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Effects of the Maternal and Child Health handbook and other home-based records on mothers' non-health outcomes: a systematic review

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ABSTRACT

Objective

Home-based records are handheld records available in paper or electronic format and used by mothers or caregivers in the household to document essential information related to maternal, newborn, and child health (MNCH). Previous systematic reviews have primarily focused on health outcomes to evaluate the effectiveness of home-based records on MNCH. However, this review aimed to summarize existing evidence on the effects of home-based records on mothers' non-health outcomes.

Design

We conducted a systematic search of 13 English and Japanese databases to identify relevant original research articles published in English or Japanese across various study designs. We assessed the risk of bias and the certainty of evidence for each study. Due to the heterogeneity of the included studies, we conducted a narrative synthesis of their findings.

Results

Of the 14,017 articles identified through the search, 43 articles (18 in Japanese) were included in the review. The maternal and child health (MCH) handbook provided essential information about the mother-child relationship, and its use facilitated the mother-child bonding process. Mothers reported generally feeling satisfied with the use of home-based records; although their satisfaction with health services was influenced by healthcare providers' level of commitment to using these records. While home-based records positively affected communication within the household, we observed mixed effects on communication between mothers/caregivers and healthcare providers. Barriers to effective communication included a lack of satisfactory explanations regarding the use of home-based records and personalized guidance from healthcare providers. These records were also inconsistently used across different health settings and professionals.

Conclusion

The MCH handbook fostered the mother-child bond. Mothers were generally satisfied with the use of home-based records, but their engagement depended on how these records were communicated and utilized by healthcare providers. Additional measures are necessary to ensure the implementation and effective use of home-based records.

PROSPERO registration number: CRD42020166545

Strengths and limitations of this study

- This systematic review examined a relatively large number of studies that were published in English or Japanese and encompassed several study designs, to highlight the effects of home-based records on mothers' non-health outcomes.
- Unlike past reviews, this systematic review focuses on non-health outcomes as a measure of the effectiveness of home-based records.
- The majority of the studies were observational and qualitative, which leads to potential biases and low certainty of evidence.
- Due to marked heterogeneity across studies in terms of population, intervention types, and comparator groups, a narrative synthesis was conducted.

INTRODUCTION

Over 163 countries worldwide have made use of home-based records to improve maternal, newborn, and child health (MNCH).[1] Home-based records are handheld records used by mothers or caregivers in households to record essential information related to MNCH, including visits to a healthcare provider, vaccination history, and the child's developmental milestones.[1] The design and content of these records vary considerably across countries and regions. While their use is nearly universal in some countries, it tends to be limited in others.[1] The records are available in paper or electronic format, complement facility-based records, and can be either single- or multi-focus. Single-focus records contain information relevant to one health topic or population group (e.g., vaccination-only cards, antenatal care notes), while multi-focus records consist of chronologically ordered information pertaining to more than one health topic and can be used for an extended period.[2]

The Maternal and Child Health (MCH) handbook is an example of multi-focus records. Its use originated in Japan in 1948 and it is known to be the first integrated home-based record covering the entire spectrum of pregnancy, childbirth, infancy, and childcare until six years of age.[3] The integration may have facilitated the continuum of care [4] and might help achieve the Sustainable Development Goal (SDG) 3 — ensuring healthy lives and promoting well-being for all at all ages.[5] As part of universal health care, this handbook is distributed to pregnant women in Japan when they register their pregnancy.[6] This record is shared between mothers and healthcare providers and contains educational messages related to MNCH. Mothers bring it when receiving MNCH services and healthcare providers complete the medical charts in the handbook.[7] Following decentralization in 1991, Japanese

municipalities started distributing the handbook and may add more information from the 48-page national version to meet their local needs and socioeconomic changes.[3, 7] It has been theorized to contribute to Japan's decreased infant mortality, which may have encouraged several countries to adopt the handbook.[6] To date, more than 50 countries worldwide have used the MCH handbook and found it to be useful.[3] This is especially true for countries where access to healthcare services is restricted.[8]

Previous systematic reviews have evaluated the impact of home-based records on MNCH and reported improvements in the uptake of antenatal care services, childhood vaccinations, and newborn and childcare practices.[4, 9-10] Studies in Myanmar and Palestine also showed a positive association between using the MCH handbook and receiving high-quality maternal health services. [7, 11] These are considered essential indicators for evaluating the effectiveness of home-based records for MNCH. However, these reviews have failed to offer any insights related to non-health outcomes, such as communication within the household, communication between mothers/caregivers and healthcare providers, mother-child bonding, and satisfaction with health services and home-based records.[1] This is despite the World Health Organization's (WHO) recommendation regarding the use of non-health outcomes for evaluating the effectiveness of home-based records for MNCH.[1] For example, a systematic review by Magwood et al. suggested that home-based records could empower women and children and act as a point of commonality between patients and healthcare providers.[12] While they presented compelling results, they did not find any evidence pertaining to mother-child bonding and there is a lack of in-depth discussion about communication and satisfaction with these records. Exploring these non-health outcomes can be crucial for providing a more holistic picture of the effectiveness of home-based records and result in insights of theoretical and practical relevance.[13-16] This would capture the user experience to help improve the implementation of home-based records.

Additionally, the review mentioned above by Magwood et al. included only qualitative studies available in English, without taking into consideration essential findings resulting from quantitative studies. The lack of data saturation or richness is a limitation of qualitative studies and will affect the certainty of evidence.[17] Quantitative studies may bring evidence on real-life outcomes of records as they provide more information on actual adherence. Furthermore, given that Japan developed and popularized the use of the MCH handbook, the inclusion of studies published in Japanese can lead to an enhanced understanding of how users perceive home-based records.

