

〔総 説〕

Nursing interventions to prevent postpartum depression during the first month postpartum for older Japanese primiparous women: a systematic review

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Abstract

Postpartum depression is a condition that is of concern to public health. However, nursing interventions to prevent postpartum depression during the early postpartum period have not been well established. The purpose of this systematic review was to identify nursing interventions that are available during the first month postpartum to prevent postpartum depression, with the aim of providing clinical recommendations for Japanese women aged 35 years and older who had already had their first child. After an initial search of published guidelines and systematic reviews, we searched for English and Japanese articles using MEDLINE, PubMed, CINAHL, Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, PsychInfo, and Ichushi-Web. Eight studies (n=4946), reported between 1998 and 2009, were identified that examined nursing interventions during the first month postpartum to prevent postpartum depression. The eight studies included five intervention types: debriefing (three trials, 2776 women); counseling (one trial, 103 women); professional-based or lay-based individualized home visits (two trials, 723 women); peer telephone support (one trial, 612 women); and providing support via support groups or a support manual (one trial, 732 women). Qualitative synthesis of the studies suggests that two intervention types would be effective in reducing the risk of developing postpartum depression: counseling including debriefing; and providing social support via a home visit or telephone. The Japanese culture and the current clinical practice should be carefully considered for providing recommendations for practice in Japanese primiparous women aged 35 years and older.

Key Words : depression, maternal age, nursing, postpartum period, systematic review

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要 旨

産後うつは公衆衛生上の課題の1つであるが、産褥早期に産後うつを予防する看護介入に関して、明らかになっていない。本研究の目的は、産後うつを予防することを目的とした産後1か月までの看護介入を明らかにすることであり、システマティックレビューを実施した。これにより、35歳以上の日本人の初産婦を対象とした、臨床で使用可能な推奨文を作成することを目標とした。既存のガイドラインとシステマティックレビューの検索を実施後、MEDLINE, PubMed, CINAHL, Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, PsychInfo, 及び医中誌Webを用いた文献検索を実施した。その結果、8文献 (n=4946) が抽出された。8文献の出版年は、1998年から2009年であり、出産体験の振り返り (3文献, 2776名), カウンセリング (1文献, 103名), 専門職あるいは非専門職による家庭訪問 (2文献, 723名), ピアサポーターによる電話訪問 (1文献, 612名), 5) サポートグループもしくは小冊子によるサポート提供 (1文献, 732名), 以上の5つの看護介入が抽出された。抽出文献を質的に分析・統合した結果、5つの看護介入は、出産体験の振り返りを含むカウンセリングと、家庭訪問もしくは電話訪問によるソーシャルサポートの提供という、大きく2種類の介入として考えることが可能であり、その方がより臨床への適用に有効であると考えた。35歳以上の日本人の初産婦を対象とした、臨床で使用可能な推奨文を作成する際には、日本の文化と臨床実践の現状を十分に考慮する必要があると考える。

Key Words : うつ, 母体年齢, 看護, 産褥, システマティックレビュー

I. INTRODUCTION

Postpartum depression (PPD) is common in women after childbirth. Clinicians generally use the term PPD to indicate depression that presents after childbirth and up to 12 months postpartum¹⁾. Diagnostic criteria of depression, or a major depressive episode, include the presence of symptoms such as depressed mood, and loss of interest or pleasure²⁾. Empirical studies with a Japanese population suggest that 8.6–17.0% of women experience PPD³⁾. PPD affects women, as well as their children and families^{4) 5)}. The adverse effects of PPD in more extreme cases include greater risks for child abuse, self-harm, and suicidal ideation^{2) 6)}. Studies have suggested that women with advanced maternal age, particularly primiparae, are more vulnerable to PPD^{7) 8)}. Because of a lack of knowledge and experience of PPD, primiparous women may be unaware that they are actually experiencing PPD. This will delay the detection of PPD and women have the potential to develop severe clinical depression. Therefore, recognizing women who are at risk of developing PPD is important for preventing its development or reducing its impact by early intervention or referral during the hospital stay after childbirth.

