

PSYCHOLOGICAL BIRTH TRAUMA: A BIBLIOMETRIC ANALYSIS OF HIGHLY CITED ARTICLES

PSİKOLOJİK DOĞUM TRAVMASI: ÇOK ATIF ALAN MAKALELERİN BİBLİYOMETRİK ANALİZİ

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ABSTRACT

Aim: Psychological birth trauma has negative psychological effects on the mother during pregnancy and postpartum period. The purpose of this study is to determine the basic properties of 100 studies on psychological birth trauma on the Web of Science database with the most citations by using the bibliometric analysis method.

Methods: A retrospective bibliometric analysis was used. The data were obtained from the Web of Science database. The top 100 studies with the highest numbers of citations were included in the study.

Results: The 100 studies with the highest numbers of citations were published in the period of 1997-2018 in 53 different journals. It was further reported that the Birth Issues in Perinatal Care was the most productive journal, and the USA was the most productive country. The studies with the highest numbers of citations were on an evidence level of IV. The most commonly used keywords were "Post traumatic stress disorder", "childbirth", "trauma", "postpartum", "anxiety", "depression", "pregnancy", "stress" and "mother".

Conclusion: The issue of Psychological birth trauma is a growing and active area of study. It is seen that there is a need for studies with high evidence levels on PBT. It may be recommended for future studies to focus on interventions to reduce the Psychological birth trauma experiences of women.

Keywords: Bibliometric Analysis, Childbirth Trauma, Citation, Psychological Birth Trauma.

ÖZET

Amaç: Psikolojik doğum travmasının gebelik ve doğum sonrası dönemde anne üzerinde psikolojik olumsuz etkileri bulunmaktadır. Bu çalışmanın amacı bibliyometrik analiz yöntemiyle Web of Science (WoS) veri tabanındaki psikolojik doğum travması ile ilgili en çok atıf alan 100 çalışmanın temel özelliklerini belirlemektir.

Method: Retrospektif bibliyometrik analiz kullanıldı. Çalışma verileri Web of Science (WoS) veri tabanından elde edilmiştir. Çalışmaya en fazla atıf alan ilk 100 çalışma dahil edilmiştir. Çalışma verileri Excel ve SPSS ile analiz edildi ve VOSviewer ile görselleştirildi.

Bulgular: En fazla atıf alan ilk 100 çalışma 1997-2018 yılları arasında 53 farklı dergide yayınlanmıştı. En fazla atıf alan çalışmalar kanıt IV düzeyindeydi. En sık kullanılan anahtar kelimeler "travma sonrası stres bozukluğu", "doğum", "travma", "doğum sonrası", "anksiyete", "depresyon", "gebelik", "stres" ve "anne" idi.

Sonuç: Psikolojik doğum travması büyüyen ve aktif bir çalışma alanıdır. Psikolojik doğum travması konusunda kanıt düzeyi yüksek çalışmalara ihtiyaç olduğu görülmektedir. Gelecek araştırmaların kadınların psikolojik doğum travması deneyimlerini azaltma girişimlerine odaklanması önerilebilir.

Anahtar kelimeler: Atıf, Bibliyometrik Analiz, Doğum Travması, Psikolojik Doğum Travması.

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INTRODUCTION

Psychological birth trauma (PBT) is defined as a woman's perception of the act of childbirth as an event that will harm herself or the baby during any stage of the fertility process (Abhari et al., 2020; Beck, 2015). Studies have shown that the global prevalence of traumatic birth experiences is between 20% and 54.4% (Abdollahpour et al., 2017; Alcorn et al., 2010; Beck et al., 2018; Creedy et al., 2000; Ford & Ayers, 2011; Sawyer & Ayers, 2009; Soet et al., 2003; Turkmen et al., 2020). PBT affects the satisfaction women get from the experience of labour and their postpartum psychological health negatively. Additionally, development of PBT may lead to negative outcomes in relation to the mother's mental health, mother-infant attachment and child development (Bastos et al., 2015). Due to its high prevalence worldwide and negative outcomes, it is important to focus on PBT (National Institute for Health and Care Excellence (NICE), 2014).

So far, several studies have been conducted towards understanding PBT (Abdollahpour et al., 2017; Alcorn et al., 2010; Beck et al., 2018; Creedy et al., 2000; Sawyer & Ayers, 2009; Soet et al., 2003; Turkmen et al., 2020). To the best of our knowledge, there is no study that presents the characteristics of the existing knowledge base on the topic. The most fundamental purpose of this study is to fill this gap. Specifically, the aim here is to examine the properties of studies on PBT with the highest numbers of citations and reveal the existing knowledge structure and trends. The results of this study will provide a positive contribution to mother and infant health by shedding light on future studies on this topic.

MATERIALS AND METHODS

Aim and study design

The purpose of this study is to analyse the basic properties of 100 studies on psychological birth trauma on the Web of Science (WoS) database with the highest numbers of citations. The study was designed as a retrospective bibliometric analysis.

Sample

This study was conducted with the 100 studies on psychological birth trauma with the highest numbers of citations.

Data collection

The data of the study were obtained by the researchers from the Web of Science (WoS) database on 19 October 2020. This database was preferred as its scope is broad, and it allows monitoring of yearly records of the citations each article gets starting with the date it is published. This database has also been used by other researchers to define articles with the highest numbers of citations (Cant & Cooper, 2019; Martín-Del-Río et al., 2018; Pena-Ibanez & Ruiz-Iniguez, 2019).

The literature search was performed by using the key phrases of "psychological birth trauma" OR "traumatic birth perception" in the topic section on the Web of Science Core Collection database. As a result of searching, 433 studies were obtained. The results were limited to the publication language of English. No limit was assigned based on years, and 406 studies published until the date of the literature search were included. All studies were listed by the "times cited" option. Copies of the first 100 studies with the highest numbers of citations were saved. All studies were separately examined by the researchers for suitability, and a consensus was achieved over them. The following information was collected from each study: (i) author(s) names, (ii) institution and country of the first author, (iii) year of study, (iv) journal of publication, (v) research method, (vi) research area, (vii) research sources, (viii) research location and (ix) total number of citations until the date of the literature search. The data saved in the Excel format from WoS for the analysis of keywords were checked for typos, duplications, etc. They were converted to a suitable format for the VOS viewer program.

Data analysis

The Excel and SPSS programs were used to apply descriptive bibliometric analyses on parameters like the most productive author, country, journal, etc. The citation density was calculated, and citation tendency was analysed. The type of article was divided into the following categories: (1) theoretical/conceptual/review, (2) quantitative study, (3) qualitative study and (4) mixed study (Taskaya & Aksoy, 2020). The evidence level of the studies was examined under seven categories as (a) Evidence level I (strongest evidence): systematic review or meta-analysis, (b) evidence level II: randomised controlled trial, (c) evidence level III: controlled trial without randomisation, (d) evidence level IV: case-control or cohort study, (e) evidence level V: systematic review of qualitative or descriptive studies, (f) evidence level VI: qualitative or descriptive study and (g) evidence level VII: expert opinion or

consensus (Fineout-Overholt et al., 2010). The article type and evidence level of the studies were examined separately by all researchers, and a consensus was reached. Kruskal Wallis test was used to compare the numbers of citations based on publication type. Pearson's correlation analysis was used to examine the relationship between year of publication and number of citations. For all statistical analyses, a P-value of smaller than 0.05 was considered significant. The keywords were analysed and visualised by using the VOSviewer software.

