

# Early Detection of Maternal Functioning Status on Postpartum Mother's Mental Health

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**Abstract:** Postpartum mother's mental health is a significant aspect affecting mother's wellbeing and child's development as well as reflecting *maternal functioning* status. *Early detection of maternal functioning* status plays significant role in identifying potential *postpartum* mother's health problems. *Maternal functioning* is a multidimensional concept of mother's readiness to care for baby, self care, family, and social activities. The aim of the research is to identify early detection of *maternal functioning* towards postpartum mother's mental health. Research method applied was systematic literature review (SLR) with PRISMA as the guidelines. Journals with relevant topics reviewed from *Pubmed*, *Google Scholar*, and *Proquest* database with criteria within 10 years, published 2014-2024 using keywords *Maternal Functioning Status AND Postpartum Mental Health*. Inclusion criteria are English articles, *randomized controlled trial design*, *case study*, *quasy experiment* and *full text*. Analysis applied synthesis matrix: identification, selection, eligibility, and data extraction. Review delivered 7 journals with criteria year of publication within 2017-2022, sample characteristic were *postpartum* mothers. Early detection of *maternal functioning* in postpartum mothers is an effort to improve screening on mothers to improve mother's health and mother's functional status. *Maternal functional* is the early screening to detect psychological problems during postpartum period. The instrument used for early detection of mental health is *Barkin Index of Maternal Functioning* (BIMF). The research finds out that *maternal functioning* to detect postpartum mother's mental health using BIMF is valid and reliable.

**Key Words:** *Maternal Functioning, Postpartum Mental Health.*

## INTRODUCTION

Problems in midwifery are complex, therefore collaboration of cross study program and cross disciplinary is needed as well as improving more serious social factors. The problems of midwifery are Maternal Morality Rate (MMR) which has significant impact in the development of the nation. (Novianty, 2020) Maternal Morality Rate (MMR) is the number of maternal deaths related to the cause of death (accidents and incidental cases are not included) caused by complications and the treatment during pregnancy, childbirth and postpartum (42 days after the delivery) without counting the pregnancy period per 100.000 live births. (Natasha & Niara, 2022)

MMR becomes an important indicator in *Sustainable Development Goals* (SDG's). *World Health Organization* (WHO) stated the target of SDGs in 2030 is to decrease MMR below 70/100.000 LB and decrease Neonatal Mortality Rate until 12/1000 LB and Infant Mortality Rate until 25/1000 LB.(World Health Organization (WHO), 2024) MMR is also used as an indicator of *Sustainable Development Goals* (SDG's) in Indonesia. The global MMR in 2020 recorded almost 800 mothers died (every 2 minutes). 95% of maternal death occurred in developed country. MMR in Indonesia is the thirds highest rate in Southeast Asia (190/100.000 KH). MMR data in 2023 is 177 per 100.000 LB.(Kemenkes RI, 2023) Data showed 81% of maternal mortality was during post partum period and 19% during pregnancy.(Schrey-Petersen et al., 2021)

Significant period to prevent MMR is *postpartum period*. *Postpartum period* is a susceptible period encountering dangerous complication for mothers and closely related to mortality risk.(Wijaya et al., 2023) Efforts to decrease MMR have been carried out in Indonesia. However, the current condition has not reached the target yet. The decrease of MMR and IMR includes the readiness of health facilities in Indonesia, uneven distribution as well as the likely poor ability to detect the risk of complications.(Badan Pusat Statistik, 2023) The success indicators for integrating mental health can be seen through *Maternal Mortality Ratio* (MMR).(World Health Organization (WHO), 2024) Determination analysis of complication during post partum refers to the outline of *Maternal Morbidity Measurement* (MMM) caused by first-order determinant, second-order determinant and third-order determinant.(Filippi et al., 2018)

Most likely ignored *maternal* complication is postpartum period because mostly considered that the critical period has been passed. Postpartum complication needs early identification, especially on bleeding, infections, hypertension, post-surgical dehiscence and uterus *subinvolution*. Mental health also needs to be concerned because it is significant towards mother and infant's wellbeing.(Wijaya et al., 2023) During *Postpartum* period, mother is likely to experience mental health problem caused by physical and psychological adaptation.(Nurbina et al., 2021) Data showed 20% mothers experience mental health problems (mostly depression). The rate in developed country is higher, 15,6% during pregnancy and 19,8% after delivery. Criteria of mental disorders during pregnancy and postpartum period are major depressive disorder, manic depressive, anxiety, social phobia, specific phobia.(World Health Organization (WHO), 2023) Based on the data, 50-70% of postpartum mother in Indonesia experienced mental health disorders.(Kemenkes RI, 2022)

Postpartum mothers experiencing positive and negative experience during delivery process because mothers experienced different response during delivery.(Orchard et al., 2023) Some mothers experienced delivery as traumatic.(Ozcalik & Aksoy, 2024) There are conditions that are likely to be identified as the trigger of traumatic stress during delivery period such as situation that is considered to threaten mother and/or infant, perineal tear, labor dystocia, and emergency delivery.(Heyne et al., 2022) The process of delivery can cause traumatic stress proven by the fact that one of three mothers describe delivery as traumatic experience.(Ayers et al., 2024) The symptoms of mental disorders during delivery are not noted explicitly in Diagnostic and Statistical Manual of Mental Health (DSM-5), however, they are potentially cause postpartum trauma.(Altuntuğ et al., 2024) Mental Health refers to the wellbeing condition to realize the potency, overcome stress, work productively as well as to give social contribution.(World Health Organisation (WHO), 2021)

Mental disorders during *postpartum* period has significant impact towards mothers' health because they cannot follow health recommendations during postpartum period and it is concerned that it will cause complication and negative impact towards the family condition.(O'Dea et al., 2023),(Stepowicz et al., 2020) Poor mother's functional capacity has significant impact towards the implementation of the role as a mother, such as difficulty in caring the baby.(Shamasbi et al., 2020),(Saharoy et al., 2023). Mother's mental disorders have significant impact towards the baby's condition, because the baby will likely experience psychological obstacle because the baby feels mother's fear during the caring process.(Sinaga & Jober, 2023) Mental health is considered important. Therefore, early detection applying the effective instruments is needed. Early detection of *maternal functioning* status has significant impact in identifying potential mental health problems of postpartum mothers.(Kwok et al., 2024)

