2021 self-disclosure pins, most authors having sought professional help expressed having received effective treatment. When looking at the minority of authors who sought social support, most expressed a positive reflection on their experience and that this support had been effective (Table 2).

Amongst posts from 2018 and 2021, most authors who sought social support expressed fears (Table 3) that contributed to their hesitation in help seeking behavior (i.e., seeking professional support in this context). In the 2018 pins, many authors having sought social support expressed more than one fear/barrier to seeking professional help, with “mental health stigma” (i.e., author expressed believing in mental illness stigma or fear of being judged by it) as their primarily fear/barrier. In the 2021 pins, only one author expressed a specific fear that contributed to their hesitation, this fear being the “distrust/fear of medical system” (i.e., fear/distrust in doctors, medication, or the general mental health institutions”).

#### 4. Discussion

In this netnographic research study looking at Pinterest pins following a search of “Postpartum Depression” at two different timestamps (i.e., April 5, 2018 and June 23, 2021), we found impressive increase in the number of related posts between the two dates. This rise alludes to a heightened interest in a discourse pertaining to postpartum mental health and PPD in particular.

##### 4.1. An Expansion of PPD Topics

In the 2018 dataset, a total of five master themes were identified whereas in 2021, a total of ten were identified (i.e., five new categories). These five new master themes were: 1) general information, 2) prevention, 3) paternal perinatal mental health, 4) related to other aspects of perinatal health, and 5) other. Furthermore, although a completely new sixth category was not identified, the primary category of “partner support” in 2018 was expanded as “partner and friend support” in 2021. The identification of these new primary categories in the second search (i.e., in 2021) may hint at an expansion of topics being discussed or of interest by individuals when it comes to perinatal mental health, specifically PPD. This raises the question of whether there is an increased demand for information of these topics that may not be easily acquired elsewhere, such as via one’s physician or through community resources. We also believe it possible that the social media platform of Pinterest has increasingly become a primary information source for individuals about a potentially sensitive topic(s), especially for women. Furthermore, the comparative results from 2018 and 2021 hint at an additional direction of focus when it comes to perinatal mental health and PPD. In the 2021 results, the primary categories identified did not just focus on the individual themselves but those around them (i.e., “paternal perinatal mental health” and “partner and friend support”). An expansion of not only topics but of those whom the subject concerns is an interesting observation; one that opens the discussion of whether individuals are inquiring more about the family and/or support unit as a whole when it comes to perinatal mental health and PPD, rather than just the individual themselves, or if the user demographic is changing towards more male users...though it could also be women partners.

##### 4.2. Self-Disclosure

An overwhelming majority of pins in 2018 were classified as being of “self-disclosure” content. This adds to the evidence that women may use social media platforms like Pinterest for communication purposes, including self-disclosure [30]. However, the 2021 sample data represented a decrease in overall self-disclosure expression/categorization of pins. These comparative findings may raise the question of whether there is an emerging factor involved preventing or putting off individuals from disclosing information about their PPD experience, even though the overall quantity of PPD content on Pinterest has increased. Additionally, as previously mentioned, it may raise the question of whether Pinterest’s user demographic has changed to include a greater number

of males, a gender who is believed to not use social media platforms for communicative purposes, such that of self-disclosure [30].

#### 4.2.1. The Varying, yet Similar Subjective Manifestations of PPD

In both the 2018 and 2021 pins, the majority of authors primarily expressed the theme of “depression,” but expression of other major themes varied in frequency between the two searches. While we are unable to know the duration of each of these manifestations/symptoms for each author/pin, all of them except “breastfeeding issues” are representative of the defining DSM-V symptom criteria stated for PPD [9]. As for authors’ subjective minor manifestations of PPD, out of the four themes, all except “obsessive-compulsive behavior” are consistent with the DSM-V symptom criteria for PPD [9]. These observations provide additional evidence that the subjective experiences of PPD symptoms being shared on Pinterest hold true to those that are clinically viewed as worrisome when investigating potential PPD diagnoses.

