

Globally identified gaps and recommendations for assessing risk and severity of intrusive thoughts amongst postpartum women in outpatient settings: A systematic review

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Abstract

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Background: Postpartum mood and anxiety disorders (PMADs) are generally underdiagnosed, often due to the lack of specific maternal mental health training among non-specialty providers. There is little consensus regarding the best practices for assessing postpartum women for intrusive thoughts of infant-related harm, a common PMAD symptom, in these outpatient settings. Objective: To qualitatively review the current published literature to identify the gaps and recommendations for outpatient screening procedures when determining risk and severity of intrusive thoughts. Methods: This paper describes a systematic search of the literature using three electronic databases to locate globally-inclusive studies on PMAD assessments from its inception to March 2020. Results: The search produced 166 eligible studies from 45 individual countries using assessments in 40 distinct languages. A total of 108 individual assessment tools were used, and 80% used the Edinburgh Postnatal Depression Scale (EPDS). Out of the 162 eligible studies, 25 studies directly assessed for intrusive thoughts related to infant-harm.

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INTRODUCTION

Symptoms of postpartum mood and anxiety disorders (PMADs) are considered the most common pregnancy complications. Recent research has shown that an estimated 11% of women experience depression after birth, and 15% experience symptoms of an anxiety disorder (Ko, Rockhill, Tong, & Farr, 2017). Women may also be at risk for developing postpartum psychosis, a rare but serious condition. PMADs can result in significant consequences for the mother and child, both emotionally and financially. Untreated PMADs lead to increased health costs for the child throughout life, income loss for the mother, and amounted to nearly 14.2 billion in overall treatment cost for all births over a 5-year period (Luca et al., 2019). Additionally, untreated PMADs can also have serious impacts on the mother-child relationship and can increase the mother's risk of experiencing mental health challenges later on (Slomian et al., 2019).

PMADs are generally underdiagnosed, often due to the lack of specific maternal mental health training across non-specialty providers (Avalos et al., 2016). Although there has been a significant push in recent years to reduce stigma surrounding postpartum depression and postpartum psychosis, there is still little discourse in both academia and practice about the existence of thoughts of infant-related harm. These intrusive thoughts are incredibly common among postpartum women, experienced by more than 50% of mothers (Fairbrother & Woody, 2008). Intrusive thoughts of infant-related harm are different in risk and severity from infanticidal ideation (Collardeau et al., 2019). Due to this, there are different safety precautions and treatment plans depending on the content, frequency, and risk for action of intrusive thoughts. Non-specialty outpatient providers are often on the frontlines for PMAD and intrusive thought detection. However, providers without specific training in maternal mental health may not know how to assess for symptoms of intrusive thoughts, and mothers are typically hesitant to share due to feelings of guilt and shame. Along with this lack of training, there is little to no guidance for non-specialty providers once intrusive thoughts have been identified, and thus many do not know how to move forward with assessment or referrals.

Background

There are many assessment strategies used to detect PMAD symptoms, but there is yet to be a consensus of which tool is most accurate. Commonly used tools for PMADs include the Edinburgh Postnatal Depression Scale (EPDS), Postpartum Depression Screening Scale (PDSS), and Patient Health Questionnaire - 9 (PHQ-9). Postpartum assessment is either administered on an individual basis depending on risk level or distributed universally to all mothers (Ukatu, Clare & Brulja, 2018). Universal screening has been found to detect more cases of PMADs, and aligns with the perspective that all women are at risk for developing postpartum depression or another maternal mental health condition. However, due to time, cost restraints, and the lack of follow up resources, some settings continue to only screen women who exhibit risk factors. Additionally, although these tools can be used as a first step in detecting PMAD symptoms, few have been specifically developed to assess the existence of intrusive thoughts of infant-related harm. These assessment tools are generally focused on detecting a mother's risk for developing postpartum depression, anxiety or psychosis. However, intrusive thoughts can be a symptom of any of these conditions at differing severities.

Postpartum depression

Postpartum depression (PPD) is characterized as a nonpsychotic depressive episode that can occur anytime between two weeks to twelve months postpartum (Meltzer-Brody et al., 2018). Symptoms include loss of interest or pleasure, weight change, fatigue, disruptions to sleep patterns, feelings of worthlessness or guilt, and recurrent thoughts of death and suicide (Doucet, Dennis, Letourneau, & Blackmore, 2009). Treatment for PPD can include both psychological and pharmacological interventions such as individual or group counseling and the use of antidepressant medication (Fitelson, Kim, Scott & Leight, 2010). PPD differs from the "baby blues," which are short-term feelings of worry, general sadness, and anxiety. Baby blues are experienced by 50-70% of postpartum women, and typically do not interfere with day-to-day function and resolve spontaneously (Cleveland Clinic, 2018).

Postpartum psychosis

After birth, women are also at risk for postpartum psychosis (PPP), which is considerably less common in comparison to PPD. Approximately 1 in every 1000 women experience PPP, and it is estimated that 1 in 7 of those women have a history of past mental illness (Sit, Rothschild, & Wisner, 2006; Meltzer-Brody et al., 2018; Monzon, di Scalea, & Pearlstein, 2014). PPP has a sudden and unexpected onset, and is primarily characterized as a period of severe mood disturbance forty-eight hours to two weeks after birth. Core features of PPP include hallucinations, delusions, and disorganized thinking (Doucet et al. 2009). Treatment often includes the use of medication and in-patient hospitalization.

Intrusive thoughts v. infanticidal ideation

Intrusive thoughts typically refer to unwanted negative thoughts that are frequent and difficult to dismiss (Lawrence et al., 2017). Women may be reluctant to disclose these thoughts due to fear of child welfare involvement. Intrusive thoughts can cause women to experience high amounts of stress, shame, and fear, and although these thoughts might not lead to physical harm, they can have severe impacts on the individual's mental health with long term implications (Brok et al., 2017). Some examples of intrusive thoughts of infant-related harm include thoughts of shaking, dropping, drowning, or throwing the infant. Intrusive thoughts are characterized as being inconsistent with the mother's behavior, with no legitimate intention to act (Lawrence et al., 2017).

