Factors of maternal-infant bonding difficulties without depression: a scoping review protocol

Hitomi INANO [1, 2)], Kaori FUTAKAWA [3)], Tomomi HASEGAWA [3)]

1) Department of Maternal Nursing, Graduate School of Medicine and Pharmaceutical Science or Education, University of Toyama
2) Toyama Regional Center for Japan Environment and Children's Study, Faculty of Medicine, University of Toyama
3) Division of Maternity Nursing, Faculty of Medicine, Academic Assembly, University of Toyama

Abstract

Objective: This scoping review aimed to understand the extent and type of evidence related to maternal-infant bonding difficulties (MIBD) without depression.
Introduction: It has been suggested that MIBD may negatively affect the parent–child relationsh ip and contribute to child abuse as well as developmental delays. MIBD has been linked to numer ous factors, but most of them are related to postpartum depression (PPD). It is crucial to identify the factors that are unique to MIBD to understand its pathogenesis and pathophysiology. However, the factors linked to MIBD without PPD are not well-studied.
Inclusion criteria: Studies that investigate bonding difficulties using two rating scales (Mother-to-Infant Bonding Scale or Postpartum Bonding Questionnaire) in pregnant or postpartum women will be included. Literature that examines both MIBD and PPD, as well as studies investigating fac tors and prevalence of MIBD independent of PPD, will be included in the review.
Methods: We searched PubMed, CINAHL (EBSCO host), CiNii Research, Ichushi-Web, and Sco pus. Literature written in English or Japanese will be also considered. The studies will be selected and extracted by two independent reviewers, and the factors associated with MIBD without depre ssion will be summarized.

Key Words

bonding difficulties, maternal-infant bonding, postnatal depression, depressive state, scoping review protocol

Introduction

Maternal–infant bonding refers to the emotional connection between a mother and her baby. Maternal–infant bonding describes maternal feelings and emotions towards her infants [1, 2)]. The psychological condition in which maternal–infant bonding does not form properly is called "Maternal bonding disorder", "Maternal bonding failure" [3, 4)] or "Maternal-infant bonding difficulties (MIBD) [1)]". Maternal-infant bonding disorder occurs in approximately 1% of births in the general population [5)].

Mothers with bonding difficulties lack affection or compassion for their children, have a weak sense of desire to protect them, and instead display irritability, hostility, and even the urge to attack them [3, 4]. Additionally, MIBD can have long-term effects on children, including mental disorders, learning disabilities, and behavioral problems [1, 6].

The present study found a positive correlation between MIBD and postnatal depression [7]. A higher prevalence of MIBD was observed among mothers experiencing postnatal depression [5] Both conditions have distinct independent aetiologies, and multiple reports indicate that it is MIBD, not postnatal depression, that constitutes a risk factor for abuse [8]. Therefore, MIBD without depressive symptoms is a group at risk of abuse. Several reports have shown that a certain number of such groups exist [9]. It is imperative to elucidate the prevalence in order to facilitate a comprehensive epidemiological understanding of this group.

In Japan, the number of abuse notifications to child guidance centers continues to increase yearly, with 219,170 being the highest number of notifications recorded in 2022 [10]. The number of notifications was different from the actual number of abuse cases. Despite Japan's decreasing birth rate, the increase in child abuse notifications is a highly alarming phenomenon. There is a possible correlation between an increase in abuse notifications in Japan and the incidence of MIBD. Thus, the risk factors for MIBD must be identified at an early stage, and appropriate support must be provided.

Therefore, screening for MIBD is crucial for preventing abuse. In Japan, MIBD screening is conducted by many municipalities using the Mother-Infant Bonding Questionnaire. This questionnaire has no set cut-off value [11]; if even one item is positive, an individual interview is conducted, but there are no stipulations regarding the need for subsequent ongoing support [12].

The variables reported to predict postnatal MIBD include never having been married [13], being a first-time mother [14], lower education, stress [15] and spousal violence during pregnancy [16]. However, all these papers defined the outcome as MIBD and did not classify MIBD according to the presence or absence of postnatal depression.