Validity, reliability and rigour

All studies included in the research were examined separately for their suitability, and a consensus was reached.

Ethical considerations

Since the research does not have a direct impact on people or animals, no approval from an ethical committee was sought.

RESULTS

Results

The 100 studies on psychological birth trauma with the highest numbers of citations are listed in a descending order based on number of citations in Table 1. The total numbers of citations of the studies varied between 5 and 321. 79 studies had under 50, 11 studies had 50-99 and 10 studies had more than 100 citations. The most frequently cited (321 times) research article titled "Prevalence and predictors of women's experience of psychological trauma during childbirth" produced by Soet et al. was published in *Birth* in 2003. This was followed by "Childbirth and the development of acute trauma symptoms: incidence and contributing factors" (311 citations) published in *Birth* by Creedy et al. (2000), and "Prevalence and predictors of post-traumatic stress symptoms following childbirth" (264 citations) published in the *British Journal of Clinical Psychology* by Czarnocka & Slade (2000). According to the yearly average numbers of citations, the studies by respectively Soet et al. (2003), Creedy et al. (2000) and Andersen et al. (2012) had the first three places (Table 1).

Table 1. The Descriptive Characteristics of Highly Cited Articles

| Author(s) and year of publication | Publication title | Journal name | Total number of citations | | Average citations per year | |
|--|---|---|---------------------------|------|----------------------------|------|
| | | | No | Rank | No | Rank |
| Soet, J. E., Brack, G. A., & DiIorio, C. (2003) | Prevalence and predictors of women's experience of psychological trauma during childbirth | <i>Birth</i> | 321 | 1 | 18.8 | 1 |
| Creedy, D. K., Shochet, I. M., & Horsfall, J. (2000) | Childbirth and the development of acute trauma symptoms: incidence and contributing factors | <i>Birth</i> | 311 | 2 | 15.5 | 2 |
| Czarnocka, J., & Slade, P. (2000). | Prevalence and predictors of post-traumatic stress symptoms following childbirth. | <i>British Journal of Clinical Psychology</i> | 264 | 3 | 13.2 | 5 |
| Kersting, A., Dorsch, M., Wesselmann, U., Lüdorff, K., Witthaut, J., Ohrmann, P., ... & Arolt, V. (2004) | Maternal posttraumatic stress response after the birth of a very low-birth-weight infant. | <i>Journal of Psychosomatic Research</i> | 146 | 4 | 9.1 | 14 |
| Elmir, R., Schmied, V., Wilkes, L., & Jackson, D. (2010). | Women's perceptions and experiences of a traumatic birth: a meta-ethnography | <i>Journal of Advanced Nursing</i> | 141 | 5 | 14.1 | 4 |

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|--|---|---|-----|----|------|----|
| Jotzo, M., & Poets, C. F. (2005) | Helping parents cope with the trauma of premature birth: an evaluation of a trauma-preventive psychological intervention | <i>Pediatrics</i> | 139 | 6 | 9.2 | 13 |
| Shaw, R. J., Deblois, T., Ikuta, L., Ginzburg, K., Fleisher, B., & Koopman, C. (2006) | Acute stress disorder among parents of infants in the neonatal intensive care nursery | <i>Psychosomatics</i> | 135 | 7 | 9.6 | 11 |
| Andersen, L. B., Melvaer, L. B., Videbech, P., Lamont, R. F., & Joergensen, J. S. (2012) | Risk factors for developing post-traumatic stress disorder following childbirth: a systematic review | <i>Acta Obstetrica et Gynecologica Scandinavica</i> | 114 | 8 | 14.2 | 3 |
| Gamble, J., Creedy, D., Moyle, W., Webster, J., McAllister, M., & Dickson, P. (2005) | Effectiveness of a counseling intervention after a traumatic childbirth: a randomized controlled trial | <i>Birth</i> | 109 | 9 | 7.2 | 20 |
| Bryanton, J., Gagnon, A. J., Johnston, C., & Hatem, M. (2008) | Predictors of women's perceptions of the childbirth experience | <i>Journal of Obstetric, Gynecologic & Neonatal Nursing</i> | 100 | 10 | 8.3 | 15 |
| Petersen, R., Gazmararian, J. A., Spitz, A. M., Rowley, D. L., Goodwin, M. M., Saltzman, L. E., & Marks, J. S. (1997) | Violence and adverse pregnancy outcomes: a review of the literature and directions for future research | <i>American Journal of Preventive Medicine,</i> | 92 | 11 | 4.0 | 44 |
| Engel, S. M., Berkowitz, G. S., Wolff, M. S., & Yehuda, R. (2005) | Psychological trauma associated with the World Trade Center attacks and its effect on pregnancy outcome | <i>Paediatric and Perinatal Epidemiology</i> | 87 | 12 | 5.8 | 27 |
| Nicholls, K., & Ayers, S. (2007) | Childbirth-related post-traumatic stress disorder in couples: A qualitative study | <i>British Journal of Health Psychology</i> | 85 | 13 | 6.5 | 22 |
| Parfitt, Y. M., & Ayers, S. (2009) | The effect of post-natal symptoms of post-traumatic stress and depression on the couple's relationship and parent-baby bond | <i>Journal of Reproductive and Infant Psychology</i> | 84 | 14 | 7.6 | 18 |
| Engelhard, I. M., van Rij, M., Boullart, I., Ekhart, T. H., Spaanderman, M. E., van den Hout, M. A., & Peeters, L. L. (2002) | Posttraumatic stress disorder after pre-eclampsia: an exploratory study | <i>General Hospital Psychiatry</i> | 68 | 15 | 3.7 | 46 |
| Morland, L., & Goebert, D. | Posttraumatic stress disorder and pregnancy | <i>Psychosomatics</i> | 65 | 16 | 5.0 | 34 |