Infanticidal ideation is often classified as a psychotic symptom and is associated with PPP (Monzon, di Scalea, & Pearlstein, 2014). Infanticidal ideation typically has altruistic or acutely-psychotic motives. For example, the mother may believe that she or the infant are possessed by evil, or may believe that the infant would be better off dead than living as their child (Chandra, Bhargavaraman, Raghunandan, & Shaligram, 2006). Thoughts with these motives are associated with a higher risk of committing harm to the infant. It is important to note that the act of infanticide is still uncommon within the PPP population, with only 0.1-4% of women with untreated symptoms at risk for infanticide (Friedman, Resnick, & Rosenthal, 2009).

PURPOSE

Although there are assessment tools used to screen for PMADs, many obstetric and outpatient practices do not conduct assessments specific to intrusive thoughts. However, research corroborates that the key to reducing harmful thoughts and behaviors is early assessment (Avalos et al., 2016). One barrier is that there are few validated assessment tools that specifically address thoughts of infant-related harm that can be used by outpatient health providers to determine risk and severity of these thoughts. Without a comprehensive assessment strategy, many non-specialty health providers lack the tools to initiate these conversations with mothers.

Thus, the purpose of this systematic review is to investigate the assessment strategies used to detect intrusive thoughts amongst postpartum women through a global lens. Using these findings, we developed a narrative analysis to highlight specific gaps, recommendations, and existing assessment tools related to comprehensive PMAD and intrusive thought detection.

METHODS

Inclusion/Exclusion Criteria

This review considered globally-inclusive publications on postpartum mental health assessments. Studies were included if they compared or validated an assessment tool or strategy used to detect PMADs. Samples of assessment tools included were Edinburgh Postnatal Depression Scale, Postpartum Depression Screening Scale, Center for Epidemiological Studies Depression Scale, Beck Depression Scale (I and II), Patient Health Questionnaire - 9, Mood Disorder Questionnaire, Bromley Postnatal Depression Scale, and Birmingham Interview of Maternal Mental Health. This review only included publications written in English. Publications were excluded if they were a systematic review, meta-analysis, abstract, or if no full-text was available. References were examined to identify additional articles that met the inclusion criteria.

Search Strategy

The search strategy included a systematic search using three electronic databases to locate globally-inclusive articles from inception to March 2020. Databases included PubMed, CINAHL, and psychINFO. Various combinations of the following keywords were used in the search: assessment, screening, scale, pregnancy, postpartum, perinatal, postpartum depression, intrusive thoughts, infant harm, infanticidal thoughts, evaluation, validate, efficacy, and comparison (See Figure 1). These terms were also used in combination with commonly used PMAD assessments as identified by the inclusion criteria. Although anxiety was not used as a key term within this search strategy, articles were not excluded if they focused on assessment for postpartum anxiety. The screening process included three phases: an initial search with filters for language and duplicates, a preliminary screening using the title and abstract, and a secondary screening of the full-text articles (See Appendix A) (Moher, Liberati, Tetzlaff, & Altman, 2009).

Figure 1: Example search string on PubMed

("Assessment" OR "Screening" OR "Scale") AND ("Pregnancy" OR "Postpartum" OR "Depression, Postpartum" [mh] OR "Perinatal") AND ("Intrusive thoughts" OR "infant harm" OR "infanticidal thoughts")

Data Extraction and Quality Assessment

Studies were reviewed by two researchers, including the primary author of this review. Both inter-rater agreement (IRA) and inter-rater reliability (IRR) were calculated to measure the accuracy of the rating process. For the purpose of this analysis, IRA refers to the extent that reviewers agreed on the items being rated. IRR refers to the extent that raters were consistent in distinguishing items while taking into account the possibility of reviewers agreeing by chance (Gisev, Bell, & Chen, 2013).

IRA was determined by calculating the percentage of studies which were agreed upon by reviewers during an initial pretest, equaling to 75% (Figure 3). IRR was then determined by calculating the Cohen's kappa measure using the following formula: $k = \frac{Pr(a) - Pr(e)}{1 - Pr(e)}$. The IRR indicated moderate agreement between the reviewers ($k = 0.52$) (Figure 2). All disagreements regarding article inclusion were mediated through another screening process in which reviewers discussed each study and made a final joint decision.

During the secondary screening phase, both reviewers used the Google Form created by the primary author of this review to independently extract information from the articles, which was later cross checked by double entry (See Appendix D). Once the eligible studies were isolated, a narrative analysis was developed to clearly illustrate key characteristics of assessment strategies used globally, highlighting the current gaps and recommendations for PMAD and intrusive thoughts detection in outpatient settings.

Figure 2:
Inter Rater Reliability Calculation

		Inter Rater Reliability									
		R1									
		0	1								
R2	0	4	3	7	58.33%						
	1	0	5	5	41.67%						
		4	8	12							
		33.33%	66.67%								
$k = (Pr(a) - Pr(e)) / (1 - Pr(e))$ <table border="1"> <tr> <td>Pr(a)</td> <td>0.75</td> </tr> <tr> <td>Pr(e)</td> <td>0.47222222</td> </tr> <tr> <td>k</td> <td>0.52631579</td> </tr> </table>						Pr(a)	0.75	Pr(e)	0.47222222	k	0.52631579
Pr(a)	0.75										
Pr(e)	0.47222222										
k	0.52631579										

Inter Rater Reliability was determined using the formula to calculate the Cohen's kappa coefficient.

Figure 3:
Inter Rater Agreement Calculation

Inter Rater Agreement			
Study	R1	R2	Frequency
1	0	0	1
2	1	1	1
3	0	0	1
4	0	0	1
5	1	1	1
6	1	0	0
7	0	0	1
8	1	1	1
9	1	0	0
10	1	0	0
11	1	1	1
12	1	1	1
MATCH		9	
Total		12	
IRA		75.00%	

Inter Rater Agreement was determined using the frequency in which the reviewers agreed/disagreed.