The purpose of this systematic review was to determine what types of nursing interventions are available during the first month postpartum

to prevent PPD in Japanese older primiparous women who deliver a singleton. The present study was one of three studies from a research project that was begun in 2011 with the goal of developing a nursing guideline to support childrearing for older Japanese primiparous women. We began the project because of a trend of later childbearing in Japan^{9) 10)}. Additionally, earlier studies indicated some vulnerability of older primiparous women. That included: increased risk for pregnancy complications and difficult delivery, more depressive symptoms and severer fatigue after childbirth, and poorer maternal adaptation¹¹⁾. However, no nursing care guideline exists for older primiparous women. Therefore, from the analysis of the present study, we aimed to form recommendations for nursing practice to prevent PPD in Japanese primiparous women aged 35 years and older.

II. METHODS

Eligibility criteria

Eligibility criteria and the methods of analysis were specified in advance and documented in a protocol. We determined the eligibility criteria in terms of types of studies, participants, interventions, and outcome measures.

Types of studies

Any type of study design, except for qualitative studies, was searched because we

assumed that only a small amount of published evidence was available for achieving the aim of our study. All published articles in which the aim was to reduce the risk of developing PPD were included. Editorials, letters, comments and conference proceedings were excluded. Only English and Japanese language articles were included.

Types of participants

Postpartum primiparous women aged 35 years and older were considered. Women with multiple infants, infants who needed special care, and severe complications in the mother or infant were excluded. Although our aim was to identify nursing interventions to prevent PPD in Japanese older primiparous women, a preliminary search showed that there would not be many studies with a Japanese population. Therefore, we decided to include those studies with non-Japanese populations. We also did not limit to studies that were specific to older primiparous women. Instead, we decided to include studies if they included any older primiparous women.

Types of interventions

Nursing interventions for preventing PPD that were offered during the first month after childbirth were included. In the present study, we operationally define the term PPD to refer to depression that presents after childbirth¹²⁾, and that depression indicates depressive symptomatology that is specified through a self-report measure or diagnostic criteria of mental disorders²⁾. Studies with an intervention that was solely offered in the antenatal period were excluded. Studies with an intervention that was initiated antenatally and continued into the postpartum period were also excluded. Any forms of non-pharmaceutical intervention, including psycho-educational strategies, cognitive behavioral therapy, interpersonal psychotherapy, non-directive counseling, psychological debriefing, various supportive interactions, and tangible assistance (via telephone, home, or clinic visits) were included. Additionally, individual or group sessions within the first month postpartum by professionals (e.g., nurses, midwives, childbirth educators,

physicians, psychiatrists, or psychologists) or lay persons (e.g., specially trained women from the community, students, research assistants, or peers) were included.

Types of outcome measures

The primary outcome measure was depressed symptomatology as variously defined and measured by researchers.

Search methods for identification of studies

An initial search was carried out for published guidelines or systematic reviews because our study aim was to form recommendations for nursing practice to prevent PPD. We searched published guidelines on the following websites: the National Institute for Health and Care Excellence¹³⁾ and the Medical Information Network Distribution Service¹⁴⁾ (Minds). Systematic reviews and articles were searched using the following seven databases: MEDLINE (2013, last searched 8 August 2013), PubMed (2013, last searched 9 August 2013), CINAHL (2013, last searched 8 August 2013), Cochrane Database of Systematic Reviews (2008–2013, last searched 18 July 2013), Cochrane Central Register of Controlled Trials (2013, last searched 8 August 2013), PsychInfo (2013, last searched 8 August 2013), and Ichushi-Web (1983–2013, last searched 8 August 2013). Database searches were carried out by a librarian or a researcher. We assumed that a systematic review in the Cochrane Database of Systematic Reviews was high quality. We did not examine secondary references. We used a combination of free-text terms and Medical Subject Heading terms. Search terms included controlled clinical trial, meta-analysis, comparative study, evaluation study, validation study, depression, postpartum, postnatal, maternity, maternal, nursing, intervention, support, and care for English articles. For Japanese articles, search terms of *randamukahikakushiken* (randomized controlled clinical trial), *jun-randamukahikakushiken* (clinical trial), *metaanarisu* (meta-analysis), *hikakukenkyu* (comparative study), *shinryo gaidorain* (clinical guideline), *sango* (postpartum

or postnatal), *sanjoku* (postpartum or postnatal), *kango* (nursing), *enjo* (support), *shien* (support), *kea* (care), *utsu* (depression), and *utsubyou* (depression) were used. (See the following website to replicate our search¹¹⁾)

Data collection and analysis

Selection of studies

Two researchers independently assessed inclusion of all the potential studies by reviewing article titles and abstracts (first screening, see Figure 1). The reasons for rejecting any article were recorded. We resolved any uncertainties regarding the appropriateness for inclusion through discussion or consultation with a third person.