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| Onoye, J., Frattarelli, L., Derauf, C., Herbst, M., ... & Friedman, M. (2007) | health: preliminary update and implications | | | | | | |
| Stein, J. A., Lu, M. C., & Gelberg, L. (2000) | Severity of homelessness and adverse birth outcomes. | <i>Health Psychology</i> | 58 | 17 | 2.9 | 61 | |
| Garel, M., Dardennes, M., & Blondel, B. (2007) | Mothers' psychological distress 1 year after very preterm childbirth. Results of the EPIPAGE qualitative study | <i>Child: Care, Health and Development</i> | 56 | 18 | 4.3 | 41 | |
| Lemola, S., Stadlmayr, W., & Grob, A. (2007) | Maternal adjustment five months after birth: the impact of the subjective experience of childbirth and emotional support from the partner | <i>Journal of Reproductive and Infant Psychology</i> | 54 | 19 | 4.1 | 42 | |
| Holditch-Davis, D., Santos, H., Levy, J., White-Traut, R., O'Shea, T. M., Geraldo, V., & David, R. (2015) | Patterns of psychological distress in mothers of preterm infants. | <i>Infant Behavior and Development,</i> | 53 | 20 | 10.6 | 7 | |
| Shaw, R. J., St John, N., Lilo, E. A., Jo, B., Benitz, W., Stevenson, D. K., & Horwitz, S. M. (2013) | Prevention of traumatic stress in mothers with preterm infants: a randomized controlled trial. | <i>Pediatrics</i> | 52 | 21 | 7.4 | 19 | |
| Gamble, J., & Creedy, D. K. (2009) | A counselling model for postpartum women after distressing birth experiences | <i>Midwifery</i> | 49 | 22 | 4.4 | 40 | |
| Boorman, R. J., Devilly, G. J., Gamble, J., Creedy, D. K., & Fenwick, J. (2014) | Childbirth and criteria for traumatic events | <i>Midwifery</i> | 48 | 23 | 8.0 | 16 | |
| Cigoli, V., Gilli, G., & Saita, E. (2006) | Relational factors in psychopathological responses to childbirth | <i>Journal of Psychosomatic Obstetrics & Gynecology</i> | 47 | 24 | 3.3 | 51 | |
| Modarres, M., Afrasiabi, S., Rahnama, P., & Montazeri, A. (2012) | Prevalence and risk factors of childbirth-related post-traumatic stress symptoms | <i>BMC Pregnancy and Childbirth</i> | 44 | 25 | 5.5 | 30 | |
| Hipp, L. E., Low, L. K., & van Anders, S. M. (2012) | Exploring women's postpartum sexuality: Social, psychological, relational, and birth-related contextual factors | <i>The Journal of Sexual Medicine</i> | 43 | 26 | 5.3 | 31 | |
| Bastos, M. H., Furuta, M., Small, R., McKenzie-McHarg, K., & Bick, D. (2015) | Debriefing interventions for the prevention of psychological trauma | <i>Cochrane Database of Systematic reviews</i> | 39 | 27 | 7.8 | 17 | |

| | in women following childbirth | | | | | |
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| Garthus-Niegel, S., von Soest, T., Knoph, C., Simonsen, T. B., Torgersen, L., & Eberhard-Gran, M. (2014) | The influence of women's preferences and actual mode of delivery on post-traumatic stress symptoms following childbirth: a population-based, longitudinal study | <i>BMC Pregnancy and Childbirth</i> | 39 | 28 | 6.5 | 23 |
| Simpson, M., & Catling, C. (2016) | Understanding psychological traumatic birth experiences: A literature review | <i>Women and Birth</i> | 38 | 29 | 9.5 | 12 |
| Sawyer, A., & Ayers, S. (2009) | Post-traumatic growth in women after childbirth | <i>Psychology and Health</i> | 38 | 30 | 3.4 | 50 |
| Hollander, M. H., van Hastenberg, E., van Dillen, J., Van Pampus, M. G., de Miranda, E., & Stramrood, C. A. I. (2017) | Preventing traumatic childbirth experiences: 2192 women's perceptions and views | <i>Archives of Women's Mental Health</i> | 37 | 31 | 12.3 | 6 |
| Leeds, L., & Hargreaves, I. (2008) | The psychological consequences of childbirth | <i>Journal of Reproductive and Infant Psychology</i> | 37 | 32 | 3.1 | 56 |
| Fenwick, J., Toohill, J., Gamble, J., Creedy, D. K., Buist, A., Turkstra, E., ... & Ryding, E. L. (2015) | Effects of a midwife psycho-education intervention to reduce childbirth fear on women's birth outcomes and postpartum psychological wellbeing | <i>BMC Pregnancy and Childbirth</i> | 36 | 33 | 7.2 | 21 |
| Coates, R., Ayers, S., & de Visser, R. (2014) | Women's experiences of postnatal distress: a qualitative study | <i>BMC Pregnancy and Childbirth</i> | 36 | 34 | 6.0 | 26 |
| Furuta, M., Sandall, J., & Bick, D. (2012) | A systematic review of the relationship between severe maternal morbidity and post-traumatic stress disorder. | <i>BMC Pregnancy and Childbirth</i> | 36 | 35 | 4.5 | 37 |
| Gamble, J. A., Creedy, D. K., Webster, J., & Moyle, W. (2002) | A review of the literature on debriefing or non-directive counselling to prevent postpartum emotional distress | <i>Midwifery,</i> | 36 | 36 | 2.0 | 73 |
| Gamble, J., & Creedy, D. (2004) | Content and processes of postpartum counseling after a distressing birth experience: a review. | <i>Birth</i> | 32 | 37 | 2.0 | 74 |
| Henriksen, L., Grimsrud, E., Schei, B., Lukasse, | Factors related to a negative birth | <i>Midwifery</i> | 31 | 38 | 10.3 | 8 |

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| M., & Bidens Study Group. (2017) | experience—a mixed methods study | | | | | | |
| Furuta, M., Sandall, J., Cooper, D., & Bick, D. (2014) | The relationship between severe maternal morbidity and psychological health symptoms at 6–8 weeks postpartum: a prospective cohort study in one English maternity unit | <i>BMC Pregnancy and Childbirth</i> | 31 | 39 | 5.1 | 33 | |
| Reed, R., Sharman, R., & Inglis, C. (2017) | Women’s descriptions of childbirth trauma relating to care provider actions and interactions. | <i>BMC Pregnancy and Childbirth</i> | 30 | 40 | 10.0 | 9 | |
| Tambelli, R., Cimino, S., Cerniglia, L., & Ballarotto, G. (2015) | Early maternal relational traumatic experiences and psychopathological symptoms: a longitudinal study on mother-infant and father-infant interactions | <i>Scientific Reports</i> | 29 | 41 | 5.8 | 28 | |
| Lansakara, N., Brown, S. J., & Gartland, D. (2010) | Birth outcomes, postpartum health and primary care contacts of immigrant mothers in an Australian nulliparous pregnancy cohort study | <i>Maternal and Child Health Journal</i> | 29 | 42 | 2.9 | 62 | |
| Webb, R., & Ayers, S. (2015) | Cognitive biases in processing infant emotion by women with depression, anxiety and post-traumatic stress disorder in pregnancy or after birth: A systematic review | <i>Cognition and Emotion</i> | 28 | 43 | 5.6 | 29 | |
| Denis, A., Parant, O., & Callahan, S. (2011) | Post-traumatic stress disorder related to birth: a prospective longitudinal study in a French population | <i>Journal of Reproductive and Infant Psychology</i> | 28 | 44 | 3.1 | 57 | |
| Enlow, M. B., Kullowatz, A., Staudenmayer, J., Spasojevic, J., Ritz, T., & Wright, R. J. (2009) | Associations of maternal lifetime trauma and perinatal traumatic stress symptoms with infant cardiorespiratory reactivity to psychological challenge | <i>Psychosomatic Medicine</i> | 28 | 45 | 2.5 | 68 | |
| Ionio, C., & Di Blasio, P. (2014) | Post-traumatic stress symptoms after childbirth and early mother–child | <i>Journal of Reproductive and Infant Psychology</i> | 27 | 46 | 4.5 | 38 | |