RESULTS

The initial search produced 2081 results resulting in 1437 being eligible for preliminary screening. Following a full text screening, 166 studies were found eligible to be used in this systematic review (See Appendix A). Forty-seven percent of studies were found through psychINFO cited journals, with CINAHL and PubMed attributing to 27.8% and 25.2% respectively. The included studies were conducted in 45 individual countries using assessments translated into 40 distinct languages. However, despite the wide array of countries and languages, 57% percent of studies used assessment tools distributed in English. Four studies were identified within the references of other screened publications to be included in this review. Reviewers also decided to include one systematic review due to its relevance towards addressing the gaps in clinical understanding of intrusive thoughts and PMADs.

A total of 108 individual assessment tools were used, and 80% of studies used the EPDS alone or in addition to another tool. Other common assessment tools that were used in decreasing order of frequency included the PHQ-9, BD I & II, PDSS, and CES-D (See Appendix B). Eighty-six percent of eligible studies were conducted in outpatient settings or a combination of outpatient and inpatient. The most common outpatient settings were: Postpartum/primary care visits (32%), Community clinics (17%), and Home visits (13%). Two studies used social service agencies to conduct assessments. Seventeen studies utilized multiple settings to distribute assessments.

Out of the 166 eligible studies, 25 studies directly assessed for intrusive thoughts of infant-related harm. The five most common assessments used for this content area were: Postpartum Intrusions Interview, Interpretation of Intrusions Inventory, Postnatal Negative Thoughts Questionnaire, Postpartum Depression Predictors Inventory - Revised, and the Parental Thoughts and Behaviors Checklist (PTBC) (See Appendix C). These studies also used additional assessments focused around detecting obsessive-compulsive symptoms that may help indicate the existence of intrusive thoughts without specifically isolating content related to infant harm (Thiséus, Perrin, & Cervin, 2019; Fairbrother & Woody, 2008; Collardeau et al., 2019; Abramowitz, Nelson, Rygwall, & Khandker, 2007; Alves, Fonseca, Canavarro, & Pereira, 2018; Hall & Wittkowski, 2006; Beck, 2002; Beck, Records, & Rice, 2006; Alves, Fonseca, Canavarro, & Pereira, 2019). However, there is limited research providing information on the validity, sensitivity, and specificity of these tools due to their lack of use (See Appendix C). Additionally, on average, these five assessment tools used 30 items or more, having a generally larger assessment burden than other PMAD assessment tools.

SYNTHESIS

Gaps in Current Practice

Two major themes that capture the barriers for proper intrusive thought detection include the existence of stigma and inadequate referral processes (Ciliska, 2004; Stapleton, Murphy & Kildea, 2013). Due to the lack of conversation about PMADs in broader society, women often cited feeling uncomfortable or resistant when completing assessments (Ciliska, 2004; Shakespeare, Blake, & Garcia, 2003). This is largely due to the societal pressures surrounding motherhood and birth that cause women to feel guilty or ashamed of having negative feelings towards their child or maternal experience (Collardeau et al., 2019). Aspects of screening that women identified were particularly distressing were the use of language that made them feel as if

they had “failed” if they scored too high, uncertainty of next steps if they were to answer honestly, and personal questions that felt intrusive (Ciliska, 2004; Jennings, Ross, Popper & Elmore, 1999). Women also echoed similar fears regarding child welfare involvement or being viewed as a “bad mother” (Jennings et al., 1999; Collardeau et al., 2019)

Additionally, little follow through is noted when general practitioners or providers referred women to services as a result of their screening score (Armstrong & Small, 2007; Bowen et al., 2012; Martini et al., 2019). This indicates that it is not effective to expect mothers to contact mental health services on their own without detailing a specific referral process (Matthey et al., 2016); Stapleton, Murphy & Kildea, 2013). Women often disclose their most distressing thoughts after a relationship has been established, meaning the initial provider might not become aware of the extent of the symptoms upon first meeting.

Most women who are assessed for intrusive thoughts are already involved in psychiatric treatment due to a pre-existing mood disorder (Pope, Xie, Sharma, & Campbell, 2013; Davis et al., 2013; Wisner et al., 2013). This means that the actual existence of intrusive thoughts of infant-related harm is significantly underreported, leaving women who are not already linked to mental health services undetected (Pope et al., 2013). Although the timely identification of intrusive thoughts is important, there is a lack of available research on differentiating intrusive thoughts of infant-related harm and infanticidal ideation (Collardeau et al., 2019). It is important to choose the assessment strategy wisely as mothers rarely share an extreme emotional response towards their baby via a questionnaire alone (Wittkowski, Williams, & Wieck, 2010). For instance, assessing for intrusive thoughts by using language that depicts images of abuse or neglect may cause a mother to become more guarded in sharing the content of her intrusive thoughts, even if there is no intent for action.

Recommendations

Assessment time frame

Initial assessment screening for intrusive thoughts should be conducted between three to six weeks after birth (Beck, 2002; Lobato, Moraes, Dias, & Reichenheim, 2011; Martini et al., 2019). Assessing for intrusive thoughts is recommended to occur side-by-side universal screening for PMADs. This is due to intrusive thoughts being a key symptom of PMADs that largely remains unassessed, and can provide important information for providers to conduct a full and comprehensive risk assessment. Ideally, these measures should be repeated multiple times throughout the postpartum period due to the variability in onset (Edhborg, 2008; Murray, Woolgar, & Cooper, 2004; Yahn et al., 2015). Repeated assessment is especially important for detecting thoughts of infant-related harm due to the stigma and moral distress (Fairbrother et al., 2018).