There is a consensus-based guide for perinatal mental health in Japan, including MIBD, called the Perinatal Mental Health Consensus Guide [17]. This guideline was first published by the Japanese Society of Perinatal Mental Health in 2014. The risk factors for MIBD described here were divided into three main categories: Environmental Factors; mother–child separation, lack of social support, low socioeconomic status, single mother, poor marital relationship, intimate partner violence, Maternal Factors; antenatal and postpartum depression, distressing pregnancy experience, traumatic childbirth experience, unintended pregnancy, death of one twin, previous stillbirth experience, the mother's perception of her own upbringing, anxiety, obsessive traits, immature personality, and Child Factors; preterm infant, illness, disability, undesired sex, temperamental or constitutional difficulties such as irritability or poor responsiveness in the child [17]. However, these risk factors focus solely on MIBD and do not consider maternal depression.

The aim of this study is to identify factors associated with MIBD in the absence of depression, and to determine its prevalence. A preliminary search of PubMed, the Cochrane Database of Systematic Reviews and the JBI Evidence Synthesis database revealed that existing reviews have primarily focused on the link between MIBD and postnatal depression [18, 19], and on risk factors for MIBD [20]. However, it remains unclear whether these factors apply in cases where postnatal depression is absent. To our knowledge, no existing or ongoing scoping reviews address our proposed topic, which focuses on the risk factors and the prevalence of MIBD in the absence of postnatal depression.

We selected scoping review as the appropriate methodology [21–25] because our goals are to broadly

identify relevant factors of MIBD without postnatal depression and to describe its prevalence.

Review questions

What are the factors that lead to MIBD without postnatal depression?

What is the prevalence of MIBD without postnatal depression?

Methods and analysis

The proposed scoping review will be conducted in accordance with the JBI methodology for scoping reviews [24, 25] and will utilize the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping review (PRISMA-ScR) reporting guidelines [26]. This protocol is registered with the Open Science Framework under the title "Factors of maternal-infant bonding disorder without postpartum depression: a scoping review protocol."

Inclusion and exclusion criteria

Population

Studies involving women from pregnancy through the postnatal period will be included.

Concept

This scoping review will focus on the factors of MIBD without postnatal depression and its prevalence. Studies that assess MIBD using only either the Mother-to-Infant Bonding Scale (MIBS) [27] or

Appendix I: Search Terms

	Population	Concept	Context
Possible search terms in English	Maternal-Infant bonding Maternal-Infant attachment Mother-Infant relationship Mother-to-Infant bonding Mother-Child relations (MeSH) Bonding failure Bonding disorder Bonding difficulties Depression, Postpartum (MeSH)	Risk factors (MeSH) Prevalence (MeSH) Mother-to-Infant Bonding Scale; MIBS Postnatal Bonding Questionnaire; PBQ	—
in Japanese	対象愛着性 (Thesaurus) 母子関係 (Thesaurus) ボンディング障害 産後うつ マターナルボンディング	危険因子 (Thesaurus) 疫学要因 (Thesaurus) 有病率 赤ちゃんへの気持ち質問票	—

Appendix II: Search Strategy
PubMed
Search conducted: July 8, 2025
Results by year: 1990–2025

Search	Query	Records retrieved
#1	“Maternal-Infant bonding” OR “Maternal-Infant attachment” OR “Mother-Infant relationship” OR “Mother-to-Infant bonding” OR “Mother-Child relations” OR “Bonding failure” OR “Bonding difficulties” OR “Bonding disorder” OR “Mother-to-Infant Bonding Scale” OR “MIBS” OR “Postnatal Bonding Questionnaire” OR “PBQ” AND “Depression, Postpartum”	981
#2	“Risk factors”	1,393,714
#4	#1 AND #2 ("Maternal-Infant bonding"[All Fields] OR "Maternal-Infant attachment"[All Fields] OR "Mother-Infant relationship"[All Fields] OR "Mother-to-Infant bonding"[All Fields] OR "Mother-Child relations"[All Fields] OR "Bonding failure"[All Fields] OR "Bonding difficulties"[All Fields] OR "Bonding disorder"[All Fields] OR "Mother-to-Infant Bonding Scale"[All Fields] OR "MIBS"[All Fields] OR "Postnatal Bonding Questionnaire"[All Fields] OR "PBQ"[All Fields]) AND "depression postpartum"[All Fields] AND "Risk factors"[All Fields]	211

the Postpartum Bonding Questionnaire (PBQ) [28] will be included. Conversely, we did not specify a particular tool for assessing depressive symptoms. The aim of this scoping review is to clarify the risk factors and prevalence of MIBD without depressive symptoms.

