

Risk factors of post-traumatic stress disorder post partum: a scoping review

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Abstract

Post-traumatic stress disorder (PTSD) is a condition after giving birth, the situation is the main cause result in psychological stress which is characterized to hallucinate, memory disturbances, avoidance, and excessive alertness. This study, identify scientific and clinical views of the results of previous studies, to provide a baseline in identifying the factors that cause traumatic events after childbirth. The method used is a scoping review which consists of 5 stages, namely: focus review, conducting a literature search, determining several relevant studies, conducting critical assessments, tracing various data, analyzing and reporting results. PRISMA flowchart (Optional Reporting Items for Systematic and Meta-analysis) was used in the literature search. 12 selected literature and graded (A). The results showed that there are several factors that cause symptoms of PTSD after childbirth including cesarean delivery, service by health workers, previous experience of childbirth history and women having a history of psychosocial disorders.

Keyword: risk factor; post-traumatic stress disorder; postpartum

INTRODUCTION

Perinatal mental health is a very important part of maternal health during pregnancy. This case is caused by perinatal mental health greatly affects pregnancy health in women by up to 20 percent during one's perinatal period (Bauer, et.al 2014.). In developing countries, prevalence for mental health of mothers can reach 15.6 percent and 19.8 percent (WHO, 2014). One of the forms of perinatal mental health disorders that are currently unknown is posttraumatic stress disorder (Vesel and Nickasch, 2015).

There are several factors that affect postnatal health, one of them is Post-Traumatic Stress Disorder (PTSD). According to the American Psychiatric Association (APA) states that PTSD is a syndrome consisting of symptoms of re-experiencing, avoidance, emotional numbness and increased arousal that may occur after exposure to traumatic events (APA, 2000). PTSD after childbirth is currently known to be the main cause of psychological distress which can be characterized by hallucinations, impaired memory, and excessive alertness (APA, 2013).

A meta-analysis study conducted by Grekin & O'Hara (2014) revealed that the rate of PTSD symptoms after birth is 3.1 percent of the sample taken in the community and explained that 15.7 percent had previously been at risk of experiencing trauma,



resulting in mental health problems. Psychopathology during pregnancy was also emphasized as the highest PTSD indicator for a sample of a community (Grekin & O'Hara, 2014). Similarly, psychological problems after childbirth have an adverse impact on women and children. Based on data from the World Health Organization (WHO), states that psychological diseases as a significant indirect cause of maternal death in the first year after birth (WHO 2012). Not entirely of Pregnant women who experience trauma at birth can experience PTSD, based on previous research it can be described and explained that between 20 percent to 48 percent experience signs of PTSD at the solar diagnostic level (Polachek, et.al, 2012).

Meanwhile, according to a WHO report states that 10 percent of pregnant women and 13 percent of postpartum women have undiagnosed mental health disorders (WHO 2012). However, already there some recent changes to the diagnostic and statistical standards used for PTSD. First, regarding some of the criteria that occurred in the event when a person experienced or witnessed actual death or felt threatened, serious injury or sexual assault (A1). It no longer requires individuals to interpret an event in many ways, cause fear, helplessness can be said too and become scary looks (APA, 2013).

Whereas in the second criteria, DSM-IV determines that each individual experiencing symptoms is divided into three categories (re-experience, evasive and hyperarousal) to be able to fulfill the PTSD diagnosis. The revised DSM-V expands the categories of symptoms described into four by including several negative mood and cognition domains. The implications of A2 criteria in the DSM-V have been carried out, there are several degrees to which the prevalence of PTSD doubles after childbirth (Boorman, et.al, 2014). So far, the presence of childbirth experience does not necessarily reduce the prevalence of PTSD after childbirth (McKenzie-McHarg et al, 2015). Symptoms of PTSD can be said to last for more than a month to meet several requirements to be processed both in terms of diagnosis and post-traumatic stress (APA, 2013). However, in the context of childbirth, the course and symptoms of post-traumatic stress are unclear (Beck, 2011).

This research contributes to identifying and mapping previous impiris study in the field of PTSD risk factors on mother after childbirth. So that in this result, it is expected to provide reference about factors that affect mother who experience PTSD in the after-childbirth period. The research consists of several sections, part one, explaining the background of the problem, part two explaining about the scoping method, part three explaining the results and discussion of risk factors, and part four explaining the conclusions and future work.