Two models recommend providing examples of intrusive thoughts during assessments and repeat screenings even if a mother initially declined these symptoms (Hall & Wittkowski, 2006; Brok et al., 2017). In the assessments that were specifically created to assess intrusive thoughts, this is a common theme within their included items. Additionally, by repeating screening further along the postpartum period, intrusive thought symptoms can be further distinguished from transient distress that typically occurs after birth (Matthey & Ross-Hamid, 2012). Providers who are not mindful of this will often see an increased number of unnecessary referrals.

It is recommended that positive screening for intrusive thoughts should always be followed up with a structured interview in order to obtain essential information about risk and severity of symptoms (Magnusson, Lagerberg & Sundelin, 2011). As seen in the five assessment tools identified in this review that specifically target intrusive thought detection, there are typically 30-100 items. This increases the assessment burden, but has been shown to be beneficial for these particular symptoms. Although universal screening is recommended, providers can reduce assessment burden by prioritizing specific follow up procedures based on risk level. Risk factors include but are not limited to history of mental health disorders, minimal social support, low-income status, and traumatic birth experience (Mgonja & Schoening, 2017; Beck et al., 2012). Including questions in the assessment strategy that envelop these factors can help identify which patients are at a higher risk for experiencing intrusive thoughts (Mgonja & Schoening, 2017).

Although this review did not specifically include antenatal assessment efforts, nine studies included recommendations for antepartum screening to help identify risk for PMADs and intrusive thoughts (Su et al., 2007; Ingram & Taylor, 2007; Steward, Umar, Tomenson & Creed, 2013; Bakare, Okoye & Obindo 2014; Matthey et al., 2016; Egan et al., 2017; Coates, Ayers & de Visser, 2017; Alves et al., 2018; Van Heyningen et al., 2018). The existence of infant-related intrusive thoughts before birth can lead to more severe postpartum anxiety or obsessive-compulsive symptoms at three months after birth (Abramowitz et al., 2007).

Setting

The most common outpatient settings for PMAD assessments are postpartum and primary care visits. Other effective settings for assessments are identified to be well-child visits and home visits (Venkatesh et al., 2016). However, many screening procedures assess mothers in multiple settings at different times, or provide options depending on what would be most acceptable for the individual. Settings that utilize a combination of methods, such as an in-person assessment followed up by either a telephone or online screen, often lead to increased follow-through (Mgonja & Schoening, 2017). Providing a wide array of options is most important for rural communities due to the lack of resource availability (Bhat et al., 2018). It is also essential for the health providers to feel comfortable and open to giving the assessment as women who did indicate feeling uncomfortable in these settings attributed it to the style of delivery (Ciliska, 2004; Shakespeare, Blake, & Garcia, 2003). By being mindful of delivery, outpatient providers will be able to form the necessary rapport for mothers to disclose any intrusive thoughts they might be experiencing, increasing their chance of accessing the needed mental health support.

Follow Up

It is essential for outpatient clinics and non-specialty providers to create a robust referral procedure for adult and maternal mental health, even if they practice in a pediatric setting (Ben-David, Jonson-Reid, & Tompkins, 2017; Tandon et al., 2012; Venkatesh et al., 2016; Foreman & Henshaw, 2002). Some critical elements of proper mental health intervention and referral include providing resources with specific information about local supports, instructions for finding a provider, and building a network of professional connections with local agencies who specialize in perinatal mental health (Tandon et al., 2012; Lind, Richter, Craft, & Shapiro, 2017; Bhat et al., 2018; Logsdon et al., 2018). When possible, it is important for clinics to function with a multidisciplinary model so that mental health follow up can be more streamlined (Lind et al.,

2017; Mgonja & Schoening, 2017). Research also endorses the utilization of both social workers and nurses in assessment procedures and follow up (Venkatesh et al., 2016; Stapleton, Murphy & Kildea, 2013; Kaminsky et al., 2008; Clemmens, Driscoll & Beck, 2004; Wickberg & Hwang, 1996). Additionally, recommending CBT-based psychoeducation and therapy programs has been found to be particularly valuable for women experiencing intrusive thoughts (Brok et al., 2017).

There are a few articles that provided follow up procedures depending on the outcome of the assessment. One model details an EPDS screening process using different cut off scores to determine the follow up procedure (Peindl, Wisner & Hanusa, 2004). Women who score between five and nine are provided education about depression and where to receive treatment, as well as blank forms of the EPDS. If symptoms remain elevated or increase, they are to call their primary care office. Women who score a nine or higher are then immediately followed up with an interview to determine risk and severity (Peindl, Wisner & Hanusa, 2004). Another model further breaks down this referral process after a score of nine or higher by separating action steps based on the existence of psychosis or thoughts of harm (Lind et al., 2017). These interventions vary in severity depending on crisis level, from referring the mother to an outpatient mental health provider to placing her on a 72-hour hold (Lind et al., 2017).

Characteristics of intrusive thought assessment

Although there is limited research available, this systematic review did isolate studies that provided general guidelines for addressing intrusive thoughts amongst postpartum women. Due to the high level of stigma and shame associated with disclosing thoughts of infant-related harm, it is important to accompany assessment tools with a policy that no actions in the interest of child welfare will be taken unless other risk factors are present (Collardeau et al., 2019). When intrusive thoughts are identified, key characteristics to assess are frequency and persistence of thoughts, behavior changes, and whether they are ego-dystonic or ego-syntonic in nature (Brok et al., 2017; Fairbrother et al., 2018). Thoughts that are considered ego-dystonic cause the individual distress due to the content's inconsistencies with their moral code or regular behavior patterns. In contrast, ego-syntonic thoughts refer to those that are considered acceptable and cause no discomfort. It is a protective factor if a mother is exhibiting ego-dystonic thoughts of infant-related harm because she is considered less likely to transition that ideation to action (Collardeau et al., 2019; Brok et al., 2017). To determine this, providers can include questions assessing emotional and behavioral responses to thoughts of infant-related harm, as well as the specific content of the ideation (Fairbrother et al., 2018). Understanding the nature of the intrusive thoughts and mother-infant interaction is essential for the clinical decision making process to determine legitimate risk for infanticidal behavior (Wittkowski, Williams, & Wieck, 2010; Chandra, Bhargavaraman, Raghunandan, & Shaligram, 2006).

