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Paternal perinatal depression: A concept analysis

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Abstract

Aim: Our aim is to clarify the concept of paternal perinatal depression including its definition, attributes, antecedents and consequences.

Design: A concept analysis.

Methods: To obtain relevant evidence, several databases were searched systematically including PubMed, EMBASE, Web of Science, CINAHL, PsycINFO and the Cochrane Library. Qualitative or quantitative articles published in English that focused on paternal perinatal depression were included. After the literature quality assessment, Walker and Avant's concept analysis strategy was used.

Results: Five defining attributes (i.e. symptoms occur during the partner's pregnancy or 1-year postpartum and last at least 2 weeks, emotional symptoms, somatic symptoms, negative parenting behaviours and 'masked' symptoms), four antecedents (i.e. personal issues, pregnancy-related issues, infant-related issues, social issues) and three consequences (i.e. offspring outcomes, marital relationship, maternal negative emotions) were identified.

KEYWORDS
concept analysis, depression, fathers, paternal depression, perinatal, postpartum, pregnancy

1 | INTRODUCTION

Depression is a common mental disorder with about 5% of adults aged 18 years and older worldwide suffer from it (World Health Organization, 2021). Perinatal depression is a specific type (American Psychiatric Association, 2013) of depression that is one of the most common complications for women that occur during pregnancy or 1 year after birth (American College of Obstetricians and Gynecologists, 2015). Perinatal depression can adversely affect birth outcomes and the psychological and behavioural outcomes of offspring in the long term (Van Niel & Payne, 2020). In the perinatal period, fathers may also suffer from depression which is termed paternal perinatal depression. Studies have shown that the prevalence of paternal perinatal depression is considerably higher than in the general adult population. For example, a meta-analysis showed that the prevalence of depression among fathers was 9.76% during the prenatal period and 8.75% during 1-year postpartum (Rao et al., 2020). Paternal perinatal depression can deteriorate the marital relationship and psychosocial and behavioural problems in offspring (Cui et al., 2020; Ramchandani et al., 2005). However, paternal perinatal depression has received comparatively little attention in the clinical settings.

A unified concept or consensus on paternal perinatal depression has not been developed. Some studies defined it as depression that occurred among fathers during their partner's pregnancy or the first year after delivery (Habib, 2012; Rees, 1971), while other studies defined the time period as 6 months after delivery (Carlberg et al., 2018). Several studies illustrate that fathers and mothers show different manifestations of depression. Substance abuse, risky behaviours and emotional rigidity are common in paternal perinatal depression

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among fathers while not for mothers (Edhborg et al., 2016; Pedersen et al., 2021; Recto & Lesser, 2021). Moreover, traditional masculinity norms might result in a lack of recognition of paternal perinatal depression among medical staff, resulting in barriers to its diagnosis and treatment (Veskrna, 2010). A separate and in-depth comprehension of the concept of paternal perinatal depression is needed.

As stated by Chinn (Chinn & Jacobs, 1983), concepts are the 'building blocks' of theories, we aimed to clarify the concept of paternal perinatal depression which could provide the public, especially obstetricians, nurses and midwives with a better understanding of paternal perinatal depression.

2 | METHODS

2.1 | Approach to concept analysis

Concept analysis is a strategy used for examining concepts for their semantic structure. We used the approach of Walker and Avant (2019), a well-known method that has been widely used in the literature to explore health-related concepts. This method consists of eight steps. In this concept analysis, we (a) selected the concept, (b) determined the aims of the analysis, (c) identified uses of the concept, (d) determined the defining attributes of the concept, (e) constructed a model case, (f) constructed borderline and contrary cases, (g) identified antecedents and consequences and (h) defined empirical referents. A common criticism of conceptual analysis is that its results are often judged by one author which leads to overly influenced by this researcher (Beckwith et al., 2008). We, therefore, worked in a group consisted of five key persons: (1) two specialists in the field of perinatal depression, (2) two Registered Nurses who had experience of working in the departments of paediatrics and obstetrics and (3) a researcher who had extensive experience of conducting literature review.

2.2 | Search strategy

To obtain as much relevant evidence as possible, the following databases were searched from the date the electronic databases became available until April 2022: PubMed, PsycINFO, CINAHL, Web of Science, Cochrane Library and EMBASE. The search terms were (depression OR depressive disorder) AND (father* OR male OR men OR dad*) AND (pregnan* OR postpartum OR perinatal OR prenatal OR peripartum OR postnatal). These search terms were revised according to the specificities of each database. A combination of MeSH terms and free-text searches was used. The search strategy is detailed in Table S1. The search terms were determined by a joint discussion among the five team members. The process of searching electronic databases was accomplished by a researcher experienced in searching to ensure the correctness of the search process and results. In the process of screening the full text, we also perform a manual search based on the references.

2.3 | Inclusion and exclusion criteria

Articles were included if they (a) explored or examined paternal depression during the perinatal period, (b) were peer-reviewed quantitative or qualitative studies and (c) were available in English.

Articles were excluded if they (a) both examined anxiety and other psychiatric disorders, but results of depression were not reported separately, (b) studied both fathers and mothers, but outcomes for fathers were not reported separately, (c) did not include definition, attributes, antecedents, consequences or empirical referents, (d) no full text.

Two researchers (Author 1 and Author 2) were independently screened by title and abstract according to inclusion and exclusion criteria. Disagreements were judged by a third researcher (Author 3). After that, full texts that met the criteria were screened.