*Maternal functioning* as multidimensional concept includes self care, baby and family care, social activity and work life.(Cresswell et al., 2020) *Maternal functioning* disorders such as difficulty in caring the baby as well as lack of social support has significant relationship with the occurrence of mental health symptoms such as depression and anxiety.(Amalia et al., 2023) Assessing mother's progress in *maternal functioning* is an important component in postpartum and pediatric treatment. Therefore, preventing further complication, assessing functional status and mother's mental health is significant to be done by health workers.(Nurbina et al., 2021) Poor control of mother's function is likely to cause anxiety and difficulty in caring the baby. As a consequence, the

baby will not feel safe but the baby will be affected by mother's anxiety. Thus, it has significant impact in child's development in the future.(Arami N., Asti Mulasari S., 2021)

*Maternal Functioning* is significant variable in caring the baby for the first 12 months after delivery and during a life time as parents. Mother is responsible to feed and care the baby, dressing the baby and taking the baby to see the doctor. Mother's function during postpartum period is a multidimensional concept including self care, baby and family care, social activity and work life.(Ozcalik & Aksoy, 2024) In this case, midwife as a health worker has to think critically in providing the best service in postpartum treatment. One of the treatment is continuity conducted by the midwife from pregnancy until postpartum period.(Zdolska-Wawrzekiewicz et al., 2018) Factors affected *maternal functioning* is mother's psychology in taking the role as a mother. Mother's unreadiness is an obstacle of the process to be a good mother for the baby. It disrupts the role of mother and baby. Therefore, the involvement of the health worker, especially midwife is needed.(Özkan et al., 2018) The aim of the research is to identify early detection of *maternal functioning* towards postpartum mother's mental health.

## METHOD

Method applied was *Systematic Literature Review* (SLR), a systematic, explicit and reproducible method for identifying, evaluating, and synthesizing body of completed and record work produced by researchers, scholars and practitioners.(Simbolon, 2021) Literature review is an overview on a topic from various source of the previously national or international published journal using database research from the internet..(Westphaln et al., 2021) *Systematic Literature Review* is written based on the guidelines on *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) to represent what has been done, what has been found and what has been planned in the case of the review.(Sarkis-Onofre et al., 2021)

The steps are 1) *Search Strategy*, 2) *Information Sources* by identifying relevant literature source from the various source, 3) *Eligibility Criteria* by selecting the literature based on the research topic, 4) Quality assessment, 5) Data analysis and 6) data extraction.(Hadi et al., 2020)

1. *Search Strategy. Systematic Literature Review* by determining the strategy for data research and/or the source of the information, study selection through eligibility criteria as well as quality assessment instruments, data synthesis and data extraction. Key words and boolean searching in literature review was "*maternal functioning*" OR "*Barkin Index Maternal Functioning (BIMF)*" AND "*postpartum mental health*".

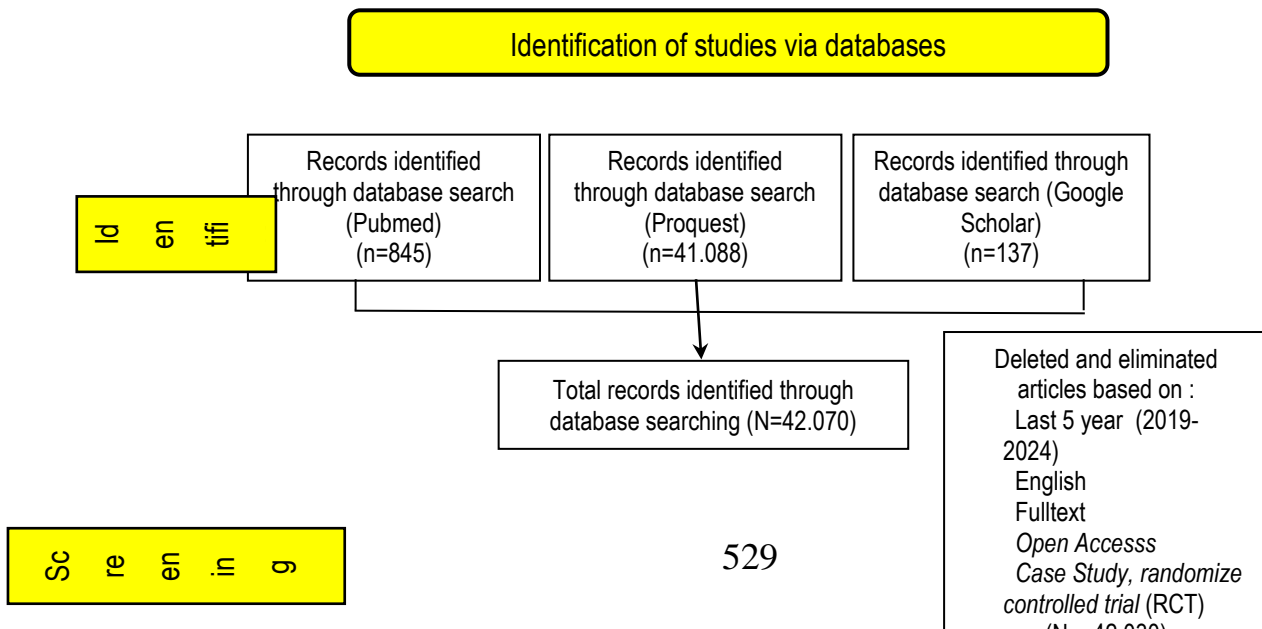
2. *Information Sources.* Database source used in searching relevant literature relevant was *Pubmed, Google Scholar, and Proquest.*
3. *Eligibility Criteria.* Eligibility criteria include inclusion and exclusion criteria. Inclusion criteria in this research are 1) Scientific journals as the literature, 2) Scientific journals from *Pubmed, Google Scholar, and Proquest* database, 3) *open access* scientific journals, 4) *full text* scientific journals, 5) Scientific journals written in English, 6) Scientific journals with year of publication within the last 5 years (2019-2024), 7) *randomize controlled trial (RCT), cross sectional and case study* research designs. Whereas the exclusion criteria in this research are the denotation form of inclusion criteria. Moreover, to limit the scope of the research, the researchers applied PICO (Population/Problem, Intervention, Comparison, Outcomes) methods , as seen in the following table:

**Table 1.** PICO Summary

Component	Information
<b>Population/Problem</b>	Postpartum mental health
<b>Intervention</b>	<i>Maternal functioning and Barkin Index Maternal Functioning (BIMF)</i>
<b>Comparison</b>	No comparison
<b>Outcomes</b>	Early detection of <i>maternal functioning towards postpartum mother's mental health</i>

#### 4. Quality Assessment

The literature was selected using PRISMA (*Preferred Reporting Items for Systematic Reviews and Meta-analyses*) methods. The results of PRISMA methods, from the total of 42.088 identified and proceeding journals, 42.030 were eliminated because they were not relevant to inclusion and exclusion criteria and from 40 journals, duplicated articles were found and irrelevant. Therefore, there were only 16 journals used in literature study. PRISMA Flow Diagram in this research is shown in Diagram 1



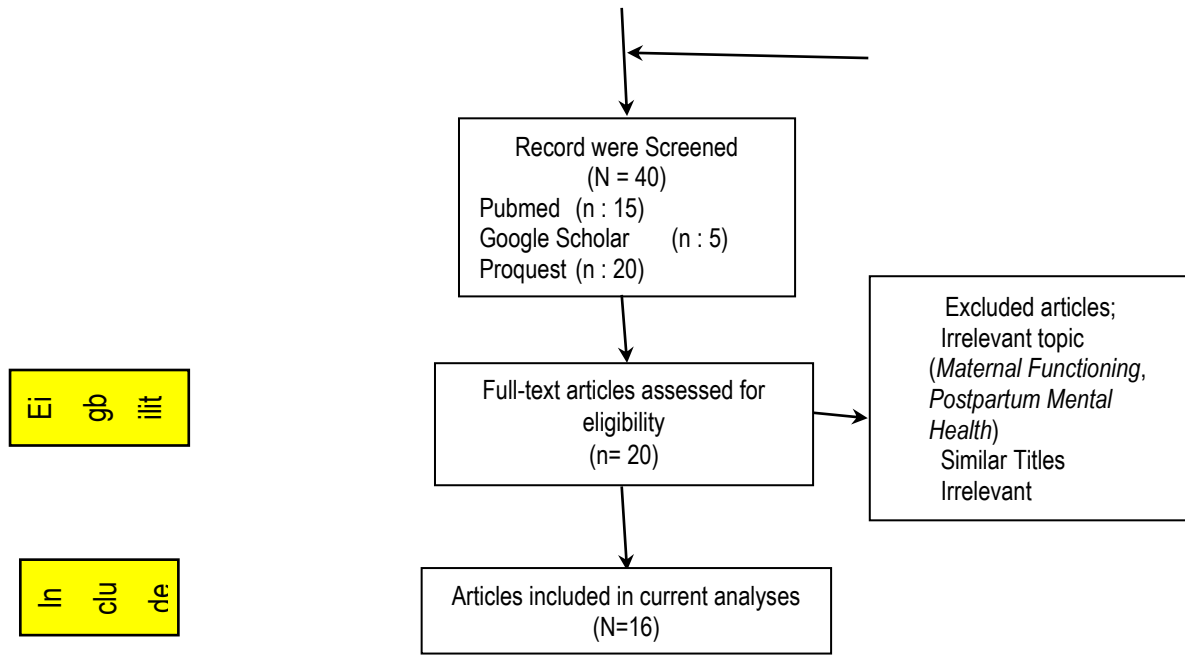


Diagram 1. Flowchart Systematic Literature Review Metode PRISMA

## 5. Data Analysis and Data Extraction

Data analysis as the result of the journal review is explained in the following table;

Table 2. Article Search Result

Author and Year of Publication	Title	Research Methods	Result
Google Scholar			
Rejisha et al (2021). (Rejisha et al., 2021)	Child Birth and its Effect on Functional Status of Women: A Review	Research Method: qualitative Population : Postpartum mothers in India Analysis: descriptive qualitative.	Functional status assessment scale targeted mothers in India to comprehend their functional status and early detection of the disorders possibility. Therefore, preventive treatment for subjects of postpartum rehabilitation program is likely to be designed. As functional status, mother's physical is not only affected to herself, but also to the baby, family and society. Therefore, postpartum mothers cannot be forgotten, they need to be supervised. Improving subjects' awareness and controlling their suffering in the silence and "those are integral part of motherhood" towards the change.
Ozcalik & Akasoy (2024). (Ozc	The relationship between maternal functioning and	Cross-sectional research. Population 584 postpartum mothers during 1 <sup>st</sup> January 2022 until 1 <sup>st</sup> April 2022.	Socio-demographics characteristic does not affect their motherhood; however, mother's function is improving in line with the number of