Additionally, some studies have investigated the use of the EPDS to determine whether or not intrusive thoughts should be assessed further. For instance, a positive response to question 10 not only denotes a risk for self-harm but can also be used as an opportunity to assess for any thoughts relating to the infant's wellbeing (Mgonja & Schoening, 2017; Pope et al., 2013). It is similarly recommended for providers to pay attention to symptoms that may be indicative of the existence of these thoughts even if they are not specifically disclosed. The most easily assessed traits to consider are the existence of obsessive-compulsive symptoms (OCS) (Fairbrother et al., 2018; Miller, Hoxha, Wisner, & Gossett, 2015; Thiséus, Perrin, & Cervin, 2019). OCS during

the postpartum period often includes thoughts of infant harm and low maternal self-efficacy (Miller et al., 2015; Wittkowski, Williams, & Wieck, 2010; Fairbrother et al., 2018). According to research by Lawrence et al. (2017), thoughts of infant-related harm decrease after the first four to six weeks postpartum.

Inclusivity and cultural considerations

Although most assessments used to detect PMADs can be self-administered, it is recommended that providers offer the option to deliver assessments verbally or via a directed interview (Albuquerque et al., 2017; Chae et al., 2012; Sikander et al., 2019). Providing this option and being mindful of linguistic differences can be an equalizer for patients who may have lower educational status or low literacy (Sikander et al., 2019; Jarosinski & Pollard, 2014; Stapleton, Murphy, & Kildea, 2013). This is particularly important in a multiethnic and diverse practice setting (Chae et al., 2012). It is vital for maternal and child health to recognize the effects of systemic discrimination on the maternal experience of women of color and women from low-income backgrounds (Horowitz, Murphy, Gregory, & Wojcik, 2011; Tandon et al., 2012; Beck, Tatano, & Gable, 2012). Care providers should consider using lower cut off scores when working with women from marginalized communities as they are at a higher risk for PMADs, as well as less likely to obtain the necessary follow up services (Tandon et al., 2012). Using the same cut off scores for all populations does not account for systemic differences in medical treatment or different socio-cultural perceptions of mental health (Coates, Ayers, & de Visser, 2017; Navarro et al., 2007).

This review included studies from all over the world, providing insights on how different communities engaged with mothers using culturally and contextually appropriate methods of assessment. One model demonstrated that utilizing peers instead of providers to administer PMAD assessment was an effective way to establish a safe space for mothers to share their responses honestly in low-middle income communities (Sikander et al., 2019). Although this framework may not be possible across all populations, it shows the efficacy of having diverse representation in clinic settings. Other studies support the importance of having a diverse staff in clinics that service multiethnic and diverse communities (Beck & Gable, 2005; Bass et al., 2008). Due to the effects of historical trauma and systemic discrimination, women of color may not be as open to sharing their PMAD symptoms or intrusive thoughts within a white provider dominated space (Gary et al., 2015; Sarto, Brasileiro, & Franklin, 2013). It is also important to acknowledge the ways in which families of color are disproportionately involved in the child welfare system, and thus there might be increased barriers for these mothers to disclose their symptoms out of fear (Administration for Youth and Families, 2013).

Characteristics of PMAD symptoms and the content of intrusive thoughts can differ depending on the cultural background of the individual. For example, Latina women who were undocumented were found to have OCS during the postpartum period that specifically revolved around their fear of deportation (Lara-Cinisomo et al., 2019). This coupled with the fears discussed previously regarding child welfare involvement only further emphasizes the importance of an intentional and robust assessment strategy. This review included 40 different language translations for various PMAD assessment tools. The most common languages that PMAD assessments were translated in were English, Spanish, and Chinese. The EPDS is the most widely translated assessment used for PMAD detection examined in this review, with 30

different translations identified. Typically, a robust translation process includes using native speakers to not only translate content, but also provide culturally-appropriate replacements for more colloquial language or use of idioms.

DISCUSSION

Mothers experiencing thoughts of infant-related harm may be reluctant to seek out treatment, and when they do, it will not always be in an environment with highly-trained perinatal professionals. There is a gap in knowledge and training specifically pertaining to maternal mental health across various spectrums of care, specifically in non-specialty settings.

Assessing for intrusive thoughts of infant-related harm requires a thoughtful and intentional approach due to the barriers many women face when attempting to access support. Due to the desire to limit assessment burden, many settings utilize abbreviated assessment tools that have been revised to only use a few questions to detect anxiety and depression. However, this review suggests that although this can be a preliminary strategy for identifying risk, it is important to note that detecting intrusive thoughts typically requires longer assessments. Generally, as made apparent by the lack of research on this topic area, many non-specialty providers are not equipped to provide adequate assessment due to having limited guidance on where to move forward with a mother who is endorsing PMAD symptoms or intrusive thoughts.

This review also suggests that intrusive thoughts should be addressed in the same way as a traditional risk assessment. Similarly to the recommendation set forth by the American College of Obstetricians and Gynecologists (ACOG) regarding the universal screening of PMADS, the literature recommends that assessing for intrusive thoughts is essential for all mothers during the postpartum period (ACOG, 2015). The key to assessing for thoughts of infant-related harm is determining the risk for action, which is congruent with the procedures many providers use in order to complete suicide risk assessments. Within many outpatient clinics, providers have clear guidelines on not only how to assess for risk of self harm, but also how to refer patients to supplementary support depending on severity. These assessments require providers to have difficult and sensitive conversations, but with standards of practice in place, many feel equipped to perform this responsibility. Using suicide risk assessment as a model can help providers understand how to assess for thoughts of infant-related harm, creating a similarly strong foundation for both detection and referrals.