Data extraction and management

The second screening was independently conducted by two researchers by reviewing full texts of all the potential studies (Figure 1). We designed a data extraction sheet (based on the Minds Manual for Developing Clinical Guidelines; 2014) to extract the following data: characteristics of participants (including age, parity, and ethnicity) and inclusion and exclusion criteria; type of intervention (including type, timing, frequency, setting, and intervention characteristics); type of outcome measures (including type, timing, and unintended effects of interventions); and findings. For eligible studies, two researchers independently extracted the data using the data extraction sheet. When information was unclear, we attempted to contact authors of the original reports to provide further details.

Assessment of the risk of bias in included studies

Two researchers independently assessed the quality of each study using a quality assessment sheet based on the Minds Manual for Developing Clinical Guidelines¹⁵⁾. The quality assessment sheet included the following criteria and information regarding the risk of bias, including random sequence generation and allocation concealment (checking for selection bias), blinding of participants and personnel (checking for performance bias), blinding of outcome assessors (checking for detection bias),

intention-to-treat analysis and incomplete outcome data (checking for attrition bias), and other sources of bias (including selective reporting and stopping trials early). The quality assessment sheet also included indirectness regarding participants, intervention, control group and outcome, and information on effect measures. We made explicit judgments regarding whether studies were at high risk of bias according to the criteria provided in the Minds Manual for Developing Clinical Guidelines (2014) (Figure 2). In addition, we assessed the following: reliability and validity of outcome measures, appropriateness of data analysis, reproducibility of interventions, invasiveness or disadvantageousness of interventions, and if nurses were included as intervention providers or not. We resolved any disagreement by discussion.

III. RESULTS

Characteristics of included studies

Description of studies

In an initial search of published guidelines and systematic reviews, two guidelines and seven systematic reviews were found, and all of them were written in English. However, none of these could answer directly to our clinical question: what types of nursing interventions were available during the first month postpartum to prevent PPD in Japanese older primiparous women who delivered a singleton? The reasons included that the target population was not older primiparous women and that the intervention was not provided during the first month postpartum. Therefore, we decided to examine each study that was reviewed in the guidelines and systematic reviews, that resulted in 17 studies (Figure 1). Because we assumed that extracted guidelines (NICE guidelines) and systematic reviews (Cochrane reviews) were high quality, English language articles were searched only after the last searched year, that was 2013. However, Japanese language articles were searched for all periods (1983–2013) because we assumed that Japanese studies were seldom written in English. As a result, eight studies (n=4946), reported between 1998

and 2009, were identified as meeting the study criteria (Figure 1). All of the eight studies were randomized controlled trials published in English. The overall quality of the included studies was fairly good (Figure 2). Four trials were conducted in Australia^{16) 17) 18) 19)}, three trials were conducted in the United Kingdom^{20) 21) 22)}, and one trial was conducted in Canada²³⁾. We considered that none of these eight studies included a Japanese population.

Operational definition of PPD

In all of the trials, except for two of them, postpartum depressive symptomatology was operationally defined by the authors of each study as a score above a specified cut-off point on a self-report measure; three studies used a 13/12 cut-off^{16) 17) 18)} and one study used a 12/11 cut-off²⁰⁾ in the Edinburgh Postnatal Depression Scale (EPDS) score to indicate PPD, and one study used a 11/10 cut-off in the Hospital Anxiety and Depression Scale²²⁾. One study reported mean EPDS scores²¹⁾. Two studies incorporated a diagnostic interview using criteria of the Structured Clinical Interview for DSM-IV to provide a clinical diagnosis of minor or major depression^{19) 23)}. The timing of the outcome assessments varied between studies, ranging from 3 weeks to 12 months postpartum.