Author and Year of Publication	Title	Research Methods	Result
alík & Aksoy, 2024)	birth memory and trauma.	Data collected using personal information form, Barkin Index of Maternal Functioning (BIMF), Birth Memories and Recall Questionnaire (BirthMARQ) and City Birth Trauma Scale (CityBiTS).	pregnant women. Meanwhile, emotional (subscale BirthMARQ) has negative impact towards mother's function ( $p < 0.001$ ), centrality memory (subscale BirthMARQ) has positive impact towards mother's function ( $p < 0.001$ ). Hyperarousal score (subscale CityBiTS) has significant negative impact towards the total score of mother's function, explaining 6% of the variance ( $F = 9.176$ , $p = 0.001$ ). This study indicates that postpartum memory and trauma have significant impact towards mother's function. Postpartum mother's functional status reflected physical and psychological change related to pregnancy and delivery. Therefore, in order to have positive memory and emotion, emotional health and physical care during delivery and postpartum period need to be supported.
Pubmed			
Shamasbi <i>et al.</i> , 2020.(Shamasbi <i>et al.</i> , 2020)	The Relationship between Maternal Functioning and Mental Health after Childbirth in Iranian Women	<b>Place:</b> Iranian <b>Population/Sample:</b> Postpartum mothers <b>Research Design:</b> Cross-Sectional <b>Treatment:</b> providing the best answer related to their feeling in the last two weeks. The average of the total score is ranged 0 to 120. Higher total score indicates higher function. In this research, Cronbach alpha coefficient is 0.88, indicating good internal consistency and intra correlation coefficient (ICC) is 0.85.	Based on Pearson or Spearman correlation, mental health and its sub-domain has significant positive correlation towards baby care, interaction between mother and baby, mental wellbeing, social support, management, adaptation, self care, and mother's function ( $P < 0.001$ ). Based on GLM, the improvement of mother's function is related to higher total mental score, moderate income and accepting supports for baby care. $P < 0.05$ .
White-Traut <i>et al.</i> (2022).(White-Traut <i>et al.</i> , 2022)	Early Postpartum Maternal and Newborn Responses to Auditory, Tactile, Visual, Vestibular,	<b>Method:</b> Quasi Experiment. Sampling technique : Paired randomization with audio, touching, visual and vestibular (ATVV) interventions. ATVV from the smell of baby lotion (ATVVO), or attention controlled (AC) group. Mother's psychological wellbeing, newborn behavior, and endocrine	Newborns in the group of ATVV and ATVVO indicates significant improving involvement ( $p < 0.0001$ and $p = 0.001$ ). Newborns in AC groups indicates decreasing potential involvement ( $p = 0.013$ ) and increasing potential release ( $p = 0.029$ ). Mothers in the group of ATVVO indicates increasing OT ( $p =$

Author and Year of Publication	Title	Research Methods	Result
	and Olfactory Stimuli	response (salivary cortisol and OT) were measured before and after intervention.	0.01) and the highest change in OT ( $p = 0.02$ ) compared to mothers in the group of ATVV and AC. We noted no change in mother's psychological wellbeing and newborn's endocrine response.
Chamgurdan i et al (2020). (F. Chamgurdan i et al., 2020)	The effect of counseling with a skills training approach on maternal functioning: a randomized controlled clinical trial.	Randomized controlled trial was conducted in 68 postpartum mothers in Tabriz-Iran Health Facility in 2019. The participants were grouped in one of two groups –counseling and controlled, through randomized block. Intervention groups received four counseling sessions using Skills Training Approach (STA). Before and after two weeks of intervention, The Barkin Index of Maternal Functioning (BIMF) has been done by the participants. T-independent test and ANCOVA (Analysis of Covariance) were used in data analysis.	Result: No statistically significant change between two groups in terms of socio-demography characteristic and BIMF score and its domain ( $p > 0.05$ ). Before intervention, the average score (SD) of the total BIMF score in intervention group is 73.1 (8.5) and the score in the controlled group is 71.6 (4.8). Post-intervention, mean (SD) of the total BIMF score in intervention group 95.8 (11.8) and in controlled group is 70.3 (4.5). Based on ANCOVA test and after basic score adjustment, the average of the total BIMF score of intervention group is significantly higher than the controlled group (Mean Difference (MD): 22.9; 95% CI: 18.2 until 27.6; $p < 0.001$ ). Post-intervention score in all domain of BIMF includes self care (MD: 3.8), perawatn bayi (MD: 2.0), interactions of mother and baby (MD: 4.8), psychological wellbeing (MD: 8.4), social support (MD: 4.0), management (MD: 6.8), and new mother's adaptation (MD: 3.2) which significantly higher in intervention group than controlled group ( $P < 0.001$ ). Conclusion: in this research, counseling using STA is effective in increasing mother's function in all domains. This intervention, which showed to improve skills, has to be well considered if the aim is to improve postpartum quality.
Unver and Timur Tashan. (2021). (Unver & Timur Tashan, 2021)	Effect of yoga on posttraumatic growth and quality of life in first-time mothers: A	Research conducted in randomized control. There were 160 participants, including 80 participants in yoga group and 80 participants in controlled group. Mothers in yoga groups participated in practicing yoga in their house for 10 weeks.	Research result indicates the average of the total score and higher PTGI subsclae in yoga group compared to controlled group after intervention. Compared to controlled group, the average score of yoga group is higher in physical function, physical role, body ache, general