When comparing the frequencies of expression amongst the 2018 and 2021 pins for each major themes of major and minor manifestations of PPD, it’s interesting to note that the overall frequency has decreased in 2021. Although the major theme of “depression” and “apathy: caregiver specific” are still the most expressed by authors in both years for major and minor manifestations respectively, the 2021 results hint at an overall decrease in self-disclosure of authors’ experiences. This raises the question of whether there is a shift happening amongst this populations’ communication behavior, the “location” of their self-disclosure stories, and/or if there has been an emergence of a new factor(s) between 2018 and 2021 that has played a role in these results.

It is also interesting to note that within “major manifestations of PPD,” the major theme of “breastfeeding” is one that was expressed more frequently than others in both 2018 and 2021. Although it is the sole major theme that is not a clinically defining symptom of PPD, it adds to the evidence of just how physically, emotionally, mentally and socially stressful this aspect of motherhood can be for individuals [34]. This hints that this is a vital self-disclosure topic that new mothers are engaging in and given its frequency of expression amongst authors/pins in both 2018 and 2021, it is one that is ongoing. Based on this observation, better education, support, and social reform regarding the idea that “breast is best” is clearly required to aid in the breastfeeding difficulties that individuals are experiencing.

“I found myself in a state of despair and frustration. Despite my husband's attempts to assist, I couldn't help but wonder, given that I had one responsibility, what more could he do? When I sought support from other mothers, I discovered that none of them truly understood the depth of my emotions. While they might have experienced exhaustion from breastfeeding, at least they had the option to do so.” - (2021)

The subjective minor manifestation of PPD of “obsessive-compulsive behavior” was the sole theme in both 2018 and 2021 expressed by authors that is not a clinically defining symptom of PPD [9]. With multiple authors including this theme in their subjective experiences of PPD in both years, it raises the question of whether this is a symptomatology being shared amongst those with PPD but is being missed clinically. However, further research that focuses on this potential symptom is required.

#### 4.2.2. PPD Recovery: A Multidisciplinary Approach

The current clinical treatment approach for an individual’s PPD is one that is dependent on a variety of factors, one of which is the experienced severity. While self-care and social support are recommended for all levels of severity, pharmacological options (i.e., antidepressants) are usually only prescribed in PPD diagnoses that are moderate to severe [35]. In the 2018 and 2021 pins, authors most frequently expressed “medications” as the primary effective treatment of their PPD. This is not surprising as antidepressants are still the most common treatment method for depressive disorders, including PPD [36]. It may also hint to our research population being one who had experienced moderate to severe PPD.

“The minimal dosage has proven to be effective for me. I regained my sense of self after a few days, and there were no adverse side effects. Fast forward to now, with my baby at eight months old, I continue to take the medication. Overall, my anxiety levels have decreased compared to the period before pregnancy. Although occasional bursts of unexpected anger still arise, I've developed the ability to stay composed, analyze situations, and recognize when I'm overreacting. Our family is now thriving, and we all relish a life filled with contentment and ample sleep!” - (2021)

Although pharmacological options are the most common treatment method, they are also the least preferred by most postpartum mothers due to internal conflict about the pros and cons of its usage, including its potential effect on breastfeeding and on the infant's health [36]. As a result, therapy is often initially preferred by individuals over pharmacological options [37]. However, this was not observed in the 2018 and 2021 pins as therapy was the least frequently expressed by authors not just as a primary, but also as a secondary cause of recovery for their PPD. This may imply that although therapy (i.e., group and individual therapy) are often initially preferred by individuals over pharmacological options [37], they are not most often the treatment option that is effective in individuals' PPD recovery.