Types of interventions

Eight studies were grouped into five categories: debriefing (three trials, 2776 women)^{18) 19) 22)}; counseling (one trial, 103 women)¹⁷⁾; professional-based¹⁶⁾ or lay-based²¹⁾ individualized home visits (two trials, 723 women); peer telephone support (one trial, 612 women)²³⁾; and providing support via support groups or a support manual (one trial, 732 women)²⁰⁾. In all of the studies, the control group was reported to have received usual postpartum care, which varied between and within countries. Because the participants, interventions, and outcome measures markedly varied, we focused on describing the studies on qualitative synthesis rather than a meta-analysis.

Debriefing

Three studies^{18) 19) 22)} examined the effect of debriefing by midwives. Debriefing was defined as a brief session treatment for mothers that

intended to reduce the psychological morbidity that arose after exposure to a traumatic event, such as a distressing birth experience. In all of the three studies, one debriefing session was offered by a midwife and it occurred during hospitalization after childbirth. Outcome was assessed using the Hospital Anxiety and Depression scale at 3 weeks postpartum²²⁾, a diagnostic interview with the Structured Clinical Interview for DSM-IV at 2, 6, and 12 months postpartum¹⁹⁾, or the EPDS at 6 months postpartum¹⁸⁾. Only one out of three studies showed a benefit in providing debriefing²²⁾ (Figure 2) in which participants were all primiparous women who delivered a term healthy singleton by vaginal delivery. In the other two studies^{14) 15)}, participants included women who experienced a distressing birth experience, such as cesarean section, forceps, and vacuum extraction. These two studies reported no benefit of debriefing, but debriefing itself had the possibility to contribute to emotional health problems¹⁸⁾.

Counseling

One study was identified that examined the effect of counseling intervention¹⁷⁾ (Figure 2). The counseling intervention included review of the labor experience and was offered by a midwife within 72 hours of birth face-to-face and again at 4 to 6 weeks postpartum via telephone. The participants were women who reported a distressing or traumatic birth experience. Outcome was assessed using the EPDS at 4 and 6 weeks postpartum and 3 months postpartum. Women in the intervention group reported a low relative risk of depression, which indicated that there was a benefit in providing counseling.

Home visits

Two studies were identified that examined the effect of home visits^{16) 21)} (Figure 2). In one study¹⁶⁾, individualized home visits were offered by a nurse once a week until 6 weeks postpartum. The participants were women with adverse family characteristics, such as domestic violence, childhood abuse, and sole parenthood. Outcome was assessed using the EPDS at 6 weeks postpartum. Women in the intervention group reported a significant reduction in the

EPDS score, which indicated that there was a benefit in providing home visit intervention. In the other study²¹⁾, individualized home visits were offered by trained support workers for a maximum of 10 times during 4 weeks postpartum. Outcome was assessed using the EPDS at 6 weeks and 6 months postpartum. At both 6 weeks and 6 months postpartum, there was no significant difference in the EPDS scores between the intervention group and the control group, which indicated that there was no benefit in providing home visits.

Although both of these two studies examined the effect of providing support by individualized home visits, they differed in the participants, the care providers, and the content of support. In the study by Armstrong *et al*¹⁶⁾, the participants were women at high risk of poor health outcomes, whereas the participants in the study by Morrell *et al*²¹⁾ included low and high risk women (i.e., all eligible women, regardless of adverse family characteristics). The interventions were also different between studies in that home visits in the study by Armstrong *et al* included providing primarily informational and appraisal support by professional-based persons (nurse), whereas home visits in the study by Morrell *et al* included providing primarily instrumental and emotional support by lay-based persons (support workers). Among the two studies, the benefit of home visits was indicated only in the study by Armstrong *et al*¹⁶⁾.

Peer telephone support

One study was identified that examined the effect of peer telephone support²³⁾ (Figure 2). Telephone support was offered by a volunteer woman who had previously experienced and recovered from PPD. Peer telephone support included primarily informational, appraisal and emotional support and it was initiated at approximately 2 weeks postpartum and provided for a minimum of four times until 12 weeks postpartum. The participants were women who were identified as high risk for PPD with the EPDS. Outcome was assessed using the EPDS and a structured clinical interview at 12 and 24 weeks postpartum.