Context

All contexts will be included, regardless of the country or cultural background. All studies related to MIBD without postnatal depression will be included.

Types of sources

We will identify studies through electronic web-based searches of the following databases: PubMed, CINAHL (EBSCO host), CiNii Research, Ichushi-Web, and Scopus. We will consider all types of quantitative, qualitative, and mixed methods studies. Only studies published in English or Japanese will be included, as these are the languages we can read closely and accurately. We will also include all relevant reviews and conduct hand searches to identify additional articles.

Search strategy

A three-step search strategy will be used. An initial limited search of PubMed was conducted to identify the topic of this review.

Analysis of text words in the titles and abstracts of the retrieved articles, as well as the index terms used to describe those articles, was used to devel-

Appendix III: Each Search Strategy

CINAHL (EBSCOhost)
AB (“Maternal-Infant bonding” OR “Maternal-Infant attachment” OR “Mother-Infant relationship” OR “Mother-to-Infant bonding” OR “Mother-Child relations” OR “Bonding failure” OR “Bonding difficulties” OR “Bonding disorder” AND “Depression, Postpartum”) AND AB (“Risk factors”)
CiNii Research (CiNii Articles)
(“Maternal-Infant bonding” OR “Maternal-Infant attachment” OR “Mother-Infant relationship” OR “Mother-to-Infant bonding” OR “Mother-Child relations” OR “Bonding failure” OR “Bonding difficulties” OR “Bonding disorder” AND “Depression, postpartum”) AND (“Risk factors”) ((危険因子/TH or 危険因子/AL) and (対象愛着性/TH or 対象愛着性/AL) or (母子関係/TH or 母子関係/AL)) or (ボンディング障害/TH or ボンディング障害/AL) and (産後うつ/TH or 産後うつ/AL) and ((FT=Y) AB=Y)
Ichushi-Web
((危険因子/TH or 危険因子/AL) and (対象愛着性/TH or 対象愛着性/AL) or (母子関係/TH or 母子関係/AL)) or (ボンディング障害/TH or ボンディング障害/AL) and (産後うつ/TH or 産後うつ/AL) and ((FT=Y) AB=Y)
Scopus
TITLE-ABS-KEY ("Maternal-Infant bonding" OR "Maternal-Infant attachment" OR "Mother-Infant relationship" OR "Mother-to-Infant bonding" OR "Mother-Child relations" OR "Bonding failure" OR "Bonding difficulties" OR "Bonding disorder" AND "Depression, Postpartum") AND TITLE-ABS-KEY ("Risk factors")

op a full search strategy for PubMed (see Appendix II). The search strategy will be peer-reviewed by an independent research librarian and adapted to each database and information source. The reference lists of the sources included in this review will be examined.

The search terms (Appendix I) were used to develop individual search strings for each database (Appendix III). The terms listed were combined for this purpose. Since the “Context” is a group that is difficult to define and to generate as many hits as possible, only “Population” and “Concept” will be used for the search. “Population” and “Concept” are linked with the Boolean operators “AND.” All identified terms are searched in the titles and abstracts of all databases. In addition to the search terms, database-specific keyword registers (e.g., MeSH) were used to identify relevant keywords, which were then added to the search string. The search string was checked using PRESS [29]. Studies written in English or Japanese between 1990 and 2025 will be included. MIBD was first discussed in the field of psychiatry during this period [4].

Study selection

All the identified citations will be collated and uploaded to Rayyan (©2025 RAYYAN), with duplicates removed [30]. Two independent reviewers will screen titles and abstracts for assessment against