Additionally, it is clear that the rhetoric surrounding intrusive thoughts during the postpartum period needs to be shifted. Public perception of thoughts of infant-related harm often revolve around the sensationalized events of infanticide, causing misconceptions among mothers, friends, loved ones, and even care providers (Thorsteinsson, Loi, & Farr, 2018; Holman & Robert, 2017). The literature suggests that the most significant barrier for women to receive support when experiencing thoughts of infant-related harm is the associated stigma. This issue is deeply correlated with other recurrent barriers mothers experience, such as pain dismissal and medically-embedded misogyny (Taylor & Gamble, 2017; Kiesel, 2017). Women are expected to view motherhood as a gift, which unfortunately results in many feeling pressured to support that image, even when they are experiencing PMAD symptoms. For this reason, providers should also be mindful of significant postpartum milestones, such as weaning or ending maternity leave,

as these might be periods of increased stress for mothers (Shelton & Herrick, 2009). As providers become more equipped to have these conversations with mothers, the perception of postpartum mental health can broaden and become more inclusive of the wide array of experiences and emotions that motherhood can bring.

Limitations

Five studies reported the exclusion of women due to language or literacy level, and a significant portion of studies reported used a homogeneous white majority sample. Additionally, studies included cisgender populations, and no study was identified to include transmen who were assigned female at birth or same-sex couples. Another limitation across included studies was the exclusion of mothers who had experienced a miscarriage or neonatal demise. Although the inclusion of these mothers might lead to an increase in positive screens, miscarriages affect 1 in 4 women, totaling a significant portion of the obstetric population in question (Callister, 2006). Another limitation was that anxiety was not included as a key term within the search strategy, and therefore some relevant articles may not have been included. This review did not exclude based on sample size or sampling method, and thus not all the results can be generalized. Although studies were sourced globally, this review only included articles written in English. Lastly, at 75%, the IRA is considered to indicate moderate-low reliability.

CONCLUSION

This systematic review aimed to gather comprehensive information on the gaps and recommendations for PMAD detection with a particular focus on detecting intrusive thoughts of infant harm. The significant barriers identified in the current literature include the stigma that women face when experiencing intrusive thoughts and the general uncertainty of outpatient providers about the best follow up procedure. It is recommended for intrusive thoughts to be screened using repeated assessments with at least one administered between three to six months. Being mindful of postpartum milestones and risk factors can aid outpatient providers in prioritizing resources to patients who are at an increased risk, although universal screening is ideal. Common and effective settings for outpatient screening include postpartum or primary care appointments, home visits, and well-child visits.

No matter the setting, it is essential for outpatient providers to establish a robust follow up procedure with clear guidelines on how to move forward after a positive screen. Key characteristics for a follow up procedure include established relationships with perinatal mental health professionals and community resources. It is also important to utilize a multidisciplinary framework in the practice setting so that assessments and referrals can be streamlined with less patients falling through the cracks. Assessing for intrusive thoughts of infant-related harm is recommended to be done in a sensitive and compassionate manner, with considerations of the stigma and shame many women experience. Informing mothers that providers will not pursue child welfare services without additional risk factors and allowing space to discuss their symptoms through a semi-directive interview can help establish rapport. Essential characteristics of assessing risk and severity of intrusive thoughts include distinguishing whether they are ego-dystonic or ego-syntonic in nature. Throughout all assessment efforts for intrusive thoughts, it is vital to acquire a culturally humble lens in order to bridge gaps in maternal mental health treatment for women of color or women from low-income backgrounds.

Future Implications

This analysis can assist in guiding non-specialty providers in what tools to use for detecting intrusive thoughts, as well as providing a baseline of the characteristics needed to be developed to address this gap in maternal mental health treatment. Areas for further research include efforts to validate assessment tools that directly screen for intrusive thoughts of infant-related harm across wider settings and populations. In the five tools specifically identified in this review that cater to intrusive thought detection, research needs to be done in order to provide validation and data on their sensitivity, specificity, reliability, and validity.

This review has macro-level implications to help inform public health guidelines to include intrusive thought assessment along with efforts to detect PMADs. Since this review only included postpartum assessment strategies for intrusive thoughts, additional research can explore tools that can provide early detection for intrusive thoughts during the antenatal period. Additionally, further research is needed to investigate cultural differences in the existence of intrusive thoughts in order to expand the understanding of this symptom past what has been established in the western world. This review provided preliminary information about different assessment strategies used globally, and more research can be done to explore how more community-centered PMAD treatment can be implemented in outpatient settings in the United States. With this research, providers can ensure that the tools they are using are culturally and contextually appropriate for the populations they serve.