Women in the intervention group were significantly less likely to have depressive symptomatology at 12 weeks postpartum. This finding indicated that there was a benefit in providing peer telephone support to women at high risk.

Providing postnatal support via support groups or a support manual

One study was identified that examined two interventions of postnatal support²⁰⁾ (Figure 2). One intervention offered support group weekly, and the other intervention provided a support manual, that was produced by the Maternity Alliance. Both interventions started at 2 weeks postpartum and were provided with postpartum women. Outcome was assessed using the EPDS at 3 and 6 months postpartum. There were no significant differences in the EPDS scores between the intervention groups and the control group. This finding indicated that there was no benefit in providing postnatal support via a support group or a support manual.

IV. DISCUSSION

Nursing interventions that were identified in the eight studies were grouped into the following five categories: debriefing^{18) 19) 22)}; counseling¹⁷⁾; professional-based¹⁶⁾ or lay-based²¹⁾ individualized home visits; peer telephone support²³⁾; and providing postnatal support via support groups or a support manual²⁰⁾. Among the eight studies, a significant benefit of the interventions was shown in four studies^{16) 17) 22) 23)}. Because of heterogeneity and the small number of studies, we did not conduct a meta-analysis.

Debriefing and counseling interventions had a common attribute in that both interventions included review of the labor experience. In Gamble *et al*¹⁷⁾, all of the participants were women with a distressing or traumatic birth experience, and the counseling intervention necessarily included review of the labor experience. Therefore, counseling intervention is assumed to incorporate a debriefing intervention. Among three studies, which examined the effect of debriefing^{18) 19) 22)}, the participants in two studies included women who

experienced a distressing birth, such as cesarean section, forceps, and vacuum extraction. In addition, these two studies reported no benefit of debriefing, but debriefing itself might contribute to emotional health problems¹⁸⁾. The difference between these two studies on debriefing^{18) 19)} and the study on counseling¹⁷⁾ is that the two studies incorporated only one debriefing session that focused on the birth experience, whereas the other study on counseling incorporated a total of three sessions and focused on broad topics, including the birth experience. This suggests that one intervention is not sufficient, and providing continuous care is important, especially for women with a distressing or traumatic event. In providing recommendations for nursing practice in Japanese primiparous women aged 35 years and older, offering a debriefing intervention only once during the hospital stay after childbirth may not be recommended for all women. Offering counseling interventions several times to high risk women, such as those who have experienced a distressing or traumatic birth, may be beneficial in preventing PPD.

The remaining three interventions (i.e., individualized home visits, peer telephone support, and providing postnatal support via support groups or a support manual) had a common attribute in that all the interventions included provision of some type of social support via various ways. These interventions were effective in high risk women^{16) 23)}. Analysis of four studies^{16) 21) 23) 24)} suggested that providing an individualized style of social support based on the individual woman's needs may be effective rather than providing a uniform style of social support to all women. With regard to when and who offers social support, the studies of Armstrong *et al*¹⁶⁾ and Dennis *et al*²³⁾, in which significant benefits were shown in preventing PPD, could be used for a reference. If the findings from Armstrong *et al*¹⁶⁾ are applied, the intervention provider is a pediatric nurse (a professional-based person) and informational and appraisal support should be offered weekly via home visits. If the findings from Dennis *et al*²³⁾ are applied, the intervention

provider is a woman who has experience and has recovered from PPD (a lay-based person), and informational, appraisal and emotional support should be offered via telephone. In Japan, the general practice of community health care includes home visits by nurses. The aim of this governmental project (An infant home visit project) is to ensure healthy family environments by providing various types of support via individualized home visits until 4 months postpartum²⁵⁾. Therefore, making the best use of nurses who are already working for the community health may be one realistic way of providing social support in the context of the Japanese health service. Combining home visits and telephone calls may also be a realistic option for providing support. Home visits are time-consuming care, and therefore, might be difficult to introduce as a usual nursing practice, especially for hospital nurses. When nurses find it difficult to make time for a home visit, providing support via telephone could be an effective alternative plan.