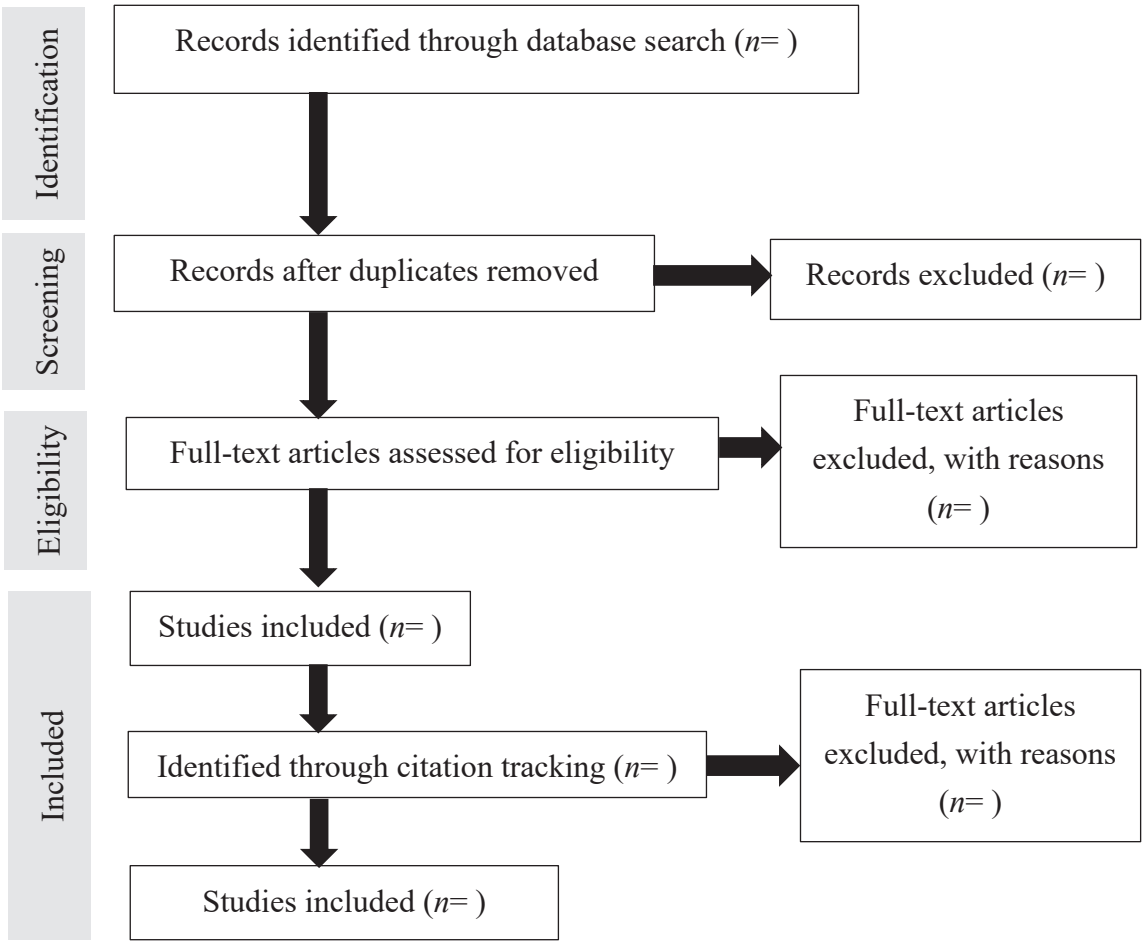
the inclusion criteria. A pilot screening test of two to three articles will be conducted before undertaking a full study selection. The full texts of the selected articles will be assessed in detail against the inclusion criteria by two independent reviewers. The reasons for excluding sources of evidence in the full text that do not meet the inclusion criteria will be recorded and reported in the scoping review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion with an additional reviewer when necessary. The search and study inclusion process results will be reported in full in the final scoping review in the flow diagram (Appendix IV) and presented in the PRISMA-ScR flow diagram [26, 31].

Data extraction

Two independent reviewers will extract data from the papers using a data-extraction tool developed by the reviewers. A pilot test will be conducted for the first five papers to ensure that all reviewers know how to use the tool and use it consistently, and disagreements will be resolved by a third reviewer. The following data will be extracted:

a. Title
b. Author(s)
c. Year of publication
d. Study design
e. Country
f. Study population and sample size
g. Methods
h. Findings relevant to the review question

Appendix IV: Flowchart



Appendix V: Data extraction

1)	Title
2)	Author(s)
3)	Year of publication
4)	Study design
5)	Country
6)	Study population and sample size
7)	Methods
8)	Findings relevant to the review question

Data regarding risk factors or prevalence that is missing or unclear shall not be included. Appendix V provides the draft extraction form. The draft data extraction tool will be modified and revised as necessary during data extraction from each of the included evidence sources. These modifications will be detailed in the final scoping review. When necessary, the authors of the papers will be contacted to obtain clarification regarding additional or missing data. The procedure is based on PRISMA-ScR [26].

Data analysis and presentation

The data will be categorized according to the three categories outlined in the Perinatal Mental Health Consensus Guide [17]: 1) environmental factors, 2) maternal factors, and 3) child factors.