It is possible however, that although therapy may not be the most effective primary or secondary treatment method, it may have been used in conjunction with those that were (e.g., antidepressants). This idea is supported by the fact that many authors of the 2018 and 2021 pins expressed that more than one type of treatment was instrumental in their recovery. Although some authors only expressed social support or only therapy, most expressed that medication, coupled with social support and/or therapy were jointly instrumental in their recovery. This is in tune with the clinical multidisciplinary approach that is being recommended with PPD; an approach that views social support and self-care as valuable players in all levels of PPD severity [35].

“During my checkup with the ob-gyn, I couldn't hold back tears, prompting her to urgently refer me to the reproductive mental health team at the hospital. They recommended a combination of medication and counseling, and I sensed a tremendous burden being lifted from my shoulders.” - (2021)

Overall, these observations provide insight into not only the research participants that may be representative of the overall population using Pinterest for this topic, but also into their effective treatment experiences. Firstly, it implies that individuals experiencing all levels of PPD severity (mild, moderate, and severe) are part of the population that is using Pinterest to share their experiences. Secondly, it also adds to the clinical evidence that a unique multidisciplinary approach is required to ensure effective treatment of PPD. It is critical that healthcare providers are aware of this when caring for and providing treatment to individuals with PPD. Providers should not only convey the importance of pharmacological options when necessary but also of all other options that aid in the treatment of all levels of PPD severity, such as social support and therapy [35].

#### 4.2.3. The Experiences and Barriers of Effective PPD Treatment

PPD is a depressive disorder that is often left not just undiagnosed, but also untreated [35]. This is a concerning issue as untreated PPD is likely to continue creating problems for not only the mother, but the family unit as well, through recurring depressive episodes [38,39]. This raises the question of what gap(s) may be present that influence individuals in getting treatment and if the answer lies in their subjective experiences of thinking about and/or seeking help.

Most authors in 2018 and 2021 who received professional treatment (i.e., medication and/or therapy) expressed positive experience(s) or effective treatment of their PPD. This is a promising observation as the professional treatment primarily used by authors in both years included medications; this is a treatment option that is, as previously stated, the most common treatment plan [36] and has been primarily expressed as the primary cause of recovery. However, for authors in 2018 who did not follow a professional treatment route but received social support instead, there were many who expressed that they did not receive support as they “were dismissed.” This observation

hints at a potential lack of PPD education and/or awareness amongst the general population, and/or mental health stigma, the latter already being well known.

“I sat upright, tears streaming down my face, pleading with my husband to rush me to the hospital, convinced that I was losing my sanity. Despite my desperate pleas, he embraced me, soothing and comforting me until the panic subsided” - (2018)

The fear of “mental health stigma” was most frequently expressed by authors in the 2018 pins as a contributing factor to their help-seeking behavior hesitations. This observation is not a surprise as postpartum mothers have frequently reported not only experiencing feelings of shame, but also fears of being labeled a “bad mother” if their depressive struggles were to be acknowledged [40].

“My tight grip on handling emotions that I considered “unsuitable for a mother”, was unsuccessful. I impeded my own growth by rejecting any possible help from others” - (2018)

To our knowledge, the other fears of “consequence fear,” “distrust/fear of medical system,” and “lack of awareness” have not yet been as documented in PPD research. While stigma is a well-known social concept in mental health research, these other fears/factors provide further insight into what may be preventing individuals from seeking professional help; an action that may be detrimental to their overall recovery and the health of their whole family unit. With perinatal mental health disorders, including PPD, being highly prevalent and commonly left untreated, these observations provide insight into the gaps that need to be addressed in order to potentially change individuals’ help-seeking behavior(s) with PPD [41]. However, with only one 2021 pin having content regarding fear(s) related to help-seeking behavior hesitations, it is difficult to infer if such fears have changed recently and as a result, it would be prudent for future research to delve further.

#### 4.3. Significance

To our knowledge, this is the first netnographic research study looking at content on Pinterest following a search on “Postpartum Depression,” with further inquiry into pins categorized as self-disclosure. Although it is a new research area, it is critical one as a high prevalence of perinatal mental health disorders, including PPD [41], gives cause for concern and the necessity for further inquiry.