RESEARCH METHODS

This review uses the methodology for clustering review as suggested by Arksey and O'Malley. There are four reasons to conduct a scope review: (1) to examine the scope and nature of the research activity, (2) to determine the value of conducting a full systematic review, (3) to summarize and disseminate research findings, and (4) to identify research gaps in the existing literature. Scoping framework review was adapted from Arksey, H., & O'Malley (2005) with the following steps: (1) identifying research questions, (2) identifying relevant articles, (3) selection of articles, (4) charting data, and (5) presenting the result, discussions and conclusion (Arksey, H., & O'Malley, 2005).

1. Identifying Research Question

To identify research questions, the researcher used the PEOS framework (population, exposure, outcome, study design) in **Table 1**. PEOS is a framework that helps articulate important parts of applicable clinical questions and facilitates the search process by identifying key concepts for an effective search strategy.

Table 1. Framework of Research Question

P (Population)	E (Exposure)	O (Outcome)	S (Study Design)
Postpartum Perinatal Childbirth	Post-trauma stress disorder Traumatic childbirth Traumatic postpartum	Mental, Behavioural for postpartum Risk factors	All of the study designs that were related to the impact of risk factors for post traumatic stress were sorted out by delivery

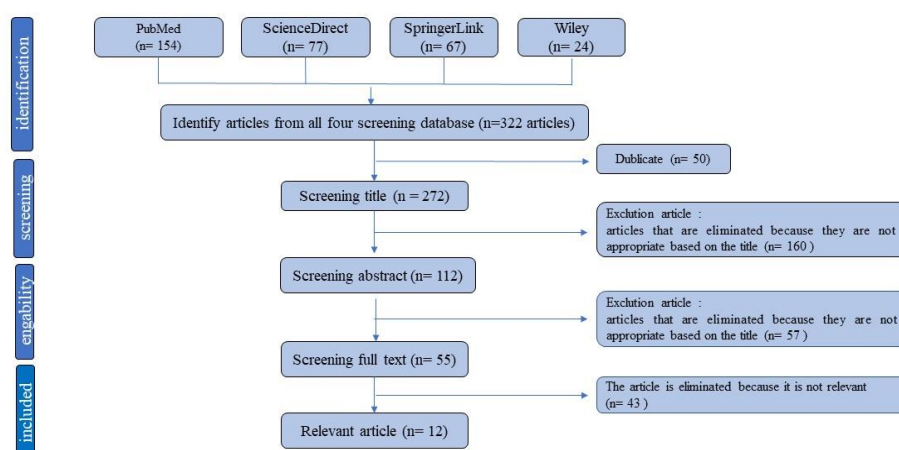
Based on the PEOS framework above, the scoping review question is: What are the risk factors for PTSD after childbirth?

2. Identifying Relevant Article

The article selected in this scoping review is an article that has been published for the last 5 years, i.e. from 2014 to 2019 which is considered relevant as an article that presents the results of recent research. Article published in English and Indonesian were selected due to the limitations of researchers as bilingual and peer-reviewed articles. Scoping review is only using the article that are the result of research or original research and exclude opinion article/comment, articles reviewed in the form of reports and books. The search engines used are PubMed, ScienceDirect Database, SpringerLink and Wiley Library. The four databases the researchers chose because they indexed articles about health sciences.

3. Selecting the Article

From four database search engines (PubMed, Science Direct, SpringerLink and Wiley), it found a total of 322 articles. The article was saved using Mendeley's bibliographic engine. The input data in Mendeley is then filtered according to the framework. In appropriate articles are excluded from the "relevant" folder. The article was identified as duplicating and found 50 similar articles resulting in the remaining 272 articles. From the number of articles, the articles that researchers filtered and published were due to titles and abstracts that did not match the framework, articles that do not in English, and articles in the form of reviews. So the total number of articles is 55 articles, are then filtered again with Full Text articles in the exclude for several reasons. The article is in accordance with the framework as many as 12 articles that will be done Scoping Review. Findings of the number of articles and filter processes will be described in Prisma Flowchart (**Picture 1**).