Author and Year of Publication	Title	Research Methods	Result
	randomized controlled trial	Personal information form, Post Traumatic Growth Inventory Scale (PTGI), and The Short Form Quality of Life Questionnaire-36 (SF-36) was applied for data collection.	health, vitality, social function, mental health SF-36 subsclae after intervention. Yoga increase psychological and post partum quality of life . Professional health workers can use yoga to increase mothers' life quality and make sure of their psychological growth in health treatment.
Vigod et al. (2019). (Vigod et al., 2019)	Transcranial direct current stimulation (tDCS) for depression in pregnancy: A pilot randomized controlled trial.	In the trial of RCT in Toronto, Ontario (October 2014 to December 2016), pregnant women within 14-32 weeks of pregnancy with major depression disorder and antidepressant medication were considered to be involved. Random participants were assigned 1:1 for tDCS or false controlled. Active tDCS includes 30 minutes 2 mAmp direct current session delivered through prefrontal dorsolateral cortex, 5 days per week, for 3 weeks. Sham was given in the same way, but the current is turned off after 30 seconds. The main result is eligibility, acceptance, and protocol compliance. Montgomery Asperg Depression Rating Scale (MADRS) was measured after treatment and in 4 <sup>th</sup> and 12 <sup>th</sup> weeks after delivery.	Result: From 20 random pregnant women, 16 pregnant women completed the medication and provided data (124 tDCS, 122 false sessions). Side effects did not occur in positive medication. Estimated average marginal MADRS score after treatment is 11.8 (Standard Error, SE 2.66) for tDCS and 15.4 (SE 2.51) for false (p = 0.34). In the 4 <sup>th</sup> week after delivery, 75.0% tDCS women experience remission compared to 12.5% of false controlled women (p = 0.04). The result supported definitive RCT to evaluate tDCS on antenatal depression. The estimation of preliminary efficacy after medication and postpartum was positive in the potency of using tDCS to increase medication level in this population.
Barkin L Jennifer, 2021. (Barkin et al., 2021)	Maternal Functioning and Depression Scores Improve Significantly with Participation in Visiting Moms.	<b>Place:</b> The Jewish Family and Children's Services geographic catchment area <b>Population/Sample:</b> 402 postpartum mothers <b>Research Design:</b> Paired data. By using pretest/posttest design, paired t-test was conducted for The Barkin Index of Maternal Functioning (n = 149) and for Patients' Health Questionnaire-9 (n = 156), where women have complete score in acceptance as well as in completion, to determine the potency of the impact of the program towards	Functional and depression score increased significantly after participating in this program. The aim of visiting mothers and similar program is to increase social support, which is likely effective in increasing new mothers' mental and emotional health who needs additional supports in postpartum period..

Author and Year of Publication	Title	Research Methods	Result
		depression symptoms and functional status.	
Mirghafourv and Mojgan <i>et al</i> , 2019.(Mirghafourvand <i>et al.</i> , 2019)	The Psychometric Properties of The Barkin Index of Maternal Functioning (BIMF) for the Iranian Population	<p><b>Place:</b> Iran</p> <p><b>Population/Sample:</b> Vaginal Primiparous Postpartum mothers</p> <p><b>Research Design:</b> Cross-Sectional</p> <p><b>Treatment:</b> Data collection used socio demography questionnaires and BIMF filled by the participants in the sixth to tenth week of postpartum. Socio demography questionnaires used in this research includes mothers' age, educational background, jobs, income status and unwanted pregnancy. Question about income has been qualitatively and the participants responded based on their perception about proper income for household.</p>	Research finding indicated that BIMF version in Persian is a valid instrument and reliable to assess mother's function in postpartum mothers in Iran. This instrument can be used by health workers such as doctors, midwives, and nurses for screening and assessing the correspondency of mothers and the role of motherhood in postpartum period.
Proquest		<p><b>Place:</b> Iran</p> <p><b>Population/Sample:</b> Postpartum mothers in Iran</p> <p><b>Research Design:</b> Cross Sectional</p> <p><b>Treatment:</b> The participants were selected from the populations of mothers in 30 health facilities in Teheran (Capital City of Iran) and Semnan (Central Province Semnan in the middle part of Iran). Randomized sampling method used two steps. In the first step, health facilities are divided into three segments including Tehran University of Medical Science, Iran University of Medical Science and Semnan University of Medical Science. Next, 10 centers were selected randomly in each segments. In the second step, samples were chosen from each center comparable to the populations in the center. Inclusion criteria include: 1) aged above 18 years old, 2) literate to Persian alphabet, 3) Iran citizens,</p>	This analysis provides more prove that show that BIMF is a valid and reliable instrument to measure mother's function. The ability to measure mother's function, besides depression and anxiety symptoms, enable more comprehensive assessment about postpartum wellbeing. The relationship between mother's function and child's health in short term as well as long term need to be examined in the further research.
Ansariniaki Mehri, 2021.(Ansari niaki <i>et al.</i> , 2021)	Persian Version of The Barkin Index of Maternal Functioning (BIMF): A Cross-Cultural Adaptation and Psychometric Evaluation		

Author and Year of Publication	Title	Research Methods	Result
		4) live in Teheran or Semnan, 5) having 2 to 12 months infant (any numbers), delivery and types of delivery, 6) single and sufficient delivery (37-42 weeks of pregnancy), 7) without critical mental and physical disorders (as stated by the participants), and 8) have willingness to be the participants in this research.	
Chamgurdani et al (2020). (F. K. Chamgurdani et al., 2020)	Comparison of maternal functioning between Iranian mothers with and without depressive symptoms: A case-control study	<p><b>Place:</b> Tabriz Iran</p> <p><b>Population/Sample:</b> Postpartum mothers in Iran (80), (n = 40 with depression symptoms and n = 40 without depression symptoms).</p> <p><b>Research Design:</b> Case control.</p> <p><b>Treatment:</b> Case group and controlled group were classified based on the number of delivery (first or second delivery) and types of delivery (vaginal birth or caesarian section). Sociodemography questionnaires, Edinburgh Postpartum.</p>	<p>Further, this finding concerned the importance of depression screening, because there is correlation with daily function, postpartum, and most of body functions. There is possibility by overcoming functional deficit first, by intervention of the development of therapeutic skills, depression symptoms do not occur. [15]. This research applied cross-sectional method, therefore it is not possible to make sure if depression affected functional score or vice versa. However, longitudinal study is likely to enable considering cause and effect. Because there is relationship between depression and mother's function, the assessment of mother's function by health workers is likely to be less stigmatization way for promptly depression screening in postpartum mothers as well as a new strategy for effective intervention. Additional intervention targeted the improvement of daily function has to be conducted simultaneously with pharmacotherapy or other traditional therapy for PPD.</p>
Choobdarnezhad et al (2024). (Choobdarnezhad et al., 2024)	Maternal performance after childbirth and its predictors: a cross sectional study.	Cross-sectional method was conducted to the participants (n = 450) who has experienced delivery (< two months) and suggested to get vaccination for the newborns. Sampling method uses multi-stage conducted in April 2022 until February 2023. Selected participants according to inclusion criteria completed demography and obstetric	The average age of the participants is 26.78 and the average of the total score of mother's performance is 91.04 (0-120). The highest and lower score related to domain 'mother's competence' and 'mother's needs, with average score 77.51 and 72.81. Statistically, domain 'Giving birth experience' and 'mother's efficacy' has significant relationship towards mother's performance (P <0.05).