Thus far, considering the contents of five interventions and clinical application in the Japanese clinical setting, we considered the following two types of interventions would be practical and beneficial to prevent PPD: counseling including debriefing; and providing social support via home visits or telephone. These two interventions might have been already practiced in some institutions in Japan. However, researchers have not investigated the effectiveness of the interventions. Therefore, future studies could include evaluation studies of these interventions. This will contribute to a growing body of knowledge about effective nursing care to prevent PPD in the early postpartum period.

Limitations

Our study has several limitations. First, although we searched for studies that included participants who were primiparous women aged 35 years and older, none of the identified eight studies focused on this group of women. As expected, the study participants were postpartum women in general with a mixed parity and a wide range in maternal age.

Because we were unclear if five of the included studies included primiparous women aged 35 years and older, we contacted the corresponding authors, but had no replies. Therefore, the findings of this study are not specific for primiparous women aged 35 years and older. Consequently, the findings of this study could be applied to other groups of postpartum women, such as younger primiparas or multiparas. Second, none of the Japanese studies met our inclusion criteria. All of the identified eight studies were conducted outside Japan (i.e., Australia, the United Kingdom, and Canada). These countries are considered to have different clinical practices, social service and cultures. These will include shortened days of hospital stay after childbirth, increased rate of Cesarean section, and more sophisticated mental health services. Therefore, careful scrutiny and consideration are required in before providing recommendations for clinical practice in Japan.

Conclusion

Eight studies (n=4946), reported between 1998 and 2009, were identified that examined nursing interventions during the first month postpartum to prevent PPD in primiparous women aged 35 years and older. These eight studies included five interventions: 1) debriefing; 2) counseling; 3) professional-based or lay-based individualized home visits; 4) peer telephone support; and 5) providing support via support groups or a support manual. Qualitative analysis of the studies together with the Japanese clinical and practical perspective, it is suggested that two interventions would be effective in reducing the risk of developing PPD: 1) counseling including debriefing; and 2) providing social support via home visits or telephone. Because all of these interventions were extracted from non-Japanese studies, Japanese culture and current clinical practice should be carefully considered again before providing recommendations for practice in Japanese primiparous women aged 35 years and older who had already had their first child.

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DISCLOSURES

The authors declare no conflict of interest.

REFERENCES

1. Cox J, Holden J (Okano T, Souda T): Sango utsubyou gaidobukku [Perinatal mental health: A guide to the Edinburgh Postnatal Depression Scale (EPDS)]. Nanzando, 2006.
2. American Psychiatric Association: Desk reference to the diagnostic criteria from DSM-5. Arlington, VA: American Psychiatric Association, 2013.
3. Yamashita H, Yoshida K, Nakano H, et al.: Postnatal depression in Japanese women. Detecting the early onset of postnatal depression by closely monitoring the postpartum mood. *Journal of Affective Disorders*, 58(2), 145-154, 2000.
4. Logsdon MC, Wisner KL, Pinto-Foltz MD: The impact of postpartum depression on mothering. *JOGNN: Journal of Obstetric, Gynecologic & Neonatal Nursing*, 35(5), 652-658, 2006.
5. Patel M, Bailey RK, Jabeen S, et al.: Postpartum depression: a review. *Journal of Health Care for the Poor & Underserved*, 23(2), 534-542, 2012.
6. Haapasalo J, Petäjä S: Mothers who killed or attempted to kill their child: life circumstances, childhood abuse, and types of killing. *Violence and Victims*, 14(3), 219-239, 1999.
7. Carolan M: The graying of the obstetric population: implications for the older mother. *JOGNN: Journal of Obstetric, Gynecologic & Neonatal Nursing*, 32(1), 19-27, 2003.
8. Matsumoto K, Tsuchiya K, Itoh H, et al.: Age-specific 3-month cumulative incidence of postpartum depression: The Hamamatsu Birth Cohort (HBC) study. *Journal of Affective Disorders*, 133, 607-610, 2011.
9. Ministry of Health, Labour and Welfare: A demographic survey of fiscal year 2006, <http://www.mhlw.go.jp/toukei/saikin/hw/>