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| | interactions: an exploratory study | | | | | |
| Sawyer, A., Ayers, S., Young, D., Bradley, R., & Smith, H. (2012) | Posttraumatic growth after childbirth: A prospective study | <i>Psychology & Health</i> | 27 | 47 | 3.3 | 52 |
| Misund, A. R., Nerdrum, P., Bråten, S., Pripp, A. H., & Diseth, T. H. (2013) | Long-term risk of mental health problems in women experiencing preterm birth: a longitudinal study of 29 mothers | <i>Annals of General Psychiatry</i> | 26 | 48 | 3.7 | 47 |
| Thomson, G. M., & Downe, S. (2010) | Changing the future to change the past: women's experiences of a positive birth following a traumatic birth experience | <i>Journal of Reproductive and Infant Psychology</i> | 26 | 49 | 2.6 | 64 |
| Misund, A. R., Nerdrum, P., & Diseth, T. H. (2014) | Mental health in women experiencing preterm birth | <i>BMC Pregnancy and Childbirth</i> | 25 | 50 | 4.1 | 43 |
| Kim, W. J., Lee, E., Kim, K. R., Namkoong, K., Park, E. S., & Rha, D. W. (2015) | Progress of PTSD symptoms following birth: a prospective study in mothers of high-risk infants | <i>Journal of Perinatology</i> | 24 | 51 | 4.8 | 36 |
| Zotti, M. E., Williams, A. M., Robertson, M., Horney, J., & Hsia, J. (2013) | Post-disaster reproductive health outcomes | <i>Maternal and Child Health Journal</i> | 23 | 52 | 3.2 | 55 |
| Shaw, R. J., Sweester, C. J., St. John, N., Lilo, E., Corcoran, J. B., Jo, B., ... & Horwitz, S. M. (2013) | Prevention of postpartum traumatic stress in mothers with preterm infants: manual development and evaluation | <i>Issues in Mental Health Nursing</i> | 22 | 53 | 3.1 | 58 |
| Brecht, C. J., Shaw, R. J., St. John, N. H., & Horwitz, S. M. (2012) | Effectiveness of therapeutic and behavioral interventions for parents of low-birth-weight premature infants: A review | <i>Infant Mental Health Journal</i> | 22 | 54 | 2.7 | 63 |
| Goutaudier, N., Lopez, A., Séjourné, N., Denis, A., & Chabrol, H. (2011) | Premature birth: subjective and psychological experiences in the first weeks following childbirth, a mixed-methods study | <i>Journal of Reproductive and Infant Psychology</i> | 22 | 55 | 2.4 | 70 |
| De Schepper, S., Vercauteren, T., Tersago, J., Jacquemyn, Y., Raes, F., & Franck, E. (2016) | Post-Traumatic Stress Disorder after childbirth and the influence of maternity team care during labour and birth: A cohort study | <i>Midwifery</i> | 21 | 56 | 5.2 | 32 |
| Dailey, D. E., Humphreys, J. C., | An exploration of lifetime trauma | <i>Maternal and Child Health Journal</i> | 21 | 57 | 2.3 | 71 |

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| Rankin, S. H., & Lee, K. A. (2011) | exposure in pregnant low-income African American women | | | | | | |
| de Graaff, L. F., Honig, A., van Pampus, M. G., & Stramrood, C. A. (2018) | Preventing post-traumatic stress disorder following childbirth and traumatic birth experiences: a systematic review | <i>Acta Obstetrica et Gynecologica Scandinavica</i> | 20 | 58 | 10.0 | 10 | |
| Polachek, I. S., Dulitzky, M., Margolis-Dorfman, L., & Simchen, M. J. (2016) | A simple model for prediction postpartum PTSD in high-risk pregnancies | <i>Archives of Women's Mental Health</i> | 20 | 59 | 5.0 | 35 | |
| Skinner, E. M., & Dietz, H. P. (2015) | Psychological and somatic sequelae of traumatic vaginal delivery: a literature review | <i>Australian and New Zealand Journal of Obstetrics and Gynaecology</i> | 20 | 60 | 4.0 | 45 | |
| Murphy, S., Shevlin, M., & Elklit, A. (2014) | Psychological consequences of pregnancy loss and infant death in a sample of bereaved parents | <i>Journal of Loss and Trauma</i> | 20 | 61 | 3.3 | 53 | |
| Alder, J., Stadlmayr, W., Tschudin, S., & Bitzer, J. (2006) | Post-traumatic symptoms after childbirth: what should we offer? | <i>Journal of Psychosomatic Obstetrics & Gynecology</i> | 20 | 62 | 1.4 | 91 | |
| Schwab, W., Marth, C., & Bergant, A. M. (2012) | Post-traumatic stress disorder post partum: the impact of birth on the prevalence of post-traumatic stress disorder (PTSD) in multiparous women | <i>Geburtshilfe und Frauenheilkunde</i> | 19 | 63 | 2.0 | 75 | |
| Nieminen, K., Berg, I., Frankenstein, K., Viita, L., Larsson, K., Persson, U., ... & Wijma, K. (2016) | Internet-provided cognitive behaviour therapy of posttraumatic stress symptoms following childbirth—a randomized controlled trial | <i>Cognitive Behaviour Therapy</i> | 18 | 64 | 4.5 | 39 | |
| Callister, L. C., Holt, S. T., & Kuhre, M. W. (2010) | Giving birth: the voices of Australian women | <i>The Journal of Perinatal & Neonatal Nursing</i> | 18 | 65 | 1.8 | 79 | |
| Selkirk, R., McLaren, S., Ollerenshaw, A., McLachlan, A. J., & Moten, J. (2006) | The longitudinal effects of midwife-led postnatal debriefing on the psychological health of mothers | <i>Journal of Reproductive and Infant Psychology</i> | 18 | 66 | 1.2 | 93 | |
| Suttora, C., Spinelli, M., & Monzani, D. (2014) | From prematurity to parenting stress: The mediating role of perinatal post-traumatic stress disorder | <i>European Journal of Developmental Psychology</i> | 16 | 67 | 2.6 | 65 | |