2.4 | Quality assessment

Considering the diverse study designs in the included studies, the Joanna Briggs Institute's (JBI) critical appraisal tools were used. The quantitative studies involved in this study included cohort studies and cross-sectional studies. Checklist for cohort studies was used for cohort studies, and checklist for analytical cross-sectional studies was used for cross-sectional studies. In addition, the current concept analysis also included qualitative studies, which used the checklist for qualitative studies to assess the quality of the literature. All items in the checklist were ranked as 'yes', 'no' or 'unclear'. Studies with weak ratings were excluded. The evaluation of literature quality was performed independently by two researchers (Author 1 and Author 2), and controversial items were judged by a third researcher (Author 3). There were 15 cohort studies, of which one ranked 11, two ranked 10, three ranked 9 and nine ranked 8. There were 23 cross-sectional studies, of which two ranked 8, twelve ranked 7, eight ranked 6 and one ranked 4. There were four qualitative studies, of which one ranked 8 and three ranked 7. The table of literature quality assessment is detailed in Table S2. The literature search flow chart is shown in Figure 1.

3 | RESULTS

We initially searched for over 20,000 titles. After initial screening and full-text reading, a total of 42 articles were included according to the inclusion and exclusion criteria. Subsequently, a literature quality assessment was performed, and a total of 41 articles were finally included. Table S3 shows the characteristics of the included studies. Twenty-two were cross-sectional studies, 15 were cohort studies and four were qualitative studies. The majority of the studies were carried out in the United States ($n=7$), the United Kingdom ($n=7$), Canada ($n=4$) and China ($n=5$).

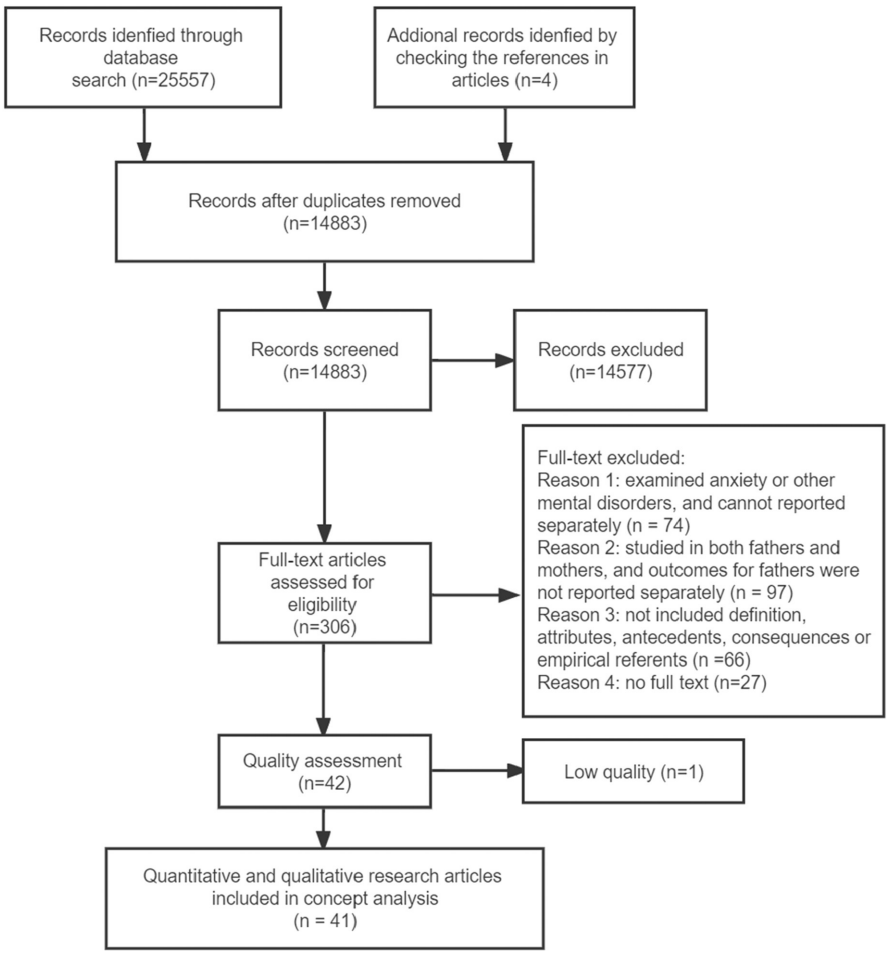

FIGURE 1 Flow chart of the literature search.

3.1 | Uses of the concept

Initially, Merriam-Webster's dictionary and Oxford dictionary were consulted. But we did not find a complete explanation of 'paternal perinatal depression'. So, the phrase was split into 'paternal', 'perinatal' and 'depression'. The meaning of 'paternal' is the same in both dictionaries, meaning 'of or relating to a father or fathers' (Merriam-Webster, 2016; Oxford, 2004). The meaning of 'perinatal' in both dictionaries is similar but slightly different. Merriam-Webster's dictionary defines it as 'occurring in, concerned with, or being in the period around the time of birth' (Marriam-Webster, 2016); the Oxford dictionary defines it as 'of or relating to the period comprising the latter part of fatal life and the early post-natal period' (Oxford, 2004). The meaning of 'depression' in Merriam-Webster's dictionary is an act of depression or a state of being depressed: such as a reduction in activity, amount, quality or force; a lowering of the physical or mental vitality or functional activity or a pressing down (Marriam-Webster, 2016). In the Oxford Dictionary, the meaning is similar, but the expressions differ slightly. 'Depression is frequently a sign of psychiatric disorder or a component of various psychoses, with symptoms of misery, anguish, or guilt accompanied by headache, insomnia, etc.' (Oxford, 2004).

Most studies have focused on paternal postnatal depression. Fewer studies focused on perinatal period. In 1971, the first study to measure parental perinatal depression came out, which defined the paternal perinatal depression as depression that occurs during pregnancy and 12-month period following delivery (Rees, 1971). In 2012, Habib et al. referred to paternal perinatal depression as depression that occurs during the partner's pregnancy and 1 year after delivery. Immediately afterwards in 2014, Gawlik et al. defined perinatal depression in fathers as depression that occurs in the pre- and postnatal period, but is unspecified as to the exact duration of perinatal depression. In 2018, Carlberg et al. referred to paternal perinatal depression as depression occurs during partner's pregnancy and 6 months after delivery. Most studies have simply adopted the term 'paternal perinatal depression' without clearly elaborating on this concept.