Picture 1. Prisma Flowchart

4. Data Charting

Based on the 12 number of selected articles, the researcher then charted the data to be able to classify how many points or parts of the article, such as research title, research objectives, research design, number of samples, and research results or findings (Table 2). Twelve articles selected, five articles using cohort study research design, three articles using sectional cross, three articles are qualitative studies and just one article using randomized controlled trial (RCT). All of these articles are done in several sectors of the region.

Table 2. Charting Data

No	Title/ Author/ Year	Country/ AIM	Method	Data Collection	Participant/ Sample size	Result
1.	Prevalence and risk factors for developing traumatic childbirth in Iran (Sedigheh Abdollahpo et.al, 2016)	Iran/ determine the prevalence and risk factors associated with traumatic delivery.	Cross-sectional	Interview and investigation of pregnant women at Nomeome Dey hospital	All pregnant women referred to the main maternity department of Nomeome Dey hospital. Sample of 400 pregnant women	The prevalence of traumatic delivery was 48.3%. Logistic regression showed that variables such as place of residence, type of delivery, pregnancy complications, bleeding during pregnancy, class 3 or 4 rupture during delivery, and emergency cesarean section were significantly correlated with traumatic delivery (p < 0.001)
2.	The optiMUM-study: EMDR therapy in pregnant women with posttraumatic	Dutch/ whether EMDR therapy is an effective and safe treatment	RCT	questionare	Women with a gestational age of 8-20 weeks.	EMDR therapy is effective in the treatment of PTSD effective in reducing anxiety levels

	stress disorder after previous childbirth and pregnant women with fear of childbirth: Design of a multicentre randomized controlled trial (M. A. M. Baas, et. al,2017)	for pregnant women with PTSD or labor-related FoC				
3.	Longitudinal trajectories of post-traumatic stress disorder (PTSD) after birth and associated risk factors (Pelin Dikmen-Yildiz, Susan Ayers, et. al, 2018)	UK/ Identify birth-related PTSD trajectories; determine the factors associated with each trajectory; and identify women who are more likely to develop birth-related PTSD	Qualitative study (Longitudinal study)	questionnaire	226 women who had a traumatic delivery according to DSM-IV A criteria were drawn from a community sample of 950 women	Four trajectories were identified: resilience (61.9%), recovery (18.5%), chronic-PTSD (13.7%) and de-layed-PTSD (5.8%). Resilience is consistently distinguished from other PTSD pathways by less effective symptoms at 4-6 weeks postpartum
4.	Factors associated with post-traumatic stress symptoms (PTSS) 4–6 weeks and 6 months after birth: A longitudinal population-based study (Pelin Dikmen-Yildiz, Susan Ayers, Louise Phillips, 2017)	UK, Determining pregnancy and postpartum factors associated with PTSS at 4-6 weeks and 6 months postpartum	Qualitative study (prospective longitudinal study)	questionnaire	A systematic sample of 950 pregnant women recruited from three maternity hospitals in Turkey	The regression model showed that PTSS six months after birth was associated with anxiety and PTSS in pregnancy, complications during delivery, satisfaction with health workers, fear of childbirth 4-6 weeks after birth, PTSS and depression 4-6 weeks after birth, social support 4-6 weeks after birth, traumatic events after birth, need for psychological help, and social support 6-months after birth.