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| Koen, N., Brittain, K., Donald, K. A., Barnett, W., Koopowitz, S., Maré, K., ... & Stein, D. J. (2016) | Psychological trauma and posttraumatic stress disorder: risk factors and associations with birth outcomes in the Drakenstein Child Health Study | <i>European Journal of Psychotraumatology</i> | 15 | 68 | 3.7 | 48 |
| de la Cruz, C. Z., Coulter, M. L., O'Rourke, K., Amina Alio, P., Daley, E. M., & Mahan, C. S. (2013) | Women's experiences, emotional responses, and perceptions of care after emergency peripartum hysterectomy: a qualitative survey of women from 6 months to 3 years postpartum | <i>Birth</i> | 15 | 69 | 2.1 | 72 |
| Sorenson, D. S. (2003) | Healing traumatizing provider interactions among women through short-term group therapy | <i>Archives of Psychiatric Nursing</i> | 15 | 70 | 0.8 | 99 |
| Skinner, E. M., Barnett, B., & Dietz, H. P. (2018) | Psychological consequences of pelvic floor trauma following vaginal birth: a qualitative study from two Australian tertiary maternity units | <i>Archives of Women's Mental Health</i> | 13 | 71 | 6.5 | 24 |
| Taheri, M., Takian, A., Taghizadeh, Z., Jafari, N., & Sarafraz, N. (2018) | . Creating a positive perception of childbirth experience: systematic review and meta-analysis of prenatal and intrapartum interventions | <i>Reproductive Health</i> | 13 | 72 | 6.5 | 25 |
| Sawyer, A., Nakić Radoš, S., Ayers, S., & Burn, E. (2015) | Personal growth in UK and Croatian women following childbirth: A preliminary study | <i>Journal of Reproductive and Infant Psychology</i> | 13 | 73 | 2.6 | 66 |
| Peeler, S., Chung, M. C., Stedmon, J., & Skirton, H. (2013) | A review assessing the current treatment strategies for postnatal psychological morbidity with a focus on post-traumatic stress disorder | <i>Midwifery</i> | 12 | 74 | 1.7 | 82 |
| Eutrope, J., Thierry, A., Lempp, F., Aupetit, L., Saad, S., Dodane, C., ... & Rolland, A. C. (2014) | Emotional reactions of mothers facing premature births: study of 100 mother-infant dyads 32 gestational weeks | <i>PloS One</i> | 11 | 75 | 1.8 | 80 |
| Kraljevic, M., & Warnock, F. F. (2013) | Early educational and behavioral RCT interventions to reduce maternal symptoms of psychological trauma following preterm birth: a systematic review. | <i>The Journal of Perinatal & Neonatal Nursing</i> | 11 | 76 | 1.5 | 89 |

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|--|--|---|----|----|-----|----|
| Baas, M. A. M., Stramrood, C. A. I., Dijkman, L. M., de Jongh, A., & Van Pampus, M. G. (2017) | The OptiMUM-study: EMDR therapy in pregnant women with posttraumatic stress disorder after previous childbirth and pregnant women with fear of childbirth: design of a multicentre randomized controlled trial | <i>European Journal of Psychotraumatology</i> | 10 | 77 | 3.3 | 54 |
| Iles, J., & Pote, H. (2015) | Postnatal posttraumatic stress: A grounded theory model of first-time mothers' experiences | <i>Journal of Reproductive and Infant Psychology</i> | 10 | 78 | 2.0 | 76 |
| Tham, V., Ryding, E. L., & Christensson, K. (2010) | Experience of support among mothers with and without post-traumatic stress symptoms following emergency caesarean section | <i>Sexual & Reproductive Healthcare</i> | 10 | 79 | 1.0 | 96 |
| Hinton, L., Locock, L., & Knight, M. (2015) | Support for mothers and their families after life-threatening illness in pregnancy and childbirth: a qualitative study in primary care | <i>British Journal of General Practice</i> | 9 | 80 | 1.8 | 81 |
| Kendall-Tackett, K. (2014) | Childbirth-related posttraumatic stress disorder: Symptoms and impact on breastfeeding | <i>Clinical Lactation</i> | 9 | 81 | 1.5 | 90 |
| Halvorsen, L., Nerum, H., Øian, P., & Sørli, T. (2013) | Giving birth with rape in one's past: a qualitative study | <i>Birth</i> | 9 | 82 | 1.2 | 94 |
| Koen, N., Brittain, K., Donald, K. A., Barnett, W., Koopowitz, S., Maré, K., ... & Stein, D. J. (2017) | Maternal posttraumatic stress disorder and infant developmental outcomes in a South African birth cohort study | <i>Psychological Trauma: Theory, Research, Practice, and Policy</i> | 8 | 83 | 2.6 | 67 |
| Williams, C., Patricia Taylor, E., & Schwannauer, M. (2016) | A web-based survey of mother–infant bond, attachment experiences, and metacognition in posttraumatic stress following childbirth | <i>Infant Mental Health Journal</i> | 8 | 84 | 2.0 | 77 |
| Quinn, K., Spiby, H., & Slade, P. (2015) | A longitudinal study exploring the role of adult attachment in relation to perceptions of pain in labour, childbirth memory and acute traumatic stress responses | <i>Journal of Reproductive and Infant Psychology</i> | 8 | 85 | 1.6 | 85 |
| Sheen, K., & Slade, P. (2015) | The efficacy of 'debriefing' after childbirth: is there a | <i>Journal of Reproductive and Infant Psychology</i> | 8 | 86 | 1.6 | 86 |

| | case for targeted intervention? | | | | | | |
|--|---|--|---|----|-----|-----|--|
| Giarratano, G., Harville, E. W., De Mendoza, V. B., Savage, J., & Parent, C. M. (2015) | Healthy start: description of a safety net for perinatal support during disaster recovery | <i>Maternal and Child Health Journal</i> | 8 | 87 | 1.6 | 87 | |
| Anderson, C. A., & Gill, M. (2014) | Childbirth related fears and psychological birth trauma in younger and older age adolescents | <i>Applied Nursing Research</i> | 8 | 88 | 1.3 | 92 | |
| Matthey, S., Silove, D., Barnett, B., Fitzgerald, M. H., & Mitchell, P. (1999) | Correlates of depression and PTSD in Cambodian women with young children: a pilot study | <i>Stress Medicine</i> | 8 | 89 | 0.3 | 100 | |
| Furuta, M., Horsch, A., Ng, E. S., Bick, D., Spain, D., & Sin, J. (2018) | Effectiveness of trauma-focused psychological therapies for treating post-traumatic stress disorder symptoms in women following childbirth: a systematic review and meta-analysis | <i>Frontiers in Psychiatry</i> | 7 | 90 | 3.5 | 49 | |
| Inglis, C., Sharman, R., & Reed, R. (2016) | Paternal mental health following perceived traumatic childbirth | <i>Midwifery</i> | 7 | 91 | 1.7 | 83 | |
| Misund, A. R., Bråten, S., Nerdrum, P., Pripp, A. H., & Diseth, T. H. (2016) | A Norwegian prospective study of preterm mother–infant interactions at 6 and 18 months and the impact of maternal mental health problems, pregnancy and birth complications | <i>BMJ Open</i> | 7 | 92 | 1.7 | 84 | |
| Halperin, O., Sarid, O., & Cwikel, J. (2014) | A comparison of Israeli Jewish and Arab women's birth perceptions | <i>Midwifery</i> | 7 | 93 | 1.1 | 95 | |
| Slopen, N., Roberts, A. L., LeWinn, K. Z., Bush, N. R., Rovnaghi, C. R., Tylavsky, F., & Anand, K. J. (2018) | Maternal experiences of trauma and hair cortisol in early childhood in a prospective cohort. | <i>Psychoneuroendocrinology</i> | 6 | 94 | 3.0 | 59 | |
| Delicate, A., Ayers, S., Easter, A., & McMullen, S. (2018) | The impact of childbirth-related post-traumatic stress on a couple's relationship: a systematic review and meta-synthesis | <i>Journal of Reproductive and Infant Psychology</i> | 6 | 95 | 3.0 | 60 | |
| Reichenheim, M. E., Moraes, C. L., Howard, L. M., & Lobato, G. (2017) | Childhood sexual abuse, intimate partner violence during pregnancy, and | <i>Archives of Women's Mental Health</i> | 6 | 96 | 2.0 | 78 | |