- jinkou/kakutei06/hyo4.html (Accessed 4 June 2013)
10. Ministry of Health, Labour and Welfare: A demographic survey of fiscal year 2013, <http://www.mhlw.go.jp/toukei/list/dl/81-1a2.pdf> (Accessed 20 May 2013)
 11. Mori E: Developing nursing guidelines for childrearing support in Japanese elderly primiparas, 2014, http://www.mamatasu.jp/doc/guidelines_fix.pdf (Accessed 16 Oct 2014)
 12. The National Collaborating Center for Primary Care: NICE clinical guideline 37: Routine postnatal care of women and their babies, 2006, <http://www.nice.org.uk/nicemedia/live/10988/30144/30144.pdf> (Accessed 18 Sep 2013)
 13. National Institute for Health and Clinical Excellence: NICE clinical guideline 45: Antenatal and postnatal mental health, <http://www.nice.org.uk/nicemedia/live/11004/30433/30433.pdf> (Accessed 18 Sep 2013)
 14. Medical Information Network Distribution Service: Medical Information Network Distribution Service (Minds), http://minds.jcqhc.or.jp/n/medical_user_main.php?main_tab=1&menu_id=9 (Accessed 25 July 2014)
 15. Medical Information Network Distribution Service: The Minds Manual for Developing Clinical Guidelines, <http://minds.jcqhc.or.jp/n/english/english.php> (Accessed 25 July 2014)
 16. Armstrong KL, Fraser JA, Dadds MR, et al.: A randomized, controlled trial of nurse home visiting to vulnerable families with newborns. *Journal of Paediatrics and Child Health*, 35(3), 237-244, 1999.
 17. Gamble J, Creedy D, Moyle W, et al.: Effectiveness of a counseling intervention after a traumatic childbirth: a randomized controlled trial. *Birth (Berkeley, Calif.)*, 32(1), 11-19, 2005.
 18. Small R, Lumley J, Donohue L, et al.: Randomised controlled trial of midwife led debriefing to reduce maternal depression after operative childbirth. *BMJ: British Medical Journal (International Edition)*, 321(7268), 1043-1047, 2000.
 19. Priest SR, Henderson J, Evans SF, et al.: Stress debriefing after childbirth: a randomised controlled trial. *The Medical Journal of Australia*, 178(11), 542-545, 2003.
 20. Reid M, Glazener C, Murray GD, et al.: A two-centred pragmatic randomised controlled trial of two interventions of postnatal support. *BJOG: An International Journal of Obstetrics and Gynaecology*, 109(10), 1164-1170, 2002.
 21. Morrell CJ, Spiby H, Stewart P, et al.: Costs and benefits of community postnatal support workers: a randomised controlled trial. *Health Technology Assessment (Winchester, England)*, 4(6), 1-100, 2000.
 22. Lavender T, Walkinshaw SA: Can midwives reduce postpartum psychological morbidity? A randomized trial. *Birth (Berkeley, Calif.)*, 25(4), 215-219, 1998.
 23. Dennis CL, Hodnett E, Kenton L, et al.: Effect of peer support on prevention of postnatal depression among high risk women: multisite randomised controlled trial. *BMJ (Clinical Research Ed.)*, 338: a3064, 2009.
 24. Reid M, Glazener C, Connery L, et al.: Two interventions for postnatal support. *British Journal of Midwifery*, 11(5), 294-298, 2003.
 25. Ministry of Health, Labour and Welfare: Nyujikateizenko houmon jigyou [An infant home visit project], <http://www.mhlw.go.jp/bunya/kodomo/kosodate12/01.html> (Accessed 8 Aug 2014)