3.2 | Defining attributes of paternal perinatal depression

Defining attributes is a key step in concept analysis, and it is also a key characteristic of a concept (Walker & Avant, 2019). Based on our literature review and our work experience, five key defining attributes were shown in Table 1: Symptoms occur during the partner's pregnancy or 1-year postpartum and last at least 2 weeks, emotional symptoms, somatic symptoms, negative parenting behaviours and 'masked' symptoms.

TABLE 1 Attributes, antecedents and consequences of paternal perinatal depression.

	Dimension	Description	References
Attributes	Symptoms occur during the partner's pregnancy or 1-year postpartum and last at least 2 weeks		American Psychiatric Association (2013), Gawlik et al. (2014), Rees (1971)
	Emotional symptoms	Low mood	Ballard et al. (1994), Recto and Lesser (2021)
		Loss of interest	Ballard et al. (1994)
		Negative thoughts	Recto and Lesser (2021)
		Powerlessness	Edhborg et al. (2016), Pedersen et al. (2021)
		Overwhelmed	Eddy et al. (2019), Pedersen et al. (2021)
		Self-criticism	Edhborg et al. (2016), Shaheen et al. (2019)
		Withdrawal and avoidance	Ballard et al. (1994), Pedersen et al. (2021)
	Somatic symptoms	Sleep issues	Ballard et al. (1994), Kalogeropoulos et al. (2021), Shaheen et al. (2019)
		Exhaustion	Ballard et al. (1994), Shaheen et al. (2019)
		Appetite loss	Ballard et al. (1994)
		Weight loss	Ballard et al. (1994)
		Poor concentration	Ballard et al. (1994)
	Negative parenting behaviours	Inadequate	Edhborg et al. (2016), Pedersen et al. (2021)
		Less interaction with children	Bronte-Tinkew et al. (2007), Sethna et al. (2015)
		Resentment of infant	Eddy et al. (2019), Pedersen et al. (2021)
	'Masked' symptoms	Substance use	Ballard et al. (1994), Edhborg et al. (2016), Recto and Lesser (2021)
		Risk-taking behaviours	Shaheen et al. (2019)
		Irritability	Shaheen et al. (2019)
		Emotional rigidity	Shaheen et al. (2019)
Antecedents	Personal issues	History of psychiatric disorder	Akiko et al. (2015), Da Costa et al. (2017), Fletcher et al. (2011), Gawlik et al. (2014), Huang and Warner (2005), Koh et al. (2014), Massoudi et al. (2016), Nishigori et al. (2020), Nishimura and Ohashi (2010), Philpott and Corcoran (2018), Ramchandani, Stein, et al. (2008), Suto et al. (2016), Underwood et al. (2017)
		Marital status	Chung et al. (2011), Huang and Warner (2005), Philpott and Corcoran (2018), Underwood et al. (2017)
		Negative life events	Abdollahi et al. (2021), Chung et al. (2011), Da Costa et al. (2017), Edhborg et al. (2016), Massoudi et al. (2016)
		Poor employment status	Ballard et al. (1994), Bronte-Tinkew et al. (2007), Chung et al. (2011), Fentz et al. (2019), Nath et al. (2016), Nishigori et al. (2020), Nishimura and Ohashi (2010), Roubinov et al. (2014)
		Income/financial worries	Abdollahi et al. (2021), Akiko et al. (2015), Bergström (2013), Da Costa et al. (2017), Fentz et al. (2019), Jia et al. (2020), Nath et al. (2016), Nishigori et al. (2020), Philpott and Corcoran (2018)
		Education level	Bergström (2013), Massoudi et al. (2016), Ramchandani, Stein, et al. (2008)
		Adverse experience	Bronte-Tinkew et al. (2007), Fentz et al. (2019), Recto and Lesser (2021)

TABLE 1 (Continued)

	Dimension	Description	References
	Pregnancy-related issues	Unintended pregnancy	Fentz et al. (2019), Gray et al. (2018), Nishimura and Ohashi (2010), Top et al. (2016)
		Mode of delivery	Pedersen et al. (2021), Yin-Ping et al. (2016)
		Obstetric complication	Pedersen et al. (2021), Philpott and Corcoran (2018)
		Maternal perinatal depression	Abdollahi et al. (2021), Akiko et al. (2015), Chung et al. (2011), Da Costa et al. (2019), Massoudi et al. (2016), Nath et al. (2016), Nishigori et al. (2020), Pedersen et al. (2021), Ramchandani, Stein, et al. (2008), Shaheen et al. (2019), Yin-Ping et al. (2016)
	Infant-related issues	Health status of the infant	Nishigori et al. (2020)
		Number of children	Abdollahi et al. (2021), Jia et al. (2020), Massoudi et al. (2016), Ramchandani, Stein, et al. (2008), Roubinov et al. (2014)
	Social issues	Social support	Alghamdi et al. (2020), Chung et al. (2011), Da Costa et al. (2017), Edhborg et al. (2016), Gray et al. (2018), Koh et al. (2014), Philpott and Corcoran (2018), Shaheen et al. (2019)
		Work–family conflict	Alghamdi et al. (2020), Koh et al. (2014), Pedersen et al. (2021), Shaheen et al. (2019), Top et al. (2016)
		Masculine norm	Chung et al. (2011), Eddy et al. (2019), Edhborg et al. (2016), Massoudi et al. (2016)
Consequences	Offspring outcomes	Behavioural problems	Ramchandani et al. (2005), Ramchandani, O'Connor, et al. (2008)
		Psychological disorders	Fletcher et al. (2011), Ramchandani, O'Connor, et al. (2008), Ramchandani, Stein, et al. (2008)
	Marital relationship		Akiko et al. (2015), Alghamdi et al. (2020), Bergström (2013), Da Costa et al. (2019), Da Costa et al. (2017), Demontigny et al. (2013), Edhborg et al. (2016), Gawlik et al. (2014), Gray et al. (2018), Koh et al. (2014), Massoudi et al. (2016), Nath et al. (2016), Roubinov et al. (2014), Shaheen et al. (2019), Top et al. (2016), Yin-Ping et al. (2016)
	Maternal negative emotions		Chung et al. (2011), Edhborg et al. (2016), Massoudi et al. (2016), Pedersen et al. (2021)