| | posttraumatic stress symptoms following childbirth: a path analysis | | | | | |
|---|---|---|---|-----|-----|----|
| Foley, S., Crawley, R., Wilkie, S., & Ayers, S. (2014) | The birth memories and recall questionnaire (BirthMARQ): development and evaluation | <i>BMC Pregnancy and Childbirth</i> | 6 | 97 | 1.0 | 97 |
| Liana, P., Sima, R. M., Carp, D., Alexandroaia, C., Balalau, D. O., Stanescu, A. D., & Olaru, O. G. (2018) | The psychosocial impact of vaginal delivery and cesarean section in primiparous women | <i>Journal of Mind and Medical Sciences</i> | 5 | 98 | 2.5 | 69 |
| Di Blasio, P., Camisasca, E., Miragoli, S., Ionio, C., & Milani, L. (2017) | Does maternal parenting stress mediate the association between postpartum PTS symptoms and children’s internalizing and externalizing problems? A longitudinal perspective. | <i>Child Youth Care Forum</i> | 5 | 99 | 1.6 | 88 |
| Mbalinda, S. N., Nakimuli, A., Nakubulwa, S., Kakaire, O., Osinde, M. O., Kakande, N., & Kaye, D. K. (2015) | Male partners’ perceptions of maternal near miss obstetric morbidity experienced by their spouses | <i>Reproductive Health</i> | 5 | 100 | 1.0 | 98 |

The distribution of the publication years and numbers of citations of the highly cited studies is shown in Figure 1. The studies that received the most citations were published in the period of 1997-2018, and 2015 was the year with the highest number of published studies (14 studies). 72.0% of the studies were published in and after 2010. The total number of citations of all 100 studies was 4176. 83.68% of the citations were made in the last ten years (2011-2020), and 2019 had the highest number of citations (542 citations). The relationship between year of publication and number of citations was examined by Pearson’s correlation analysis. There was a positive relationship between year of publication and number of citations ($r= .943, p<.001$).

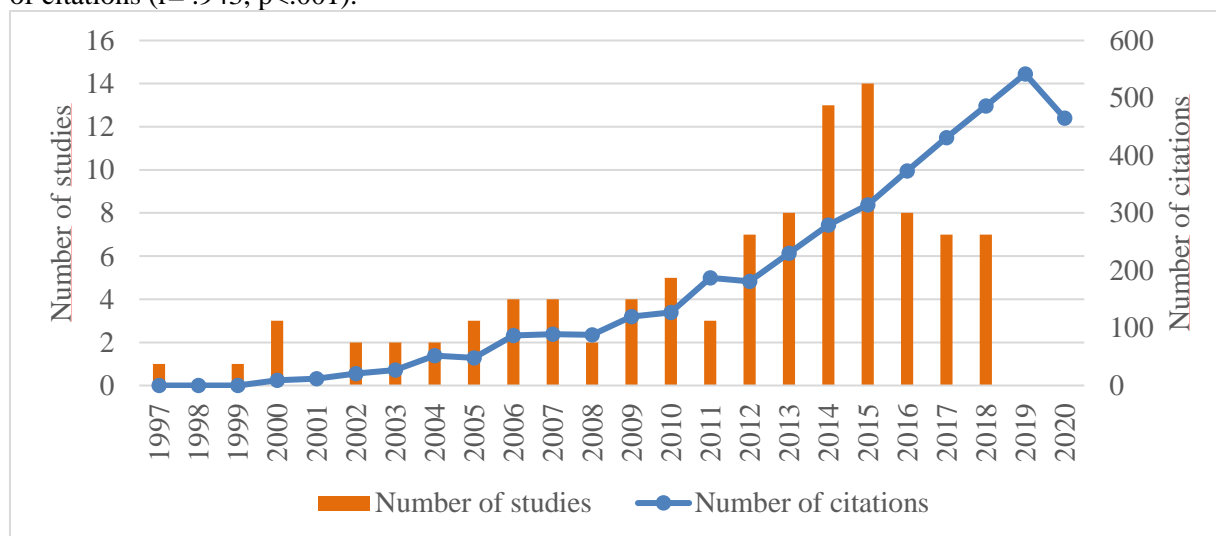


Figure 1. Number of Citations and Publications by Years

The 100 highly cited studies were published in 53 different journals. The numbers of these highly cited studies in the journals varied between one and 13. While two or more of these studies were published in 15 journals, one was published in 38 journals. The journals with the highest numbers of citations were Birth Issues in Perinatal Care (797 cited), Journal of Reproductive and Infant Psychology (341 cited) and BMC Pregnancy and Childbirth (283 cited) (Table 2). According to the citation densities, the British Journal of Clinical Psychology (CD=264.0), Journal of Psychosomatic Research (CD=146.0) and Journal of Advanced Nursing (CD=141.0) had the first three places (Table 2). The highly cited studies on psychological birth trauma were produced by 370 different authors. Creedy, DK. (Australia) was the author with the highest number of citations as 621. The 100 studies were produced by 172 different institutions. Griffith University (Australia) was the institution with the highest numbers of publications and citations.

The distribution of the numbers of citations and citation densities based on countries is given in Table 2. The highly cited studies were produced by 27 different countries. 16 of the studies were produced by countries in the European continent. The countries with the highest numbers of citations were the USA (1092 citations), Australia (964 citations) and the United Kingdom (893 citations). Germany (CD=108.0), Denmark (CD=67.0) and Australia (CD=56.7) were the leading countries based on the citation density (CD) (Citation density: number of citations per publication) (Table 2).