5.	Predictors of birth-related post-traumatic stress symptoms: secondary analysis of a cohort study (Marie Furuta, Jane Sandall, et. al, 2016)	UK/ Identify factors associated with birth-related post-traumatic stress symptoms during the early postnatal period	Cohort study	questionare	A sample of 1824 women who gave birth in a large UK hospital	Women with a history of mental illness as well as those who gave birth before arriving at the hospital, underwent an emergency caesarean section or had severe maternal morbidity or neonatal complications also presented with traumatic symptoms.
6.	Maintaining factors of posttraumatic stress symptoms following childbirth: A population-based, two-year follow-up study (Susan Garthus-Niegel a,b,n, et.al, 2015)	Norway/ established a number of risk factors associated with the development of PTSD after delivery.	Cohort study	interviews and questionnaires	Participants at 17 weeks, 8 weeks postpartum and 2 years postpartum. Sample of 1473 women	Found several low to moderate associations between maintenance factors and PTSD symptoms two years after delivery. Adjusting the starting point - PTSD symptoms 8 weeks postpartum - only insomnia remained significantly associated
7.	Childhood sexual abuse, intimate partner violence during pregnancy, and posttraumatic stress symptoms following childbirth : a path analysis (Aline Gaudard e Silva de Oliveira, et.al, 2016)	Brazil/ explores the pathways of childhood sexual abuse, intimate and physical partner violence during pregnancy, interacting with each other and with PTSD symptoms in the postpartum period	Cross-sectional study	questionare	The sample consisted of 456 all women who gave birth in a maternity service for high-risk pregnancies in Rio de Janeiro, Brazil	The relationship between CSA symptoms and PTSD was mediated by a history of trauma, psychological history, psychological intimate partner violence (IPV), and fear of childbirth during pregnancy. Physical IPV is directly associated with postnatal PTSD symptoms, whereas the psychological IPV connection appears to be partially mediated by physical abuse and fear of childbirth during pregnancy
8.	Risk factors associated with post-traumatic stress symptoms following childbirth in	Turkey/ Testing for factors associated with post-traumatic stress (PTS) symptoms	Cohort study (Longitudinal prospective if	Deep interview	Participants at 20 weeks of gestation and 6-8 weeks after birth. Sample of 242 women	PTSD symptoms are associated with multipara, unplanned pregnancy, poor psychological adaptation higher outcome expectations but lower efficacy

	Turkey (Gözde Gökçe İsbİr, PhD, et. al, 2016)	after delivery in women with normal, low-risk pregnancies				expectations, urinary catheterization during labor, less perceived support and control in birth, less satisfaction with hospital care, psychological adaptation bad motherhood and increased fear of childbirth after childbirth
9.	"It can't be like last time" - Choices made in early pregnancy by women who have previously experienced a traumatic birth (Mari Greenfield, et al, 2019)	UK./ understand options and explore why women are traumatized	Qualitative study (longitudinal grounded)	Deep interview	Study on 9 women in which more than half of the participants had a formal diagnosis of post-traumatic stress disorder	If women who had previously experienced a traumatic birth become pregnant again, they have a strong desire to avoid the repeat experience and feel in control of their birth choices.
10.	PTSD after childbirth: A predictive ethological model for symptom development (Joris F.G. Haagen a,n, et. al, 2015)	Dutch/ assessing PTSD risk factors associated with childbirth	Cohort study	questionnaire	Pregnant women participants Sample : 505 pregnant women	Antenatal depressive symptoms Anxiety states and risk factors for perinatal symptoms three months postpartum, Antenatal depressive symptoms and psychoform and somatoform dissociation were identified as PTSD perinatal somatoform dissociation (β¼.14, po.05).
11.	Postpartum post-traumatic stress disorder: Associated perinatal factors and quality of life (Antonio Hernández, et. al, 2019)	Spanish/ Determining the prevalence of PTSD at 4 and 6 weeks postpartum, and its relationship to perinatal variables and quality of life	Cross-sectional	questionnaire	In postpartum women with a sample of 2990	The women with PTSD symptoms had a worse quality of life at 4-6 weeks postpartum. Type of birth, method of analgesia, and humanizing practices, such as skin-to-skin contact and using a respected birth plan, are associated with an increased risk of postpartum PTSD
12.	Post-traumatic stress disorder in parturients	Switzerland/ to assess anesthetic-	Cohort study	Medical records	in women who performed	pregnant women who underwent caesarean section that anesthetic