3.2.1 | Symptoms occur during the partner's pregnancy or 1-year postpartum and last at least 2 weeks

Chinese and American College of Obstetricians and Gynaecologists define the period of maternal perinatal depression as occurring between pregnancy and 1-year postpartum (American College of Obstetricians and Gynecologists, 2015; Obstetrics and Gynaecology Section of the Chinese Medical Association, 2021). According to the DSM-5 for the diagnosis of depression, the symptoms need to last for at least 2 weeks (American Psychiatric Association, 2013).

3.2.2 | Emotional symptoms

The most prominent manifestation of paternal perinatal depression is a low mood (Ballard et al., 1994; Recto & Lesser, 2021). In addition, powerlessness (Edhborg et al., 2016; Pedersen et al., 2021) and being overwhelmed are also common emotional symptoms (Eddy et al., 2019; Pedersen et al., 2021). Other emotional symptoms include self-criticism (Edhborg et al., 2016; Shaheen et al., 2019), have negative thoughts especially self-injury and suicide tendencies (Recto & Lesser, 2021), loss of interest (Ballard et al., 1994), withdrawal and avoidance (Ballard et al., 1994; Pedersen et al., 2021).

3.2.3 | Somatic symptoms

Many somatic symptoms have been reported in fathers with perinatal depression, the most common of which are sleep problems (i.e. sleep fragmentation, sleep deprivation and poor sleep quality) (Ballard et al., 1994; Kalogeropoulos et al., 2021; Shaheen et al., 2019) and exhaustion (Ballard et al., 1994; Shaheen et al., 2019). Other somatic dysfunction includes loss of appetite, weight loss, less physical activity and poor concentration (Ballard et al., 1994).

3.2.4 | Negative parenting behaviours

Negative parenting behaviours are characteristic of paternal perinatal depression. It mainly includes feelings of inadequacy (a sense of lack of knowledge and confidence in parenting; Pedersen

et al., 2021), resentment of the infant (Eddy et al., 2019; Pedersen et al., 2021) and less interaction such as communication and physical contact with children (Boyce et al., 2007; Sethna et al., 2015).

3.2.5 | 'Masked' symptoms

The manifestations of depression in men and women have several differences. Due to the masculine norms, men tended to 'mask' their symptoms. Depressed father may manifest as substance abuse, such as alcohol or drugs (Ballard et al., 1994; Edhborg et al., 2016; Recto & Lesser, 2021). They also engaged in risk-taking behaviours, such as speeding driving and gambling (Shaheen et al., 2019). Fathers also showed more aggression and irritability than depressed mothers (Shaheen et al., 2019). In addition, fathers are inability or marked difficulty in empathizing with another person's feelings as well as the failure to be emotionally influenced by differing situations—emotional rigidity (Edhborg et al., 2016; Pedersen et al., 2021; Recto & Lesser, 2021).

3.3 | Cases

Cases help further clarify concepts (Walker & Avant, 2019). Model and contrary cases are constructed in the following section.

3.3.1 | Model case

The model case is the example that contains all the defined attributes (Walker & Avant, 2019).

Mr. Liu was a company employee, with a high school education and a cheerful personality. At the age of 30, he married Ms. Wang who was 3 years younger than him. They lived a happy life after the marriage. A year after the marriage, his wife got pregnant. Since becoming pregnant, she has stopped working and stayed home to take care of herself and the foetus. In the first 3 months of pregnancy, Mr. Liu had been looking forward to the birth of his baby. During his free time, he often cooked meals for his wife and accompanied her to medical check-ups. He sang songs and told stories to the foetus every night. Unfortunately, when his wife was 4 months pregnant, the Covid-19 outbreak and the company Mr. Liu worked closed down. At first, he hid the collapse of his company from his wife, thinking he would soon find work. By the time, his wife was 6 months pregnant, he still had not found a stable job and could only do temporary work. Facing the monthly car loan and mortgage, Mr. Liu felt great pressure. He had poor appetite and lost 10 kg in a month; he also suffered from insomnia and nightmares in which he and his children starved to death and became beggars, and he felt very tired when he woke up (*somatic symptoms*). At first, his wife encouraged him, telling him that everything would be fine. But Mr. Liu still failed to find a stable job until the child was about to be born. His wife's complaints increased and they argued more and more frequently. After many quarrels and failed job hunting, Mr. Liu began to doubt himself and felt that he was not a good father or husband (*emotional symptoms*). He could not afford the mortgage or find a job to provide a stability for his wife and child. He felt powerless and even thought that he should not get married (*emotional symptoms*). Gradually, he became more and more silent and even wanted to suicide sometimes (*emotional symptoms*). This situation lasted for 2 months (*symptoms occur during the partner's pregnancy or 1-year postpartum and lasting at least 2 weeks*). In the eighth month of his wife's pregnancy, he became addicted to smoking and drinking (*masked symptoms*). Although he still cared about his wife, he would lose his temper with her whenever she mentioned work or the child (*masked symptoms*). He got a steady job around the time his son was born. However, his child often cried late at night, disrupting his sleep. As a result, he was tired during the day and was often criticized for making mistakes at work. Therefore, he hated his child very much. He did not even look at him when he returned home every day, and never took the initiative to hold him (*negative parenting behaviours*). He even thought that all the difficulties and pressures he suffered were due to the child, so he hoped that the child would suddenly disappear. Once when the child cried, he slapped the child severely (negative parenting behaviours). His wife began to distance herself from him and prepared to divorce.