Table 2. The characteristics of The Most Cited Journals and Countries

| Rank | Journal name (Q index- (WoS)) | 2019 IF | Citations | Citation density | Number of publications |
|------|--|---------------|-----------|------------------|------------------------|
| 1. | Birth Issues in Perinatal Care (Q1) | 2.705 | 797 | 132.8 | 6 |
| 2. | Journal of Reproductive and Infant Psychology (Q3) | 1.188 | 341 | 26.2 | 13 |
| 3. | BMC Pregnancy and Childbirth (Q2) | 2.239 | 283 | 31.4 | 9 |
| 4. | British Journal of Clinical Psychology (Q2) | 2.541 | 264 | 264.0 | 1 |
| 5. | Midwifery (Q2) | 1.778 | 211 | 26.3 | 8 |
| | Country | Territory | Citations | Citation density | Number of publications |
| 1. | USA | North America | 1092 | 54.6 | 20 |
| 2. | Australia | Oceania | 964 | 56.7 | 17 |
| 3. | England | Europe | 893 | 40.5 | 22 |
| 4. | Germany | Europe | 324 | 108.0 | 3 |
| 5. | Norway | Europe | 137 | 22.8 | 6 |
| 6. | Netherlands | Europe | 135 | 33.7 | 4 |
| 7. | Denmark | Europe | 134 | 67.0 | 2 |
| 8. | Canada | North America | 131 | 43.6 | 3 |
| 9. | Italy | Europe | 124 | 24.8 | 5 |
| 10. | France | Europe | 117 | 29.2 | 4 |

Based on the evidence levels, the Level VI-Qualitative or descriptive study category had the most publications (57 studies) and citations (2473 citations). The Level IV-Case-control or cohort study (CD=46.7) and Level V-Systematic review of qualitative or descriptive studies (CD=46.7) categories had the highest citation density (Table 3). Among the 100 highly cited studies on psychological birth trauma, 63 consisted of empirical quantitative studies (Table 3). The quantitative studies had the most citations (3067 cited) and highest citation density (CD: 48.6). The mixed studies had the least citations (103 cited) and the lowest citation density (CD: 20.6). In terms of the citation densities, there was no statistically significant difference among the types of research (XKW= 5.229, p=0.156).

Table 3. Number of Publications, Number of Citations and Citation Density According to Type of Publication and Level of Evidence

| Level of evidence | Number of publications | Number of citations | Citation density |
|---|------------------------|---------------------|------------------|
| I-Systematic review or meta-analysis | 8 | 146 | 18.2 |
| II- Randomized controlled trial | 9 | 393 | 43.6 |
| III- Controlled trial without randomization | 2 | 42 | 21.0 |
| IV- Case-control or cohort study | 12 | 561 | 46.7 |
| V-Systematic review of qualitative or descriptive studies | 12 | 561 | 46.7 |
| VI-Qualitative or descriptive study | 57 | 2473 | 43.3 |
| VII-Expert opinion or consensus | - | - | - |
| Type of publication | | | |
| 1. Theoretical studies* | 21 | 727 | 34.6 |
| 2. Empirical quantitative studies | 63 | 3067 | 48.6 |
| 3. Empirical qualitative studies | 11 | 279 | 25.3 |
| 4. Mixed studies | 5 | 103 | 20.6 |

*Theoretical studies, including literature review, systematic review and meta-analysis

The author keywords of the highly cited studies were examined. It was determined that 232 different keywords were used in the 100 studies. The most frequently used keywords were “PTSD”, “childbirth”, “trauma”, “postpartum”, “anxiety”, “depression”, “pregnancy”, “stress” and “mother” (Figure 2). The author keywords were found to consist of 6 clusters as Cluster 1: “anxiety”, “birth outcomes”, “depression”, “pregnancy”, “preterm birth”; Cluster 2: “birth trauma”, “breastfeeding”, “childbirth”, “postnatal depression”, Cluster 3: “childbirth experience”, “postpartum depression”, “prematurity”, “support”, Cluster 4: “maternal morbidity”, “PTSD”, “traumatic birth”, Cluster 5: “mother”, “stress”, “trauma”, Cluster 6: “postpartum”, “posttraumatic stress” (Figure 2).

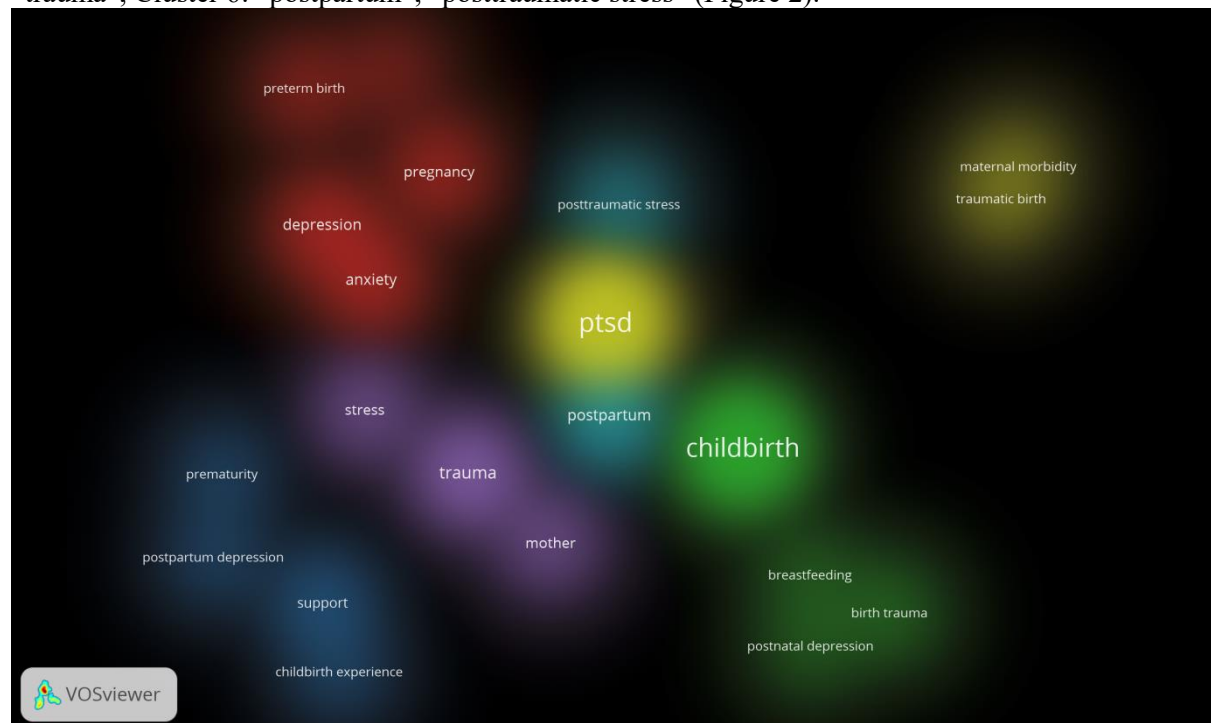


Figure 2. The Keyword Co-Occurrence Map in The Psychological Birth Trauma Field (Co-Occurrence Three Or More Times)

DISCUSSION

This study examined the properties of the first 100 studies on PBT with the most citations published on the Web of Science (WoS) database by using the bibliometric analysis method. This way, it was aimed to be guiding for future scientific studies.