All authors will review the extracted data from the included studies and reach a consensus on the categorization of each study and the types of factors identified through discussion. This discussion will lead to the development of operational definitions for all factors identified in the studies. These definitions will subsequently guide the narrative summary of the review results.

Data extracted from published and unpublished literature will be presented in tabular form to address the research questions. The tables will include the data collected using the data extraction form in Appendix V.

Another table will provide an overview of the methodological aspects of the included studies. This will include information on the type of study (e.g. quantitative, qualitative or mixed methods) and any differences in screening methods (PBQ or MIBS). The tabulated results will be accompanied by a narrative summary including critical information and results relevant to the research question.

Ethical considerations

As this review does not involve the collection of new data, ethical approval is not required.

Acknowledgements

This study is supported by JST SPRING (grant number JPMJSP2145).

Funding

There is no funding for the project.

Competing interests

There is no conflict of interest in this project.

References

1）Klaus M H, Kennell J H: Maternal-infant bonding: The impact of early separation or loss on family development. 1976.

2）Kinsey C B, Hupcey J E: State of the science of maternal–infant bonding: A principle-based concept analysis. Midwifery, 29(12): p. 1314-1320. 2013.

3）Brockington I: Maternal rejection of the young child: present status of the clinical syndrome. Psychopathology, 44(5): p. 329-36. 2011.

4）Kitamura T: "Kodomo ga kawaii to omoenai" "Kodomo wo aisenai" sango no bonding to sono syougai : Sousetsu. 2023.

5）Brockington I: Emotional rejection of the infant: status of the concept. Psychopathology, 49(4): p. 247-260. 2016.

6）Brockington I: Motherhood and mental health. Oxford: Oxford University Press. 1996.

7）O'Dea G A , Youssef G J, Hagg L J, et al: Associations between maternal psychological distress and mother-infant bonding: a systematic review and meta-analysis. Arch Womens Ment Health, 26(4): p.441-452. 2023.

8）Ohashi Y, Sakanashi K, Tanaka T, et al: Mother-to-infant bonding disorder, but not depression, 5 days after delivery is a risk factor for neonate emotional abuse: a study in Japanese mothers of 1-month olds. The Open Family Studies Journal, 8(1): p. 27-36. 2016.

9）Ohoka H, Koide T, Goto S, et al: Effects of maternal depressive symptomatology during pregnancy and the postpartum period on infant-mother attachment. Psychiatry Clin Neurosci, 68: p.631-639. 2014.

10）Children and Families Agency: Healthy Parents and Children 21–Number of cases of child abuse consultations handled by Child Guidance Centers. https://sukoyaka21.cfa.go.jp/about/growth03-sukoyaka21/. Accessed December 13, 2025.

11）Yoshida K, Yamashita H, Conroy S, et al: A Japanese version of Mother-to-Infant Bonding Scale: factor structure, longitudinal changes and links with maternal mood during the early postnatal period in Japanese mothers. Arch Womens Ment Health, 15(5): p. 343-52. 2012.

12）Yosida K, Yamashita H, Iwamoto S: Ikuzishien no team approach : Syuusanki seishinigaku no riron to zissen.: Kongosyuppan. 2006.

13）Figueiredo B, Costa R, Pacheco A, et al: Mother-to-infant emotional involvement at birth. Matern Child Health J, 13(4): p. 539-49. 2009.

14）Rossen L, Hutchinson D, Wilson J, et al: Maternal bonding through pregnancy and postnatal: Findings from an Australian longitudinal Study. Am J Perinatol, 34(8): p. 808-817. 2017.

15）Kinsey C B, Baptiste-Roberts K, Zhu J, et al: Birth-related, psychosocial, and emotional correlates of positive maternal-infant bonding in a cohort of first-time mothers. Midwifery, 30(5): p. e188-94. 2014.

16）Kita S, Haruna M, Matsuzaki M, et al: Associations between intimate partner violence (IPV) during pregnancy, mother-to-infant bonding failure, and postnatal depressive symptoms. Arch Womens Ment Health, 19(4): p. 623-34. 2016.

17）Japanese Society of Perinatal Mental Health. Perinatal Mental Health Consensus Guide (2017). http://pmhguideline.com/consensus_guide.html. Accessed July 10, 2024.

18）Yaqoob, H, Ju X, Bibi M, et al: "A systematic review of risk factors of postpartum depression. Evidence from Asian culture ". Acta Psychol (Amst), 249: p. 104436. 2024.