Most other social platforms have open, mixed gendered audiences; a social media environment that does not provide women with the same level of comfort to be as emotionally expressive and communicate personal information as they would with a female audience. However, with a platform like Pinterest, where the user demographic is almost entirely middle-class women, the communication behavior amongst the group may be similar and allow for these users to be more emotionally expressive, more expressive of negative facets, and more geared towards self-disclosure [42]. This provided our study with a higher probability of gaining more accurate insight into the common demands, needs, thoughts, opinions, and experience(s) of this population when it comes to perinatal mental health, specifically PPD.

#### 4.4. Limitations

Our findings must be considered with the recognition of several limitations. As previously stated, the demographic profile of many Pinterest users is one of middle to upper class socioeconomically. Given that PPD is more prevalent in women of lower socioeconomic status [7,19], this study may have failed to include an important representative participation source in the data. However, we did not attain demographic information of each pin’s author(s), including socioeconomic status; further adding to the limitation of not knowing our participation source and the potential factors that could have influenced the type of Pinterest content we observed.

Secondly, our study is not immune to the fact that qualitative research is inherently subjective. By adopting a conventional thematic approach, personal bias is present as this method relies on the researcher(s) themselves to use their judgement to create the themes. With personal bias present, it is possible that our observations may not correspond with what other researchers would have inferred from pins. However, without a consistent coding scheme for all researchers on this topic, it is inherently impossible to avoid this.

Thirdly, although one of the research objectives of this project is to examine the subjective experiences of individuals' experiences with PPD on Pinterest, it is not certain that all authors were professionally diagnosed with PPD. As explained in the DSM-V, PPD is a mood disorder with a peripartum specifier; a disorder that has specific symptoms that need to be present for a specific period of time in order for the individual to be professional diagnosed [9]. Some authors may have assumed they had PPD but were never professionally diagnosed. This could have resulted in analyzing self-disclosure stories and drawing conclusions that may not be fully representative of the specific population we were hoping to gain insight into, though it does speak to a woman being able to recognize when something is not right in the postpartum period.

Finally, our randomized sample size from the 2021 search may have missed several self-disclosure pins that were specific to PPD; a possibility that could have changed the thematic observations included. With the 2021 self-disclosure pins, we further subcategorized them as not all the content retrieved focused solely on PPD, and as a result, could impact our thematic analysis. This resulted in a relatively low number of self-disclosure pins (i.e., 12 pins), a number that only decreased as major themes were looked for in each subcategory. This was especially evident when looking at authors' experiences when receiving effective PPD treatment and at the fear(s) expressed that contributed to their hesitation in seeking professional help. With this specific section, not all authors expanded on their experiences and as a result, only a very limited amount of information was retrieved.

#### 4.5. Considerations for Future Research

With the identification of the new, and most frequent, theme of "related to other aspects of perinatal health" in the 2021 data, future research should consider delving further into these aspects individually on Pinterest. Given its high frequency amongst the sample of pins, this highlights that there may be a shift and/or expansion in the demands and interest of users when it comes to perinatal mental health. However, further inquiry is needed to fully understand this observation.

## 5. Conclusions

Netnography is a new, yet promising, research approach that allows us to delve into vulnerable populations and/or sensitive topics like PPD, providing essential information about individuals' experiences through their self-disclosure. PPD, like most women's health issues, requires more attention and research. Pinterest is an excellent resource for looking at the subjective experience(s) of women as they navigate the world, including motherhood. This current study provides imperative insight into individuals' varying yet similar subjective manifestations of PPD, the potential need to adopt a multidisciplinary treatment approach, and the societal fears, such as mental health stigma, that are playing a part in help-seeking behavior hesitations. It is recommended that future PPD research gives thought to using this approach, with social media platforms like Pinterest, to ameliorate our understanding of individuals' experiences and of the gaps in diagnosis and treatment that need to be addressed.

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