Number of citations provides significant data on the contribution of a study to the scientific field and its academic effect (Ahmad et al., 2019). It is generally believed that a study with a high number of citations has higher quality (Bornmann et al., 2012). Martín-Del-Río et al. (2018) stated that the 100 articles with the most citations are those with the greatest effect on colleagues in a particular study area. Hack et al. (2010) proposed that a study with 100 or more citations may be considered an “excellent article”, while one with more than 159 citations may be considered an “extraordinary article”. The 100 articles on PBT with the highest numbers of citations were cited 5 to 321 times. Very few studies had 100 or more citations. For this reason, we may conclude that very few articles on PBT may be considered exceptional or excellent articles. The results of this study were similar to studies which examined stress (Martín-Del-Río et al., 2018), conflict (Kantek & Yesilbas, 2020) and leadership (Yesilbas & Kantek, 2020) among studies on nursing. Based on these findings, it may be stated that more qualified studies are needed on the topic of PBT.

The three studies on PBT with the most citations were conducted by Soet et al. (2003), Creedy et al. (2000) and Czarnocka & Slade (2000), and they were on understanding the prevalence and predictors of PBT. This finding showed that concerns about understanding the prevalence and predictors of PBT are ongoing. To reduce the psychological birth trauma experiences of women, it is important to know about the frequency of the problem and its determinants (Creedy et al., 2000; Soet et al., 2003). This may have been the reason for the high citation numbers.

The highest number of citations in this study was found in 2019 (542 citations), the number of citations showed a regular increase, and 79.7% of all citations were made in the last ten years (2010-2019). There was also a positive correlation between year of publication and number of citations. These findings may be interpreted as that the field of psychological birth trauma has expanded in research on nursing and midwifery, and in especially recent years, it has become an active research field. Today, psychological birth trauma is still considered as a global public health problem (National Institute for Health and Care Excellence (NICE), 2014). This situation may have led researchers to explain this phenomenon. An increase in the number of studies on psychological birth trauma will provide significant contribution to prevention of the problem and mitigation of its effects.

Journals are an important tool that allows transferring of research results to readers and researchers (Tonta, 2017). In this study, on the topic of PBT, while Birth Issues in Perinatal Care was the journal with the most citations, the British Journal of Clinical Psychology had the highest citation density. The IF values of both journals are high. Previous bibliometric studies have shown a positive correlation between the numbers of citations of journals and IF (Lai et al., 2017; Liu et al., 2015). It is known that authors see the IF of the journal as the most determining factor in selecting a journal for their publications, and journals with high IF values attract high-quality articles (Jabbour et al., 2013). In this context, the fact that both journals had high numbers of citations may be interpreted as an expected situation. The interesting thing here was that the British Journal of Clinical Psychology obtained this number of citations with a single publication. This may be explained by that this publication was one of the first publications on the topic of PBT. Moreover, the fact that the journal is related to clinical psychology may have increased its utilisation by researchers in different fields.

The 100 studies on PBT with the most citations were produced by authors from 27 different countries. As in previous studies, the country with the most citations was the USA (Soet et al., 2003). This result may be interpreted as that the USA led the studies in the field of PBT. Many researchers have stated that studies produced at American institutions receive more citations than those in other countries (Filion & Pless, 2008; Gargouri et al., 2010). Considering that the USA's number of researchers, financial resources provided to researchers and the international collaboration of their researchers are high, this result was not surprising (Shadgan et al., 2010; Tahamtan et al., 2016). In terms of territory, the highest numbers of citations belonged to Europe and Northern America. This finding may be interpreted as that countries with high income levels and low birth rates focused more on the topic of PBT. There is a need for research results on PBT in countries with low economic development and high birth rates such as Asian and African countries. This way, it will be possible to develop the literature in terms of regional and cultural differences regarding PBT.

The findings of this study revealed that the highest number of citations was in the category of evidence level VI (Qualitative or descriptive study). The categories of evidence level IV (Case-control or cohort study) and V (Systematic review of qualitative or descriptive studies) had the highest citation density. In line with these findings, it may be stated that the evidence level of the studies on PBT was low. Similar results were reached in other bibliometric studies (Gondivkar et al., 2018; Lefavre et al., 2011; Pena-Cristóbal et al., 2018). Tahamtan et al. (2016) stated that methodology, study type and design are among factors that affect the number of citations, and the citation effect of meta-analyses, systematic reviews and randomised-controlled studies is higher. Conducting case-control, randomised-controlled and meta-analysis studies in the future will increase the evidence level on the topic of PBT.

In an article, the number and diversity of the keywords increase citations (Chakraborty et al., 2014). In bibliometric analysis, the frequency of the use of keywords is important in terms of showing on which topics the field of study focuses (Kantek et al., 2019; Liang et al., 2017). When the keywords of the highly cited studies were examined, it was observed that the most frequently used keywords were “PTSD”, “childbirth”, “trauma”, “postpartum”, “anxiety”, “depression”, “pregnancy”, “stress” and “mother”. In relation to these findings, it was seen that PBT was mostly examined in the context of PTSD, and contents on preventing psychological birth trauma were rare. For this reason, there is a need for studies towards developing effective and applicable interventions to prevent PBT in maternal health services.

Strengths and Limitations

The main strength of this study is that it is the first bibliometric study examining the properties of the 100 studies on psychological birth trauma with the highest numbers of citations. The results of this study will help researchers determine their research priorities in the future. On the other hand, this study had some limitations. As the Web of Science database was used in the study, the results of the study were limited to the publications on this database. Furthermore, the results obtained by the literature search were limited to the English language. Thus, different results may be obtained if studies in different languages are added to the analysis.

Implications for Nursing and Midwifery Practice

This study revealed that the topic of PBT is a growing and active field of study. The studies with the most citations focused on understanding the prevalence and predictors of PBT. The USA was the country leading this field. There was a dearth of studies on PBT in low- and middle-income countries. It is seen that there is a need for studies on PBT with high evidence levels. It may be recommended for future studies to focus on interventions to reduce the PBT experiences of women. Interventions and management strategies addressing symptoms that detecting PBT experiences of women improvement are needed nursing and midwifery practice

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Conflict of Interest

The author declares no conflict of interest.

Author Contributions

Plan, design: HYD, FK; **Material, methods and data collection:** HYD, FK; **Data analysis and comments:** FK, HY ; **Writing and corrections:** HYD, HY, FK

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