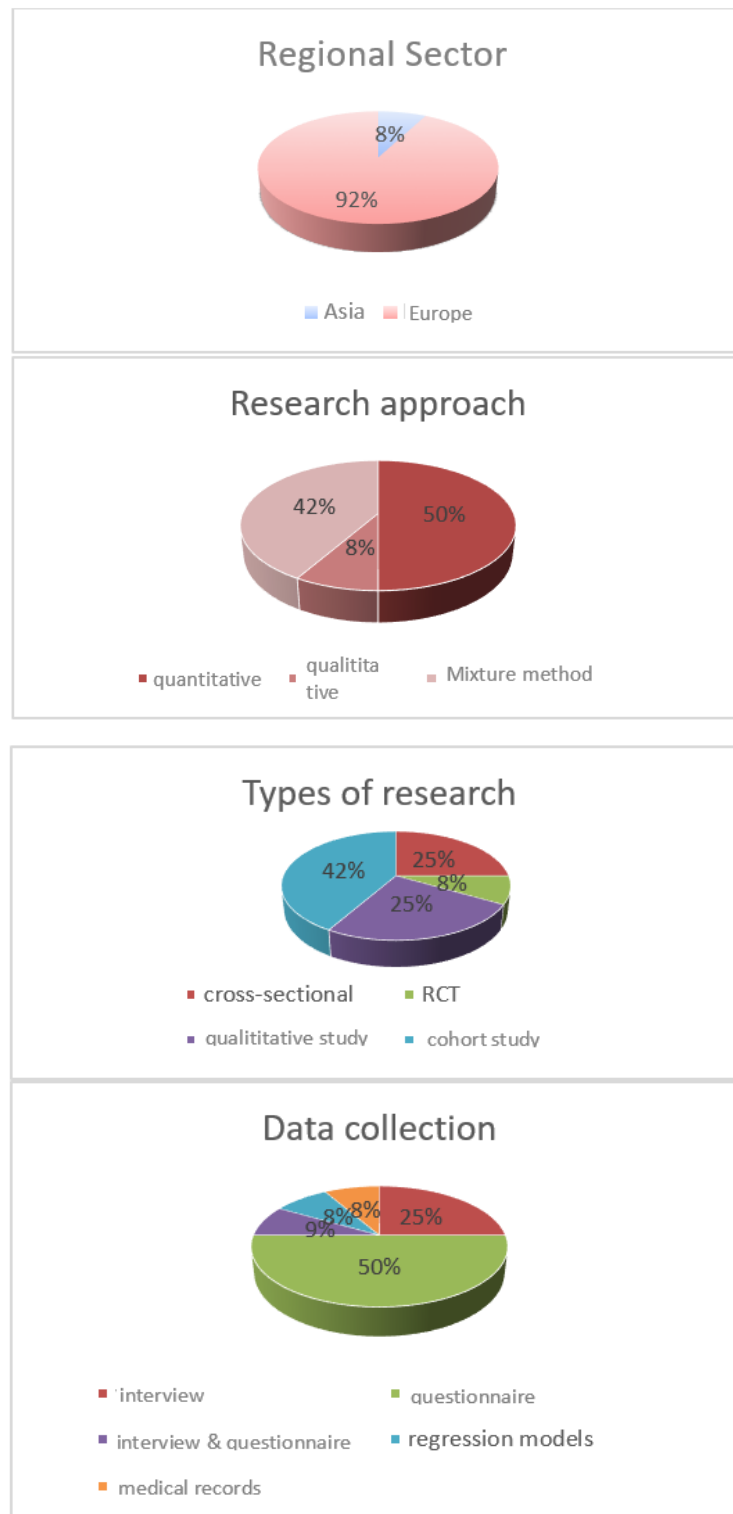
delivering by caesarean section and the implication of anaesthesia: A prospective cohort study (U. Lopez, et. al, 2017)	related factors in the development of acute postpartum PTSD.	cesarean section in a tertiary hospital in Switzerland . Sample of 280 patients	complications are an independent risk factor for the occurrence of PTSD and postpartum PTSD, in addition to perinatal risk factors
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5. Result and Discussion

In line with what Levac et.al (2010), the researcher applied a three-step approach in creating, summarizing, and reporting the results. First, descriptive numerical analysis is provided to include some of the characteristics of the articles. Second, the strengths and weaknesses in the literature that were found through the thematic analysis of the studies were included in the report. The last phase is a review of the implications of findings related to future observations, practices and policies.

RESULTS AND DISCUSSION

Researchers used 12 articles in a scoping review obtained from various countries. There is 1 article from Asian with the presentage of 8 percent and there are 11 articles from Europe with the percentage of 92 percent. The selected article is conducted critical assessment by using Hawker et al. (2002) to assess the article's quality, twelve articles are included in grade A with a percentage of 100 percent. Twelve articles selected used the research design kohort study, five articles with the percentage of 42 percent used cross sectional, three articles with the percentage of 25 percent and three articles with the percentage of 25 percent used qualitative study and one article with the percentage of 8 percent used RCT (**Picture 2**). The data is taken through interview which consist of three articles (25 percent), six articles used questionnaire (50 percent) and one article used interview and questionnaire (8 percent), one article used regression (8 percent) and one article used medical record (8 percent).