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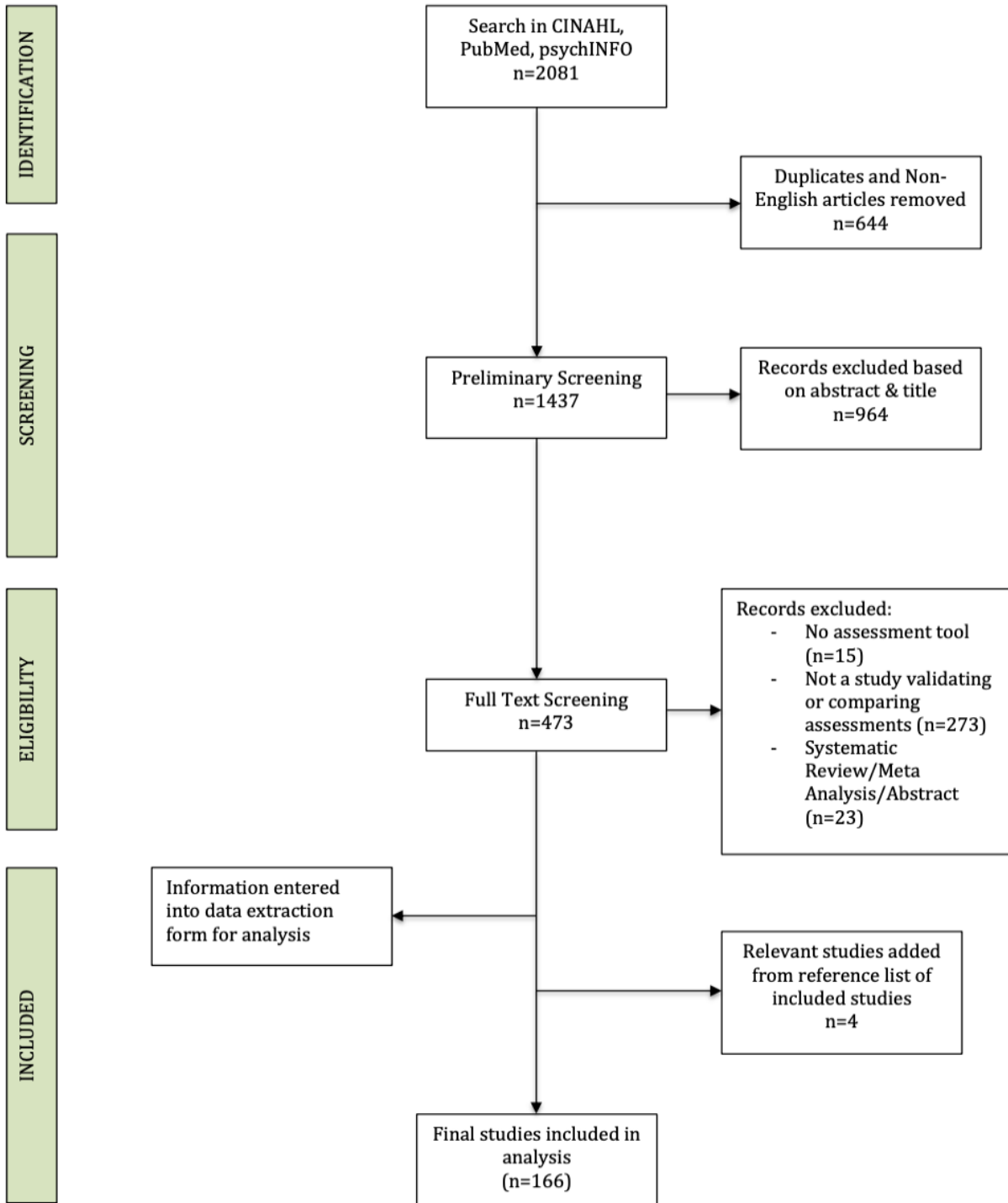
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APPENDICES

Appendix A: PRISMA Flow Chart of Search Strategy



(Moher, Liberati, Tetzlaff, & Altman, 2009)

Appendix B: Table of Frequency of Included Assessments, Countries, Languages, and Settings

Assessments	Frequency	Countries	Frequency	Languages	Frequency	Settings	Frequency
Edinburgh Postnatal Depression Scale (EPDS)	130	U.S.	49	English	92	Postpartum visit/primary care	38
Patient Health Questionnaire-9 (PHQ9)	22	U.K.	18	Spanish	22	Community clinic	20
BDI I&II	21	Australia	12	Chinese	7	Home visit	15
Postpartum Depression Screening Scale (PDSS)	16	Canada	8	Portuguese	6	Telephone	12
Structured Clinical Interview (SCID)	15	Chile	6	Swedish	5	Infant immunization/well child visit	11
Center for Epidemiologic Studies Depression Scale (CES-D)	9	Sweden	5	French	5	Online	7
Postpartum Depression Prediction Inventory (PDPI)	6	Mexico	4	Arabic	3	Other	6
Hamilton Depression Rating Scale	5	Brazil	3	Punjabi	3	Mail	3
Self Report Questionnaire	5	India	3	Chichewa	2	Social Service agency	2
Mini International Neuropsychiatric Interview	5	Portugal	3	German	2	Mental Health Provider	3
Composite International Diagnostic Interview	4	Spain	3	Hungarian	2		
General Health Questionnaire	4	France	2	Japanese	2		
Obsessional Beliefs Questionnaire-44	4	Hungary	2	Kannada	2		
Postpartum Intrusions Interview	4	Iran	2	Local Dialects	2		
Hospital Anxiety and Depression Rating Scale (HADS)	4	Italy	2	Norwegian	2		
New Instrument	4	Japan	2	Persian	2		
Kessler Scale 10	3	Malawi	2	Urdu	2		
Kessler Scale 6	3	New Zealand	2	Xhosa	2		
Pittsburgh Sleep Quality Index	3	Norway	2	Italian	2		
SF-12 Health Survey	3	Pakistan	2	Afrikaans	1		
Zung Self Rating Depression Scale	3	Peru	2	Amharic	1		
Yale-Brown Obsessive Compulsive Inventory	3	South Africa	2	Bangla	1		
Clinical Interview Schedule-Revised (CIS-R)	2	Taiwan	2	Burmese	1		
Eysenck Personality Questionnaire-Revised	2	Hong Kong	2	Greek	1		
Hopkins Symptom Checklist	2	Austria	1	Karen	1		
Interpretation of Intrusions Inventory	2	Bangladesh	1	Kiswahili	1		
Multidimensional Assessment of Fatigue Scale	2	Burkina Faso	1	Lingala	1		
Obsessive Compulsive Inventory-Revised (OCI-R)	2	Democratic Republic of Congo	1	Lithuanian	1		
Post-partum bonding questionnaire	2	Ethiopia	1	Mongolian	1		
Postnatal Negative Thoughts Questionnaire	2	Germany	1	Nepali	1		
Pregnancy Risk Assessment Monitoring System (PRAMS)	2	Ghana	1	Polish	1		
Social Support Questionnaire—Short Form	2	Greece	1	Potohari	1		
Staff	2	Kenya	1	Tagalog	1		
State Trait Anxiety Inventory	2	Lebanon	1	Taiwanese	1		
WHO Reporting Scale	2	Lithuania	1	Thai	1		
Dyadic Adjustment Scale	2	Mongolia	1	Turkish	1		
Medical Outcomes Study Social Support Survey	2	Myanmar	1	Twi	1		
Other	71	Malta	1	Vietnamese	1		
		Nepal	1	West African French	1		
		Nigeria	1	Maltese	1		
		Qater	1				
		Thailand	1				
		Turkey	1				
		U.A.E.	1				
		Poland	1				