Author and Year of Publication	Title	Research Methods	Result
		questionnaire, with 2 delivery periods (CEQ2), Barkin maternal performance, and mother's efficacy. Double linier regression used to investigate the impact of predictive independent variable of giving birth experience mother's efficacy, demography and obstetric variable towards dependent variable of mother's performance.	Among the predictive factors of mother's performance, the result of linier regression showed variable of giving birth experience ( $B = 0.63$ ), mother's efficacy ( $B = 1.53$ ), spouse working status ( $B = 5$ .for worker's level). , $B = 3.99$ for employee), the number of previous delivery ( $B = -8.46$ ), frequency of getting antenatal care ( $B = -6.68$ ), time spent in delivery room ( $B = -2.22$ ) and hospitalized time ( $B = 2.84$ ) constantly in the model. 53.2% of the change of mother's performance can be explained by those independent variable. Conclusion: Promotion of perinatal care based on the evidence, individual center, and respectful during pregnancy and delivery period is significant. Strategy to increase delivery experience and mother's efficacy are needed to increase mother's performance in postpartum period. Prenatal care to increase mother's function in postpartum period is significant.
Vahidi et al. (2023). (Vahidi et al., 2023)	Birth-related posttraumatic stress disorder and negative childbirth experience related to maternal functioning among adolescent mothers: a cross-sectional study.	Research method applied cross-sectional towards 202 teenagers who get pregnant and received medication in a health facility in Tabriz and the surround area in May until December 2022. Data collected using PTSD Symptom Scale, Delivery Experience Questionnaire 2.0, and Barkin mother's function index. The relationship between delivery experience, post trauma disorders and mother's function is assessed using multivariate analysis.	The result gained after adjusting the impact of socio-demography and obstetric characteristic, the score of mother's function among mother without post traumatic disorders is statistically higher significantly compared to mother with post traumatic disorder [ $\beta$ (95% CI) = 2.30 (0.39 hingga 4.20); $p = 0.031$ ]. The score of mother's function increase reciprocally with the increasing score of delivery experience [ $\beta$ (95% CI) = 7.34 (387 to 10.81); $p < 0.001$ ]. The score of mother's function among mothers who gave birth to the expected gender is statistically higher than mothers who gave birth to unwanted gender [ $\beta$ (95% CI) = 2.70 (0.37 hingga 5.02); $p = 0.023$ ]. Conclusion: Professional health workers have to provide special care to increase mother's function among teenage mothers. One of significant

Author and Year of Publication	Title	Research Methods	Result
			action that can be conducted is creating positive delivery experience to avoid post trauma disorders after delivery and conducting counseling with mothers who gave birth to unwanted gender.
Floyd James et al (2023). (Floyd James et al., 2023)	Factors Associated with Postpartum Maternal Functioning in Black Women: A Secondary Analysis.	Cross sectional study. Location: South America. Population: 116 postpartum mothers. Multivariate analysis.	Multivariate analysis disclosed that dark skin races ( $p = 0.02$ ), PDS ( $p < 0.0001$ ), mother-baby bond ( $p < 0.0001$ ), and education background ( $p = 0.03$ ) correspond independently with mother's function. This research proved that the role of various clinical factors and race towards the adaptation of dark race women to become mother after postpartum period. This analysis also providing more prove about BIMF reliability towards black race women in postpartum period.
Ahmadpour et al (2023). (Ahmadpour et al., 2023)	Family and Spousal Support Are Associated with Higher Levels of Maternal Functioning in a Study of Iranian Postpartum Women.	Cross-sectional study was conducted towards 564 women in one month up to four months after delivery (with registered medical record in Health Facility in Tabriz, Iran) in 2020–2021. The participants were selected using cluster sampling method, and the data collected using standard questionnaires encompassing sociodemography and obstetric characteristic, obstetric history and Barkin Mother's Function Index (BMFI). Adjusted linier regression test analysis used to predict the correlation of each independent variable (sociodemography and obstetric characteristic) towards dependent variable (mother's function).	The average of the total score of mother's function is 93.1 ( $\pm SD = 14.8$ ) out of 120. Based on adjusted General Linear Model (GLM), "spouse support" and "family support" is a strong predictor of mother's function. The total score of mother's function in medium (B: $-4.44$ ; 95% CI: $-7.71$ to $-1.17$ ; $p < 0.001$ ) and low (B: $-4.77$ ; 95% CI: $-8.90$ to $-1.47$ ; $p < 0.001$ ) of spouse support is significantly lower compared to the women who get support from their spouse. Moreover, the score on the woman in medium (B: $-5.22$ ; 95% CI: $-8.56$ to $-1.87$ ; $p < 0.001$ ) and low (B: $-3.90$ ; 95% CI: $-7.31$ to $-0.48$ ; $p < 0.001$ ) of family support is significantly lower compared to the women with high level of family support. Result of the study indicates that accepting support from spouse and family significantly increases mother's function.