3.3.2 | Contrary case

Mr. Wang, an introverted programmer with a graduate degree, got married at 32. His wife was a hospital nurse with an outgoing personality. When the Covid-19 epidemic broke out, their income was not greatly affected. His wife wanted to wait 2 years to have a baby, and Mr. Wang was very much in favour of that. Because of the pandemic, they could not travel or do outdoor sports. But he and his wife often exercise, cook and watch movies at home. Two years after their marriage, Mr. Wang and his wife started to actively prepare for pregnancy. Luckily, his wife got pregnant after 2 months of preparation. During the pregnancy, Mr. Wang often accompanied his wife and expressed his love to her. He also taught himself about foetal education and child-rearing. He accompanied his wife in every prenatal examination and often accompanied her to take a walk and do some simple exercises. In order to make his wife happy and let her have a good mood every day, he also learned magic. Every time he saw his wife smile, he was also happy. He and his wife eat and sleep regularly every day, and they were both emotionally stable. After the birth of their daughter, Mr. Wang regularly accompanied his wife to do postnatal rehabilitation exercises and brought up the child with his wife. Although his daughter cried almost every night, he never complained. On the contrary, he understood his wife's difficulties and took the initiative to appease his daughter, feed her formula and change her diapers. He loved his daughter very much, and he wanted to do his best to be a husband and father. With the joint efforts of him and his wife, the three of them lived a happy life (*no emotional symptoms or masked symptoms of depression during the perinatal period, nor any somatic symptoms or negative parenting behaviours*).

3.4 | Antecedents of paternal perinatal depression

Events that must occur before the concept occurs are called antecedents (Walker & Avant, 2019). The antecedents can be summarized in four areas: personal issues, pregnancy-related issues, infant-related issues and social issues (Table 1).

3.4.1 | Personal issues

Several studies have shown that a history of psychiatric disorder is associated with perinatal depression in fathers. Fathers with a history of mental illness are more likely to suffer from perinatal depression (Akiko et al., 2015; Da Costa et al., 2017; Fletcher et al., 2011; Gawlik et al., 2014; Huang & Warner, 2005; Koh et al., 2014; Massoudi et al., 2016; Nishigori et al., 2020; Nishimura & Ohashi, 2010; Philpott & Corcoran, 2018; Ramchandani, Stein, et al., 2008; Suto et al., 2016; Underwood et al., 2017).

Poor employment status is associated with perinatal depression in fathers. If fathers did not have a stable job, the risk of paternal depression increased (Ballard et al., 1994; Bronte-Tinkew et al., 2007; Chung et al., 2011; Fentz et al., 2019; Nath et al., 2016; Nishigori et al., 2020; Nishimura & Ohashi, 2010; Roubinov et al., 2014). Studies have found that income and financial worries, such as living in a rented house, can contribute to perinatal depression in fathers (Abdollahi et al., 2021; Akiko et al., 2015; Bergström, 2013; Da Costa et al., 2017; Fentz et al., 2019; Jia et al., 2020; Nath et al., 2016; Nishigori et al., 2020; Philpott & Corcoran, 2018).

Marital status can be associated with perinatal depression in fathers. The risk of depression increases in descending order among fathers who are married, cohabiting and single (Chung et al., 2011; Huang & Warner, 2005; Philpott & Corcoran, 2018; Underwood et al., 2017).

Negative life events during pregnancy to 1-year postpartum such as physical illness and death of relatives are also risk factors for perinatal depression in fathers (Abdollahi et al., 2021; Chung et al., 2011; Da Costa et al., 2017; Edhborg et al., 2016; Massoudi et al., 2016). In addition, a low education level (Bergström, 2013; Massoudi et al., 2016; Ramchandani, Stein, et al., 2008) and adverse experiences such as adverse childhood experiences (Fentz et al., 2019; Recto & Lesser, 2021) and criminal history (Bronte-Tinkew et al., 2007) are antecedents of paternal perinatal depression.

3.4.2 | Pregnancy-related issues

Unintended pregnancy or parental disagreement about pregnancy is associated with paternal perinatal depression. If the father did not want a baby, the pregnancy will increase the risk of paternal perinatal depression (Fentz et al., 2019; Gray et al., 2018; Nishimura & Ohashi, 2010; Top et al., 2016). The mode of delivery such as normal delivery or caesarean section (Pedersen et al., 2021; Yin-Ping et al., 2016), and the occurrence of obstetric complications such as umbilical cord prolapse and pre-eclampsia during delivery are also risk factors of paternal depression (Pedersen et al., 2021; Philpott & Corcoran, 2018). In addition, if the mother suffers from perinatal depression, the father is at elevated risk of suffering from perinatal depression (Abdollahi et al., 2021; Akiko et al., 2015; Chung et al., 2011; Da Costa et al., 2017; Da Costa et al., 2019; Massoudi et al., 2016; Nath et al., 2016; Nishigori et al., 2020; Pedersen et al., 2021; Ramchandani, Stein, et al., 2008; Shaheen et al., 2019; Yin-Ping et al., 2016).

3.4.3 | Infant-related issues

Health conditions of the infant are associated with perinatal depression in fathers. If the baby has a congenital disease or is hospitalized in the NICU, which increases the risk of depression in the father (Nishigori et al., 2020). In addition, the number of children is negatively correlated with the level of depression (Abdollahi et al., 2021; Jia et al., 2020; Massoudi et al., 2016; Ramchandani, Stein, et al., 2008; Roubinov et al., 2014).

3.4.4 | Social issues

Broader kin and friend support—social support—is associated with the occurrence of perinatal depression in fathers. Low levels of social support can lead to an increased incidence of perinatal depression in fathers (Alghamdi et al., 2020; Chung et al., 2011; Da Costa et al., 2017; Edhborg et al., 2016; Gray et al., 2018; Koh et al., 2014; Philpott & Corcoran, 2018; Shaheen et al., 2019).