Appendix C: Data extracted from intrusive thought-specific assessment tools

Assessment	Description	Method of Administration	Languages	Length	Validity	Reliability	Sensitivity	Specificity
Postpartum Intrusions Interview	A directed interview with three main sections: 1) Assessing for thoughts of accidental harm, 2) Assessing thoughts of intentional harm, and 3) Assessing history and persistence of thoughts.	Clinician	English	Variable	Undetermined	Undetermined	Undetermined	Undetermined
Interpretation of Intrusions Inventory	Participants start by identifying at least two intrusive thoughts or images that they have recently experienced, and at what frequency. Participants then complete questionnaires, rating different intrusive thoughts on a scale between 0 and 100.	Self-Report	English	31 items	Good convergent validity, Low discriminant validity	Acceptable, Good Test-Retest Reliability	Undetermined	Undetermined
Postnatal Negative Thoughts Questionnaire	Participants read through a list of possible intrusive thoughts, and indicate the frequency they have also had that thought in the weeks following birth on a scale from 0 to 3.	Self-Report	English	17 items	Acceptable	Acceptable	Undetermined	Undetermined
Postpartum Depression Predictors Inventory	There is both a prenatal and postnatal version of this assessment. The postnatal version has the same 32 base items with an additional 7 items that assess for risk factors, child care stress, difficult infant temperament, and maternity blues. Each item details a specific maternal experience, and participants indicate which ones they have experienced during the given timeframe.	Self-Report	English, Portuguese	39 items	Acceptable	Moderate to Acceptable	73-83%	54-94%
Parental Thoughts and Behaviors Checklist	This assessment was derived from a semi-structured interview measure, and the items include a list of possible intrusive thoughts and related behaviors. Participants indicate yes/no/earlier for each item, and have the option to expand on the time, distress, and resistance to each thought or behavior.	Self-Report	English, Swedish	100 items	Acceptable	Undetermined	Undetermined	Undetermined

(Hall & Papageorgio, 2005; Hall & Wittkowski, 2006; Obsessive Compulsive Cognitions Working Group, 2003; Obsessive Compulsive Cognitions Working Group, 2005; Thiséus, Perrin, & Cervin, 2019; Fairbrother & Woody, 2008; Collardeau et al., 2019; Abramowitz, Nelson, Rygwall, & Khandker, 2007; Alves, Fonseca, Canavarro, & Pereira, 2018; Beck, 2002; Beck, Records, & Rice; 2006; Alves, Fonseca, Canavarro, & Pereira, 2019)

Appendix D: Google Form for Data Extraction

Search Info

* Required

1. Reviewer *

Mark only one oval.

Reviewer 1

Reviewer 2

2. Date *

Example: December 15, 2012

3. Database *

Mark only one oval.

CINAHL

PUBMED

PSYCHINFO

4. Keywords *

Study Info

5. Title *

6. Author(s) *

7. Year *

8. Journal *

9. Written in English? *

Mark only one oval.

Yes

No

10. Type of Study *

Mark only one oval.

- Validation or Evaluation of Assessment
- Comparison of Assessments
- Other: _____

11. Sampling Method *

Mark only one oval.

- Probability sampling (uses random sampling techniques)
- Non-probability sampling (use non-random processes such as researcher judgement or convenience sampling)

Domains

12. Assessment *

Mark only one oval.

- Edinburgh Postpartum Depression Scale
- Postpartum Depression Screening Scale
- Center for Epidemiological Studies Depression Scale
- Beck Depression Scale (I and II)
- Patient Health Questionnaire - 9
- Mood Disorder Questionnaire
- Bromley Postnatal Depression Scale
- Birmingham Interview of Maternal Mental Health
- Other: _____

Demographics

13. Races Included *

Check all that apply.

- White/Caucasian/Non-Hispanic
- African American/Black
- White/Hispanic
- Asian
- Native Hawaiian/Pacific Islander
- Native American/Alaskan Native
- Other: _____

14. Country of Origin *

15. **Language in which assessment was administered ***

Setting

16. **Setting ***

Mark only one oval.

- Inpatient
 Outpatient
 N/A

17. **If outpatient, describe setting (i.e. PCP, clinic, home visit, etc)**

Length/Sustainability

18. **Method ***

Mark only one oval.

- Self-Administered
 Clinician administered
 N/A

19. **Duration of Assessment (minutes) ***

Mark only one oval.

- <5
 5-10
 10-15
 15-20
 20-30
 >30
 Not found.
 N/A

20. **Page Count of Assessment**

Content

21. **Sensitivity %**

22. **Specificity %**

23. **Included Qs about Depression ***

Mark only one oval.

Yes

No

N/A

24. **Describe**

25. **Included Qs about Infant-Related Harm ***

Mark only one oval.

Yes

No

N/A

26. **Describe**

27. **Included Qs about Self-Harm ***

Mark only one oval.

Yes

No

N/A

28. Describe

29. Included Qs about Past Mental Health History *

Mark only one oval.

- Yes
 No
 N/A

30. Describe

31. Summary of questions included in the assessment/questionnaire

32. Included Follow Up Questions after Assessment? *

Mark only one oval.

- Yes
 No
 N/A

33. Describe

34. Included Recommendations for Next Steps *

Mark only one oval.

- Yes
- No
- N/A

35. Describe

36. Summary of limitations

Final Decision Audit

37. Include or exclude? *

Mark only one oval.

- Include
- Exclude

38. If excluded, why?

Check all that apply.

- Wrong language
- Duplicate study
- Article not available in full text
- Doesn't use an assessment tool
- Wrong disease/condition
- Wrong outcome
- Irrelevant
- Systematic review or meta-analysis
- Other: _____