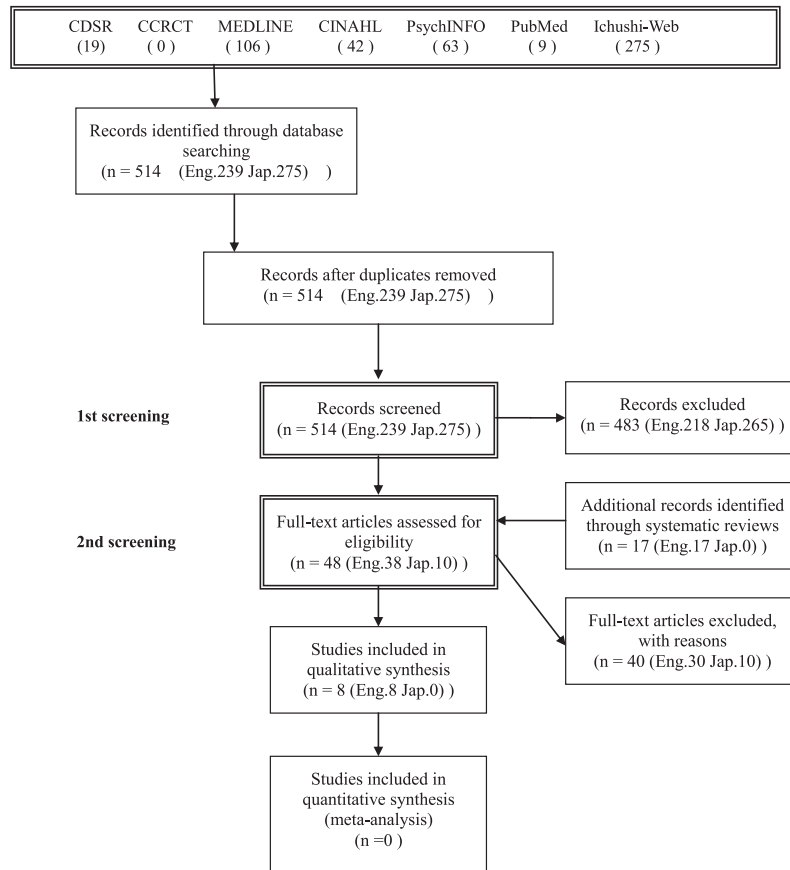


Figure 1. Flow diagram of selection of studies.

Note: The double lines refer to independent screening by two researchers. The single lines refer to screening by one researcher.

Eng.: English language article, Jap.: Japanese language article.

	Type of intervention	Study author	Study design	Risk of bias										Summary of indirectness	Risk of outcome					Type of effect measure	Effect size	Confidence interval							
				Selection bias	Performance bias	Detection bias	Attrition bias	Other bias	Summary of risk of bias	Participants	Intervention	Control group	outcome		Number of denominator of control group	Number of numerator of control group	(%)	Number of denominator of treatment group	Number of numerator of treatment group				(%)						
Debriefing	Small et al 2000	RCT	0	0	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	450	65	14.0	467	81	17.0	RR	1.20	0.89; 1.62
	Priest et al 2003	RCT	0	0	-2	0	0	-2	-2	0	0	-1	0	0	0	0	0	0	0	0	870		18.2	875		17.8	RR	0.99	0.87; 1.11
	Lavender et al 1998	RCT	0	0	-2	-1	-1	0	0	0	0	-1	0	0	0	0	0	0	0	0	56	31	55.4	58	5	8.6	RR	0.16	0.07; 0.37
Counseling	Gamble et al 2005	RCT	0	0	-1	-1	0	0	0	0	0	0	-1	0	0	0	-1	0	0	0	53	17	32.1	50	4	8.0	RR	0.25	0.09; 0.69
Telephone support	Dennis et al 2009	RCT	0	-1	-2	0	-1	0	-1	0	0	-1	0	0	0	-1	0	0	0	0	315	78	25.0	297	40	14.0	RR	0.46	0.24; 0.62
Support group	Reid et al 2002	RCT	0	-1	-2	-1	0	0	0	0	0	-1	0	-1	0	0	0	0	0	0	388	46	11.9	344	55	16.0	RR	1.35	0.94; 1.94
Home visit	Morrell et al 2000	RCT	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	-1	0	0	0	266	6.7†	5.5‡	276	7.4†	5.2‡	MD	0.7	-0.2; 1.6
	Armstrong et al 1999	RCT	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	91	7.90†	5.89‡	90	5.67†	4.14‡	MD	-2.23	-3.71; -0.75

Figure 2. Summary of quality assessment for eight included studies.

Note: Each item in the risk of bias and indirectness was assessed on a 3-point Likert scale: 0, low risk; -1, moderate risk; and -2, high risk.

RR; risk ratio, MD; mean difference, †; mean value, ‡; standard deviation.