Generally, the father is the main provider of family income. After the birth of a new baby, family expenses will increase significantly. However, since raising a baby is an essential family event, fathers may not work full time as they did before, which can lead to work–family conflict. Work–family conflict can lead to an increased occurrence of depression (Alghamdi et al., 2020; Koh et al., 2014; Pedersen et al., 2021; Shaheen et al., 2019; Top et al., 2016).

The last worth noting is the masculine norm, the stereotype of men is 'tough'. Research shows that stereotypical demands or impressions imposed on men may lead to fathers not expressing emotions and being more likely to be depressed (Eddy et al., 2019; Edhborg et al., 2016; Massoudi et al., 2016).

3.5 | Consequences of paternal perinatal depression

Events caused by the occurrence of a concept are defined as consequences (Walker & Avant, 2019). The consequences of this concept analysis include offspring issues, marital relationship and maternal negative emotions (Table 1).

3.5.1 | Offspring outcomes

Paternal perinatal depression may lead to psychological and behavioural problems in offspring. Studies have shown that perinatal depression in fathers is associated with behavioural problems in offspring at age 3.5 years (Ramchandani et al., 2005; Ramchandani, O'Connor, et al., 2008) and psychological disorders at age 7 years (Ramchandani, O'Connor, et al., 2008; Ramchandani, Stein, et al., 2008). Meanwhile, studies have shown that paternal depression has a greater impact on behavioural problems in boys and a greater impact on emotional problems in girls (Fletcher et al., 2011).

3.5.2 | Marital relationship

Depressed fathers can lead to changes in the maternal relationship. Some studies reveal fathers want a divorce if it is not for the sake of their infants. Depressed fathers also experience more arguments, conflict and frustration in their dealings with their partner (Akiko et al., 2015; Alghamdi et al., 2020; Bergström, 2013; Da Costa et al., 2017; Da Costa et al., 2019; Demontigny et al., 2013; Edhborg et al., 2016; Gawlik et al., 2014; Gray et al., 2018; Koh et al., 2014; Massoudi et al., 2016; Nath et al., 2016; Roubinov et al., 2014; Shaheen et al., 2019; Top et al., 2016; Yin-Ping et al., 2016).

3.5.3 | Maternal negative emotions

Paternal perinatal depression can lead to maternal negative emotions, such as anxiety, anger or sadness (Edhborg et al., 2016; Pedersen et al., 2021), even maternal perinatal depression (Chung et al., 2011; Massoudi et al., 2016).

3.6 | Empirical references

This step is to identify the empirical referents associated with the concept. The empirical referents are measurements of concepts in the real world. By analysing the empirical referents, it is possible to understand the gap between current theoretical developments and real-world practice (Walker & Avant, 2019).

We identified six scales that have been used to assess paternal perinatal depression: Centre for Epidemiologic Studies Depression Scale (Radloff, 1977), Edinburgh Postnatal Depression Scale (Cox et al., 1987), the Gotland Male Depression Scale (Rutz et al., 1995), the Patient Health Questionnaire-9 (Spitzer et al., 1999), the Kessler Psychological Distress Scale (K6) (Kessler et al., 2002), the Kessler Psychological Distress Scale (K10) (Kessler et al., 2002). The attributes of paternal perinatal depression measured by each scale are show in Table 2. Most scales only capture two key attributes: emotional symptoms and somatic symptoms, with little coverage of negative parenting behaviours and 'masked' depressive attributes. Most scales are not specific to the perinatal period, while Edinburgh Postnatal Depression Scale, the only perinatal-specific instrument, is designed for maternal perinatal depression and does not cover some typical characteristics of fathers, which can easily lead to underscreening of fathers with perinatal depression. Paternal perinatal depression includes many complex attributes, and validated tools to identify the overall attributes of paternal perinatal depression have not been developed.

3.7 | Definition of the concept

Following the above analysis, we defined paternal perinatal depression as the occurrence in a father when a partner is pregnant or 1-year postpartum and last for at least 2 weeks, with symptoms that include emotional symptoms, somatic symptoms, negative parenting behaviours and 'masked' symptoms such as risk-taking behaviours, substance abuse, irritability and emotional rigidity. Paternal perinatal depression is usually caused by personal issues, pregnancy-related issues, infant issues and social issues, and can lead to psychological and behavioural problems in offspring, marital relationship and maternal negative emotions. Finally, a conceptual framework of paternal perinatal depression was constructed (Figure 2).

4 | DISCUSSION

To our knowledge, this is the first concept analysis of paternal perinatal depression. We have identified this concept's defining attributes, antecedents, consequences and empirical referents through a systematic search of the literature, rigorous quality assessment and information extraction.

Identifying the attributes of paternal depression is crucial for understanding its concept. We defined a total of five attributes, of which emotional symptoms, somatic symptoms and negative parenting behaviours were similar to maternal perinatal depression according to the National Institute of Mental Health (NIMH) and Centers for disease control and prevention (CDC) definitions (Centers for disease control and prevention, 2022; National Institute of Mental Health, 2020). For the attribute on the timing of paternal perinatal depression, different organizations give different time ranges. In DSM-5, American Psychiatric Association explained perinatal depression as depression occurs during pregnancy or in the 4 weeks following delivery (American Psychiatric Association, 2013). However, both the American and Chinese associations of obstetricians and gynaecologists extended the period of perinatal depression to pregnancy and the year after delivery (American College of Obstetricians and Gynecologists, 2015; Obstetrics and Gynaecology Section of the Chinese Medical Association, 2021), while some studies of paternal perinatal depression also defined it as this period (Habib, 2012; Rees, 1971). Thus, we define paternal perinatal depression to occur during the partner's pregnancy or 1-year postpartum. The attribute of 'masked' symptoms is specific for paternal perinatal depression and distinguishes it from maternal perinatal depression. Substance

TABLE 2 Attributes of paternal perinatal depression measured by related tools.