Author and Year of Publication	Title	Research Methods	Result
Albanese et al (2023). (Albanese et al., 2023)	To Guide or to Self-Guide?: Predictors of Preferring a Guided Introduction to Digital Resources That Promote Postpartum Mental Health.	<p>Descriptive Research Data collected online. Criteria of participants sample</p> <p>(a) giving birth within the past 10 months, (b) currently live in the US, (c) able to access Internet, (d) above 18 years old, (e) and understand written English. Participants do not meet the requirements if they do not live with the baby. NB: 10 months is considered as maximum time after delivery because one of the main result that we concern about is the index of postpartum function by Barkin Mother's Function Index.</p> <p>(b) Variable categorized as frequency (with percentage). For bivariate analysis, the characteristic between participants who prefer to get guidelines to introduce toolkit resources and the participants who do not prefer to get the guidelines using chi-square test or exact fisher test for category variable and independent t-test or Mann-Whitney. All variable normality is assessed. Independent t-test used for normal distribution variable (BIMF and PSS-10). Mann-Whitney test is used for abnormal distribution variable (numbers of children, HADS-A, and HADS-D). All test conducted for bivariate analysis is two sided test.</p>	<p>The risk of mental health disorder and obstacles in accessing health service is likely to occur in the first year of delivery. Digital Mental Health Intervention (DMHI) is potential in increasing the access of postpartum mental health service. However, DMHI tend to limit the involvement especially if they are independent (when they do not involve any contact with health service provider). However, considering the support of the service provider is a limited source, accessibility and intervention intensity should be balance (by involving more contacts). In order to be balance, this analysis identify related characteristic with the reported preference towards the encountering of digital resources guided by people to increase postpartum mental health. In individual sample, mostly white-skin race, non-Latin, working, married, post graduate educational background, regression multivariate logistic disclosed that age (<math>p = 0.0095</math>), level of postpartum (<math>p = 0.0057</math>), depression symptom (<math>p = 0.0099</math>), and anxiety symptom (<math>p = 0.03</math>) related to the guide preference. Specifically, more apprehensive individual or lower postpartum function tends to report that they prefer to get guidance. This finding contributed to clinical recommendation about who is more likely involved and get advantage from DMHI who is guided exclusively during postpartum period.</p>

## RESULTS

Based on research result using quality literature and data extraction, 16 journals were collected with mother's postpartum mental health and *maternal functioning* as the topic. The result based on systematic review showed that there is significant impact towards postpartum mothers' health supervision. Ozcalik & Akasoy (2024) stated that postpartum mother's mental health needs to be concerned because it has significant impact for herself, the baby, the family and the society. Mental health can be assessed based on physical and psychosocial symptom.(Ozcalik & Aksoy, 2024) Mother's mental disorders affects the baby's condition, physical symptom can be seen from hormonal (saliva) as well as psychosocial symptom of tactile, visual, vestibular dan olfactory response.(White-Traut et al., 2022)

Rejisha et al (2021) in the research in India stated that functional status scale can be used as early assessment of mental health symptom.(Rejisha et al., 2021) Study in Iranian conducted by Shamasbi *et al* (2020), showed overall relationship between mother's mental health and mother's function in all subdomain of maternal function status, especially the role in baby care (mother-baby bond). The increase of *maternal functioning* related to the higher mental health score, achieving moderate income, and get support for baby care.(Shamasbi et al., 2020) Early evaluation of functional status as well as the supportive factors is also need to be conducted for postpartum mother and her husband in Turkiye. Support for new couple is helpful for better adaptation process in conducting their role.(Barkin et al., 2022)

Choobdarnezhad et al (2024) concluded that steps to increase delivery experience and self efficacy are needed to increase mother's postpartum status. The aim of prenatal service is significant to increase postpartum mother's function.(Choobdarnezhad et al., 2024) Ahmadpour et al (2023) in Tabriz, Iran also stated that postpartum mother who getsupport from her spouse and family is likely to increase mother's function ( $p < 0.001$ ). (Ahmadpour et al., 2023) Vahidi et al (2023) stated that postpartum mother tend to experience mental disorder symptom, especially those who gave birth to the unwanted baby (including unwanted gender). Therefore, attention from the health worker is needed as early screening of mental healt disorders in young mother.(Vahidi et al., 2023) Albanese et al (2023) stated that innovation of online guide is helpful in increasing mother's postpartum mental health symptom.(Albanese et al., 2023)

The role of the health workers trough home visit has significant impact towards mother's functional status and decrease postpartum depression. Home visit with empowering social support is effective in increasing mental and emotional health of new mother who needs more support in postpartum period.(Barkin et al., 2021) Chamgurdani et al (2020) stated that counseling

intervention using STA is effective in increasing mother's function in all domains. The aim of intervention in developing mother's understanding and skills is to increase mother's function in postpartum period.(F. Chamgurdani et al., 2020) Unver and Timur Tashan (2021) stated other intervention to increase mother's function in postpartum period is through Yoga practice.(Unver & Timur Tashan, 2021) Study in Toronto (Ontario) stated that *Transcranial direct current stimulation* (tDCS) is able to decrease mental health symptoms in postpartum period.(Vigod et al., 2019) Study in Tabriz Iran by Chamgurdani et al (2020) stated that additional intervention to increase mother's daily function is conducted simultaneously with pharmacotherapy or other traditional therapy.(F. K. Chamgurdani et al., 2020)

Mirghafourvand Mojgan *et al* (2019) stated that significant mother's mental health assessment is evaluated through *Barkin Index of Maternal Functioning* (BIMF).(Mirghafourvand et al., 2019) Study of Ansariniaki (2021) stated that BIMF instruments are valid and reliable to assess mother's function in postpartum period. This instrument can be used by health workers such as doctors, midwives, and nurses for screening and assessing the comprehension of mother with the motherhood role in postpartum period.(Ansariniaki et al., 2021) Floyd James et al (2023) stated that BIMF instrument is reliable.(Floyd James et al., 2023)

## DISCUSSION

*Postpartum* mothers are at risk of experiencing mental health disorders because it is related to post delivery trauma (fatigue, pain) as well as transition role to become mother which affected to mother's mental and psychological change.(Kurz et al., 2022) Risk factors related to mental health (such as age, educational background, parity, obstetric history, complication, and hospitalized period) need to be identified as well as providing proper psychological support.(Stepowicz et al., 2020) In this period, mother conducted transformation (positively or negatively) depend on mother's background as well as midwifery care during delivery and postpartum period. Study on 882 postpartum women in Portugal showed that mother who can adapt positively is likely to prevent mental health problem as shown by good score of maternal functional ability.(Monteiro et al., 2021)