Picture 2. Design research

After analyzing some of the points above, the researcher classified the important points related to the output which is the risk factor of PTSD after childbirth (**Table 3**).

Table 3. Thematic Analysis

Article	Sub Thema	Thema
Artikel 1,4,5,8,11,12 (Abdollahpour & Khadivzadeh, 2019), (Dikmen-yildiz, et.al, 2017), (Furuta, et.al, 2016), (Gökçe İsbîr, et.al, 2016), (Lopez et al., 2017), (Hernández-Martínez, et.al, 2019)	C-section childbirth and medical services	Risk factors for post-traumatic stress disorder postpartum
Artikel 1,3,9 (Abdollahpour & khadivzadehet, 2019), (Dikmen-Yildiz, et.al, 2018), (Greenfield, et.al, 2019)	Previous birth experience	
Artikel 2,4,5,6,7,8,10 (Baas, et.al, 2017), (Dikmen-yildiz, et.al, 2017), (Furuta et al., 2016), (Garthus-Niegel, et.al, 2015), (Furuta, et.al, 2016), (Haagen, et.al, 2015)	Women having a history of psychosocial disorders (psychological, mental, depression, anxiety, fear and lack of social support	

The Risk factor of Post-trauma stress disorder (PTSD) After Childbirth

1. Cesarean Childbirth, Complications and Medical services

Cesarean childbirth, complication in pregnancy and medical service are factors in the occurrence of PTSD in mothers after childbirth. Based on several findings in a study of 12 articles, there are 7 of them presented in **Table 4**.

Table 4. Risk Factor

Article	Traumatic risk factor
(Sedigheh Abdollahpo et.al, 2016)	variable residence, type of delivery, pregnancy complications, bleeding during pregnancy, grade 3 or 4 ruptures in sesarea section, and emergency sesarea section have significant association with traumatic childbirth (p <0.001). Traumatic childbirth is 48.3 percent.
(Dikmen-yildiz, et.al, 2017)	Reporting low levels of satisfaction to health professionals during the childbirth, traumatic events after childbirth, fearness before and after childbirth, lack of social support .
(Furuta et al., 2016)	Women having mental illness history (p 0.04) as well as those who give childbirth before arriving at the hospital, undergo caesarean sections
(Gökçe İsbîr, et.al, 2016)	The presence of urinary catheterization during childbirth, lack of support and control felt during childbirth, lack of satisfaction with hospitals in care services, poor psychological adaptation to motherhood and increased fearness of the childbirth after childbirth
(Lopez, et.al, 2017)	Traumatic experience for 73 (21 percent) of the 348 women revealed a large number of women with traumatic experiences of spontaneous childbirth (χ^2 13.3, po.05) and caesarean sections had the lowest rates of traumatic childbirth experience (14.5 percent and 12.5 percent), while emergency caesarean sections produced the highest rates (47.1 percent).
(Hernández-Martínez, et.al, 2019)	Caesarean section (aOR: 3.79; 95 percent CI: 2.43, 5.92, fourth degree perineum tear (aOR: 2.77; 95 percent CI: 1.71, 4.49), using general anesthesia (aOR: 1.92; 95 percent CI: 1.21, 3.05) and manual removal of the placenta (aOR: 1.41; 95 percent CI: 1.03, 1.93) are presented as risk factors

The event when a mother gives birth is a state where a person feels emotional and is a challenge that a woman experiences in her life. It can be said that not all mothers will get the good news of getting a new family member, namely a child, some pregnant women have a tendency to fear in the life or welfare of their newborn child. This can cause many serious psychological problems, one of which is PTSD (Olde, et.al, 2006). Childbirth process by scheduled caesarean section or emergency caesarean section will emerge as one of the main indicators of traumatic events (Modarres, et. al, 2012).

However, it is not known if the caesarean section or there are other related factors, especially anesthesia that also plays a have a role in the occurrence of symptoms of post-traumatic stress. Operative childbirth with emergency sectional cesarea is indicated in case of risk to the life of the mother or fetus. It was qualified as a psychological traumatic event for the mother (APA, 2013). When babies are born safely, we know that one month after birth, about 39 percent of mothers have experienced PTSD disorder after childbirth (Soderquist, et.al, 2002). Post-traumatic stress disorder consists of four groups of symptoms: re-experiencing including intrusive traumatic memories of such events, avoidance, hyperarousal, and negative cognition and mood (APA, 2013).