Scale	Emotional symptoms	Somatic symptoms	'Masked' symptoms	Parenting behaviours
Edinburgh Postnatal Depression Scale (Cox et al., 1987)	9	1	—	—
The Gotland Male Depression Scale (Rutz et al., 1995)	6	3	3	—
Center for Epidemiologic Studies Depression Scale (Radloff, 1977)	12	2	1	—
The Kessler Psychological Distress Scale (K6) (Kessler et al., 2002)	5	—	—	—
The Kessler Psychological Distress Scale (K10) (Kessler et al., 2002)	7	1	—	—
The Patient Health Questionnaire-9 (Spitzer et al., 1999)	6	3	—	—

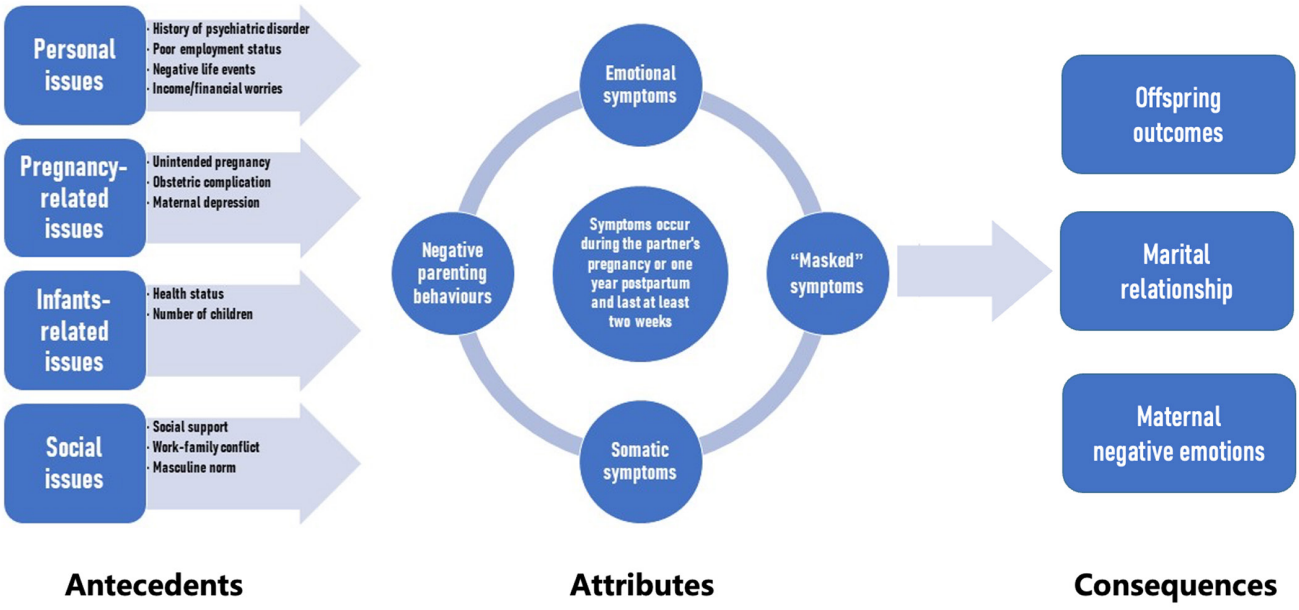

FIGURE 2 Conceptual framework of paternal perinatal depression.

abuse is one of the 'masked' symptoms (Freitas et al., 2016; Recto & Lesser, 2021; Shaheen et al., 2019). Alcohol and drug use are often used as a way for men to cope with depression, especially when they are in an environment where drug abuse is common. Risk-taking behaviours are another 'masked' symptom, which includes speed driving and gambling (Martin et al., 2013; Shaheen et al., 2019). Fathers want to use risk-taking behaviours to vent their depression. The most frequently mentioned feature among 'masked' symptoms is emotional rigidity. Fathers do not express their feelings to others, which may be related to the traditional perception that it is taboo for men to express their depressive feelings (Recto & Lesser, 2021). Men are considered to be strong and must be a 'tough guy'. But this 'toughness' can exaggerate their isolation and helplessness (Eddy et al., 2019; Pedersen et al., 2021).

Understanding the antecedents of paternal perinatal depression is important to reduce its episode. We have summarized four antecedents, including personal issues, pregnancy-related issues, infant issues, and social issues. In terms of personal issues, the risk factors for paternal depression are similar to those for maternal perinatal depression (National Institute of Mental Health, 2020) and depression (World Health Organization, 2021). Among pregnancy-related issues, maternal perinatal depression could be an antecedent of paternal perinatal depression. The one possible explanation is that depressed mothers are not be able to take care of their children, which makes fathers have more parenting stress. In addition, a depressed mother may cause the father cannot communicate with the mother about the difficulties, which may lead to a low mood among fathers (Bielawska-Batorowicz & Kossakowska-Petrycka, 2006).

Infant issues are one of the antecedents of perinatal depression in fathers. Parenting can be challenging for first-time fathers, which lack parenting skills and experience (Kalogeropoulos et al., 2021). A child crying and disrupting the rhythm of life could cause sleep problems for the father and lead to depressed moods. This is especially so when the father has an infant under medical condition that needs to be treated (Eddy et al., 2019). As to the antecedent of social issues, there is a growing consensus that low social support leads to paternal perinatal depression (Alghamdi et al., 2020; Chung et al., 2011; Da Costa et al., 2017; Edhborg et al., 2016; Gray et al., 2018; Koh et al., 2014; Philpott & Corcoran, 2018; Shaheen et al., 2019). A previous study found that the perinatal shift from binary to triadic relationships posed a threat to men, particularly for those with poor social support systems outside of the marital relationship (Boyce et al., 2007). Besides, Cronenwett et al. suggested that men tend to have poorer social support compared to women, because men tend to rely mainly on their partners for support after marriage (Chalmers & Meyer, 1996; Cronenwett & Kunst-Wilson, 1981). The work–family conflict is another antecedent among social issues. With the development of society in recent years, fathers are taking on more and more parenting tasks. However, in general, fathers are the main providers of income for their families. Fathers need to take care of their babies and wives without interrupting their regular work. It can be difficult for fathers to balance family and work, which can lead to increased levels of depression in fathers. Moreover, it is noteworthy that the negative impact of masculine norms on fathers' perinatal depression. In the traditional perception, men are considered to be stronger than women. Men often choose to suffer in silence when they encounter difficulties. Such stereotypical perceptions of masculinity can lead to a tendency for depressed fathers not to seek help. In addition, it is often believed that perinatal depression only occurs in women. However, men can also experience depression during this momentous stage of transition. The gender-based neglect of perinatal depression in fathers by the public and medical professionals can make it difficult to identify and treat (Eddy et al., 2019; Pedersen et al., 2021; Shaheen et al., 2019).