19）Diniz B P, Grisi S J F E, Souza D M d, et al: Mother-infant bonding and postpartum depression during the COVID-19 pandemic - a risk for nurturing care and child development. Rev Paul Pediatr, 42: p. e2022151. 2023.

20）Kidd K N, Prasad D, Cunningham J E A, et al: The relationship between parental bonding and mood, anxiety and related disorders in adult-

hood: A systematic review and meta-analysis. J Affect Disord, 307: p. 221-236. 2022.
21）Anderson S, Allen P, Peckham S, et al: Asking the right questions: scoping studies in the commissioning of research on the organisation and delivery of health services. Health Res Policy Syst, 6: p. 7. 2008.
22）Arksey H, O'Malley L: Scoping studies: towards a methodological framework. International Journal of Social Research Methodology, 8(1): p. 19-32. 2005.
23）Munn Z, Peters M D J, Stern C, et al: Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. BMC Med Res Methodol, 18(1): p. 143. 2018.
24）Peters M D J, Godfrey C M, Khalil H, et al: Guidance for conducting systematic scoping reviews. JBI Evidence Implementation, 13(3): p. 141-146. 2015.
25）Peters M D J, Marnie C, Tricco A C, et al: Updated methodological guidance for the conduct of scoping reviews. JBI evidence synthesis, 18(10): p. 2119-2126. 2020.
26）Tricco A C, Lillie E, Zarin W, et al: PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. Annals of internal medicine, 169(7): p. 467-473. 2018.
27）Taylor A, Atkins R, Kumar R, et al: A new Mother-to-Infant Bonding Scale: links with early maternal mood. Arch Womens Ment Health, 8: p.45-51.2005.
28）Brockington IF, Fraser C, Wilson D: The Postpartum Bonding Questionnaire: a validation. Arch Womens Ment Health, 9: p.233-242. 2006.
29）McGowan J, Sampson M, Salzwedel D M, et al: PRESS Peer Review of Electronic Search Strategies: 2015 guideline statement. J Clin Epidemiol, 75: p. 40-6. 2016.
30）Ouzzani M, Hammady H, Fedorowicz Z, et al: Rayyan-a web and mobile app for systematic reviews. Syst Rev, 5(1): p. 210. 2016.
31）Page M J, McKenzie J E, Bossuyt P M, et al: The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ, 372. 2021.

抑うつ症状を伴わないボンディング形成不全の関連因子：スコーピングレビュー プロトコル

稲野　仁美[1,2)]，二川　香里[3)]，長谷川ともみ[3)]

1）富山大学 医学薬学教育部 博士後期課程 看護学専攻
2）富山大学 エコチル調査富山ユニットセンター
3）富山大学 学術研究部 医学系 母性看護学講座

要　旨

本スコーピングレビュープロトコルは，抑うつ症状を伴わない母親のボンディング形成不全（Maternal-infant bonding difficulties; MIBD）に関連する因子および発生頻度のエビデンスを網羅的に収集し、整理することを目的としたものである．MIBD は児童虐待や子どもの発達遅延につながる可能性が報告されている．MIBD には多くのリスク因子が報告されているが，そのほとんどは産後の抑うつ症状のリスク因子と重複している．MIBD 特有の原因を理解するためには，産後の抑うつ症状を除いた MIBD に特有のリスク因子を明らかにすることが必要である．しかし，抑うつ症状を伴わない MIBD を対象とした報告は非常に限定的であり，ほとんど研究が進んでいない．

文献の選択基準として，妊娠中または産後の女性を対象に，2 つの評価票（赤ちゃんへの気持ち質問票または Postpartum Bonding Questionnaire）を用いて母親のボンディングを評価した研究を対象とする．母親の MIBD と抑うつ症状の両方を評価し，抑うつ症状を伴わない MIBD の関連要因やリスク因子を調査した研究が本レビューの包含基準を満たす．文献検索は，PubMed，CINAHL（EBSCO host），CiNii Research 医中誌 Web 版，Scopus を使用する．英語または日本語で書かれた文献を対象とする．2 人の独立した査読者が文献を選択・抽出し，抑うつ症状を伴わない MIBD に関連する因子についての報告をまとめ，要約する．

キーワード

ボンディング形成不全，ボンディング，産後うつ，抑うつ症状，
スコーピングレビュープロトコル