2. Previous History of Childbirth

Difficult childbirth experience can lead to traumatic disorders including re-experiencing pregnancy, avoiding memories of traumatic events, negative mood and cognition, and hyperarousal (APA, 2013). Symptoms of self-trauma after childbirth can also lead to developing fear of childbirth during subsequent pregnancies. Although concerns about childbirth during pregnancy are natural, fear of childbirth is a series of not being extreme fears, and the level of malfunction in a woman's daily life is the main criterion (Ryding et.al, 2015).

A woman can identify a previous traumatic event as the basis of PTSD symptoms where the symptoms are visible before childbirth and persist in the postpartum period, the trauma has been resolved in the past but there is a recurrence of trauma after childbirth (Grekin & O'Hara, 2014). An updated meta-analysis of risk factors for PTSD after childbirth supports findings provided by reviews of previous researchers on qualitative (Andersen, et.al, 2012). The author points out that postpartum PTSD is postpartum depression problems, related to pregnancy or even psychopathology, lack of support in the social environment, subjective pressures in labor and postpartum, complications experienced by mother and baby, and have a history of trauma (Grekin & O'Hara, 2014).

In addition, symptoms of PTSD avoidance often manifest themselves as prevention of future pregnancy, avoid prenatal care in subsequent pregnancy and sue by caesarean section (Fuglenes, Aas, 2011; Gottvall & Waldenström, 2002). Besides that, stress (psychotraumatic) during pregnancy seems to be associated with negative outcomes for mothers and fetuses, such as premature birth (Zinc, et.al, 2011; Yonkers, et.al, 2014). Women who become pregnant for the first time may also experience symptoms of anxiety during pregnancy. Overall, about 7.5% of pregnant women experience fear of childbirth (Adams, et.al, 2012). Fearness of childbirth have been found in women who have never had childbirth before, as well as in multipara women where previous negative or traumatic childbirth experiences often play a role (Størksen, et.al, 2015).

3. Psychosocial disorders

PTSD disorders have been described as "the most complex somatic, cognitive, affective, and behavioral effect of psychological trauma" (van Der Kolk, et.al, 2019). PTSD disorder may be a significant mental health problem for pregnant women and postpartum (Gottvall & Waldenström, 2002). Postpartum PTSD disorders are the main cause of the many effects of psychological distress, characterized by hallucinations, disturbing memories, avoidance, and excessive alertness. (APA, 2013).

One of the causes of PTSD is anxiety that can occur in a person. There are many types of such disorders, one of them is a traumatic event. According to APA that the disorder follows a traumatic experience that usually involves a threat to a person's life or a threat to the physical (APA, 1994). It is associated with an event involving death, injury or threat to the physical integrity of others. The response to stress can include a number of specific symptoms, the three criteria include re-experiencing (i.e. traumatic events are re-experienced as recurring memories, flashbacks and nightmares), avoidance (i.e. avoidance from hospital or medical), hyperarousal causes (i.e. danger violation and excessive anxiety). Symptoms persist survived more than 1 month and the cause markedly excessive stress or disturbance in social, occupational or other life functions.

In the current discussion, it was found that 1 to 7 percent of mothers may experience trauma at some point or some time after birth (Olde et al., 2006). Pregnant women suffering from PTSD symptoms experience disorders in many aspects of daily life and every woman has an increased risk of suffering from depression in the long term, related to the problems that exist in parenting and attachment, understanding how a sexual relationship and pregnancy will occur in the future (Ayers, et.al, 2006). The risk for self-harm increases significantly (Kessler RC, 2000). The first study conducted by Bydlowski that researchers have minimized the perinatal and maternal risk factors that lead to increase capacity of post-traumatic psychological symptoms with psychiatric disorders, trauma, and poor social support, a process to increase self-confidence, loss of self-control and psychological stress at the time of childbirth (Bydlowski, 1978).

CONCLUSION

Symptoms of PTSD will persist for less than 1 month to meet the standards in the diagnosis of PTSD. PTSD risk factor is childbirth, complications in pregnancy, poorly professional service by health workers, having a history of troublesome childbirth before, having psychosocial disorders, a history of violent sexual abuse in intercourse in couples during traumatic pregnancy.

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