An in-depth understanding of the consequences of paternal perinatal depression is essential to raise public and medical attention. The primary consequences are behavioural and psychiatric problems in the offspring. Several shows that paternal perinatal depression caused increased risk for child behavioural problems and hyperactivity (Fletcher et al., 2011; Ramchandani et al., 2005; Ramchandani, O'Connor, et al., 2008). Multiple mechanisms are used to explain why paternal perinatal depression leads to psychological and behavioural problems in offspring. The most widely mentioned is environmental mechanism (Ramchandani & Psychogiou, 2009). Depression can affect fathers' involvement with their children. They interact less with their children and use less verbal and physical stimulation (Bronte-Tinkew et al., 2007). Negative interactions can have a subtle effect on offspring (Ramchandani & Psychogiou, 2009). In addition, paternal perinatal depression has a greater impact on behavioural problems in boys than in girls (Fletcher et al., 2011; Ramchandani, O'Connor, et al., 2008). Previous study suggested that father may identify better with the same sex child, or belief that their knowledge and skills are more suitable to raising a son than raising a daughter (Lamb & Lewis, 2010). The second consequence of perinatal depression in fathers is the destruction to the marital relationship. Women bear a tremendous physical burden and psychological stress during the perinatal period. However, fathers with depression withdraw from interactions and fail to provide adequate support to mothers. Depressed fathers also have more conflict in their interactions with their wives. This can lead to a deterioration of the marital relationship. The last consequence of paternal perinatal depression is maternal negative emotions. Some studies suggested that paternal perinatal depression can lead to negative emotions in mothers, even perinatal depression (Chung et al., 2011; Massoudi et al., 2016). But two meta-analyses only showed a positive association between paternal and maternal perinatal depression (Paulson & Bazemore, 2010; Thiel et al., 2020). The correlation between maternal and paternal depression may be due to one person's psychological condition affecting the other (Goodman, 2004). The causal and longitudinal relationship between maternal and paternal perinatal depression is still need more research to explore.

In empirical referents, six scales were mentioned in our study. Although most of these scales are freely available on the Internet and require no expertise to fill out and can be completed within 5 min, they were used only as a depression screening tool. The clinical symptoms assessed by these scales do not specifically focus on fathers' perinatal attributes. These tools reflect only one or two attributes of paternal perinatal depression, while negative parenting behaviours and 'masked' depression are rarely mentioned. So, their use is severely limited. Considering the high prevalence and the poor outcome of paternal perinatal depression as well as the limitations of these scales, a more comprehensive and accurate scale should be developed to reflect the characteristics of paternal perinatal depression.

To our best knowledge, the public and medical professionals paid little attention to the paternal perinatal depression. Also, in undergraduate and graduate nursing education, the curriculum rarely included paternal perinatal depression. It deserves more publicity and screening of paternal perinatal depression.

5 | STRENGTH AND LIMITATIONS

The strengths of this paper are the use of a comprehensive and systematic search, the development of rigorous inclusion and exclusion criteria and the quality evaluation of the articles. These ensure the quality of our included articles and the accuracy of the extracted attributes, antecedents, consequences and ultimately the generalized concepts. Although this study contributed important knowledge to parental perinatal depression, it still has following limitations. Some of the quantitative studies we included used scales rather than diagnostic interviews with psychiatrists

to define paternal perinatal depression, which may lead to bias in our results. We only included articles written in English, which may lead to a lack of relevant research in some linguistic or cultural contexts. Few of the included articles were from low-income countries, but income could affect paternal depression, which may cause our results to be biased.

6 | CONCLUSION

The concept of paternal perinatal depression is multidimensional and encompasses somatic, psychological and behavioural symptoms, particularly including 'masked' symptoms, which would make it more difficult to recognize. The antecedents include many preventable risk factors. More efforts should be made to reduce the incidence of paternal perinatal depression. The consequences of paternal perinatal depression are profound, but there is little research on it compared to that of mothers. Given the increasing prevalence of paternal perinatal depression, we should pay more attention to it in the public and at different medical levels.

7 | RELEVANCE FOR CLINICAL PRACTICE

No consensus or uniform definition of this concept has been developed. This concept analysis provides a comprehensive insight into paternal perinatal depression that may influence research, practice and policy in this area. In future clinical practice, it is essential to develop scales suitable for screening fathers for perinatal depression based on this concept analysis. Furthermore, we should raise public awareness of paternal perinatal depression. We strongly believe that fathers during the perinatal period should screen for depression and depressed fathers should be referred to psychiatry clinic for assessment and treatment if necessary.

AUTHOR CONTRIBUTIONS

Jianfei Chen was involved in conceptualization, databases searching, writing—original draft preparation. Jing Zhao was involved in databases searching, writing—original draft preparation. Zhao Ni was involved in writing—reviewing and editing. Xiaoli Chen was involved in conceptualization and supervision. Zhijie Zou was involved in conceptualization, supervision, writing—reviewing and editing.

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CONFLICT OF INTEREST STATEMENT

None.

DATA AVAILABILITY STATEMENT

Not applicable.

ETHICS STATEMENT

This study is a concept analysis and ethical statement is not applicable.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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