Status of maternal health function needs to be assessed earlier as screening of postpartum mental health disorders. Mental health problems are often ignored by health workers because the symptom is unseen during delivery period. Postpartum care (6 weeks after delivery) is significant for screening maternal functional status.(Rejisha et al., 2021) Health workers play significant role



in caring mothers in transition period of becoming new parents to achieve conducive family condition and healthy child's development. Postpartum mothers need evidence-based clinical guidelines by early detection of mental health disorders as well as increasing experience in baby care, especially in the first 6 weeks after delivery.(Najmi et al., 2023) Realizing the importance of mother care and understanding mental mechanism is a suggestion for the development of intervention to encourage early detection, effective medication, and supportive intervention. Increasing mother's mental health and mother-baby bond has longterm significant positive impact towards mother's and baby's wellbeing and development.(Saharoy et al., 2023)

Postpartum mental health is assessed using early screening instruments, *Barkin Index of Maternal Functioning* (BIMF).(Mirghafourvand et al., 2019) Assessment is conducted periodically during pregnancy period (3<sup>rd</sup> trimester and 2-12 months of postpartum) to make sure that mother does not experience mental health problems and maternal function disruption.(Jongenelen et al., 2023) Mother's mental health symptom can be seen biologically (hormone interaction) and mother's psychological condition.(White-Traut et al., 2022) Early guidance about mental health is potential in increasing mental integrity during prenatal and postpartum period.(Phua et al., 2020) Health workers care through psychotherapy for postpartum mother is conducted with the peers' support, evidence based skills and acceptance based approach. This approach is significant to prevent postpartum mental stress. (Grunberg et al., 2022). Mental health problem assessment (stress and depression) need to be identified by the family, especially the spouse.(Heyne et al., 2022) Early screening of functional status as well as the supportive factors is conducted on postpartum mother and her husband in Turkiye. Supports for new couple is helpful in better adaptation process while doing their role.(Barkin et al., 2022)

Mother's postpartum mental health needs to be assessed early in form of awareness because it has significant impact towards mother's health and child's development. This instrument includes various aspects of physical symptom, functional and mental status as well as psychological symptom. Proper instrument needs to be combined with some toolkit in order to get relevant and effective results. (Laura et al., 2022) Mother's mental health is assessed through *Barkin Index of Maternal Functioning* (BIMF). This instrument is valid and reliable to assess mother's function in postpartum period. This instrument can be used by health workers such as doctors, midwives, and nurses for screening and assessing the comprehension of mother with the motherhood role in postpartum period.(Mirghafourvand et al., 2019),(Ansariniaki et al., 2021). Floyd James et al (2023) suggested that BIMF instruments is reliable.(Floyd James et al., 2023) The

development of mother's mental disorders instrument is to measure transitional aspects of becoming parents from husband-wife point of view.(Rejisha et al., 2021) Instrument development needs to consider relevance, completeness, and understanding of parents and/or practitioners.(Beeck et al., 2023)

Screening has to be conducted to analyze young mother's mental health problems. Holystic strategy overcomes teenagers' mental, including assessment and family based therapy.(Urbańska-Grosz et al., 2024) Husband-wife needs to prepare them selves to play a new role to become parents. Ability assessment in conducting the role is assessed before, during, and after delivery because it is significant for mother's health as well as baby and family. Therefore, instrument to detect maternal functional status is significant.(Özkan et al., 2018) Mother often experience obstacles in accessing information, therefore web based intervention (internet) is significant. The development is effective in increasing postpartum function and emotional wellbeing. The device is well accepted. However, participants reported obstacles in the application, and suggested upgrades, as well as changing text based format to make it easier.(Albanese et al., 2022)

Moments during delivery has significant impact towards mother's mental condition (including husband). Delivery trauma showed by physical and psychosocial symptoms. Emotional health and physical treatment need to be supported during postpartum period, to encourage mother to have positive experience of delivery.(Ozcalik & Aksoy, 2024) Mother and her husband readiness to face the challenge to become parents before, during and after delivery is significant for mother's health as well as baby and family. Therefore, instrument to detect maternal functional status is significant.(Özkan et al., 2018) Midwifery care is significant to promote evidence based perinatal care, individual center, respectful during pregnancy and delivery. Strategy to increase delivery experience and self efficacy is significant to increase mother's performance in postpartum period. Prenatal care to increase mother's function after delivery is significant.(Choobdarnezhad et al., 2024)

Home visit as intervention is significant towards mother's functional status and decreasing postpartum depression. Home visit by encouraging social support is effective in increasing mental and emotional health among new mothers who need additional supports in postpartum period.(Barkin et al., 2021) Postpartum mother's supports is proven effective in increasing the score of maternal functional status.(Ahmadpour et al., 2023) This study proves that counseling STA is effective in increasing mother's function in all domains. This intervention is conducted to develop

skills. Therefore, it needs to be considered to increase postpartum function.(F. Chamgurdani et al., 2020) Another intervention to increase postpartum mother's functional status is through Yoga practice (Unver & Timur Tashan, 2021), *Transcranial direct current stimulation* (tDCS)(Vigod et al., 2019). The intervention needs to be conducted simultaneously with medicine and/or other herbs.(F. K. Chamgurdani et al., 2020) Health professionals have to give extra attention to increase mother's function in teenager mothers. One of the significant actions is providing positive delivery experience to avoid post traumatic stress after delivery as well as conducting counselling.(Vahidi et al., 2023) it also supported by the research stated that online guidance is helpful in increasing postpartum mother's mental disorder symptom.(Albanese et al., 2023)

## CONCLUSION

Based on the result of journal review in this research, it can be concluded that postpartum mother is in high risk of experiencing mental health problems (especially on young mothers, unwanted baby). Mental disorder symptom is caused by traumatic delivery (fatigue and pain). Screening needs to be conducted to detect early mental disorder symptom since pregnancy (3<sup>rd</sup> trimester) as well as periodically (2<sup>nd</sup> week to 12<sup>th</sup> week). Instrument of early detection applied Barkin *Index of Maternal Functioning* (BIMF) which is valid and reliable.

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