In light of these gaps left unaddressed by existing literature, the present study aimed to explore the roles of the MCH handbook and other home-based records on mothers' non-health outcomes, through a review of studies published in English and Japanese. This systematic review was conducted as part of a larger systematic review aimed at exploring the roles of the MCH handbook and other home-based records on MNCH.

METHODS

Patient and public involvement statement

Patients and/or the public were not involved in this review.

Review protocol

The protocol was registered in PROSPERO (no. CRD42020166545; Text S1) and conducted in accordance with the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) reporting guidelines.[18]

Selection criteria

Study inclusion criteria: This review included research studies published in English or Japanese and conducted using various study designs, such as randomized controlled trials (RCTs), observational studies (quasi-experimental, cohort, and cross-sectional), case studies, and qualitative studies. We excluded books, conference abstracts, editorials, letters, protocols, and systematic reviews. We defined the inclusion criteria based on the Population, Intervention, Comparator, Outcome (PICO) framework:

Participants. We included studies conducted with parents, including mothers or other caregivers of newborns and children. Both health and community settings were considered in this review.

Intervention. The intervention consisted of home-based records managed or kept by mothers or caregivers in the form of hard copies. These records included women-held maternity records, child health books, vaccination-only cards, and integrated maternal and child health books (i.e., the MCH handbook). We excluded patient diaries, mobile health interventions (apps, text messages), and provider-held records, such as electronic medical records and web-based summaries of patients' appointments.

Comparison. The comparator included standard care provided to mothers or caregivers before or after childbirth, conventional information, or the absence of any home-based records. We also included studies that did not include a comparison group.

Outcome. We followed the WHO guidelines for defining non-health outcomes.[1] These included communication within the household, communication with healthcare providers, satisfaction with home-based records, and satisfaction with services/provider performance. As an additional outcome, we included mother-child bonding based on the assumption that the integration of the mother's and child's records in the MCH handbook can foster a stronger mother-child bond. We defined "mother-child bonding" as the development of a core relationship between mother and child.[19] This bond is unidirectional (from mother to child), shapes during pregnancy, and continues developing until early childhood.[20-22]

Search strategy

Two authors (RRC and JLS) developed a search strategy using Medical Subject Headings (MeSH) terms and keywords (Text S2), without restrictions on date. Electronic databases were searched for articles published in English and Japanese until January 31, 2020. For articles published in English, RRC and JLS searched the following databases: MEDLINE, CINAHL, Web of Science, PsycARTICLES, PsycINFO, SocINDEX, Academic Search Complete, Cochrane Central Register of Controlled Trials, NHS Economic Evaluation Database, Health Technology Assessment database, and the Database of Abstracts of Reviews of Effects.

A different set of authors (JLS and MKK) searched Japanese databases, including Igakuchuo-zasshi (Ichushi; https://search.jamas.or.jp/) and J-STAGE (https://www.jstage.jst.go.jp/), to search for articles published until January 31, 2020. Both these databases publish over 300,000 articles annually from 2,500 Japanese biomedical journals.

Furthermore, three authors (RRC, JLS, and MKK) searched gray literature using the WHO databases, United Nations Children's Fund, the European Centre for Disease Prevention and Control, the US Center for Disease Control and Prevention, and the Japan International Cooperation Agency. The authors also manually searched the reference lists of articles, whose full texts had been retrieved, to identify additional relevant articles. All records identified through the search were uploaded to a reference-managing software package (Endnote X9) to facilitate the identification and selection of articles eligible for inclusion in this review.

Evidence retrieval

The initial search strategy of the larger systematic review, of which the present study is a part, yielded 14,513 articles from both English and Japanese databases; additionally, 40 articles were identified through manual searching. Of these, 823 were articles published in Japanese. After removing duplicate entries, a total of 14,017 articles remained. Subsequently, RRC and JLS assessed the English articles to determine their eligibility, while MKK and JLS assessed the Japanese articles. This was done by screening the titles and abstracts of the studies in a blinded, standardized manner. Any disagreements were resolved through discussion among the three authors until a consensus was reached or by consulting a fourth author (MJ or AS). A total of 13,832 articles were excluded following the initial screening.

In the next stage of screening, the three authors obtained the full texts of the remaining 185 articles from the University of Tokyo Library System, National Diet Library Online, and Keio University KOSMOS System. Consequently, 142 articles were excluded for the following reasons (Table S1): intervention unrelated to the use of home-based records (n = 53), intervention involving provider-held records and mobile health (n = 39), and outcomes not pertaining to communication, satisfaction, and mother-child bonding (n = 50). Finally, 43 articles (including 18 Japanese articles) were deemed eligible for inclusion in the narrative synthesis. Figure 1 shows the PRISMA flow diagram of the screening process.

[insert Figure 1]

Data extraction

The three authors (RRC, JLS, and MKK) created a library using the Endnote referencing software consisting of PDF versions of the included articles. We extracted and independently entered the following data in a Microsoft Excel sheet: citations (i.e., name of the first author, publication year, title, and journal name), study design, country and settings, population and sample size, type of home-based records used, comparator, and relevant outcomes (Table S2). The same authors discussed the strategies and presentation of the results throughout the data extraction process.

Quality appraisal

The authors (MKK and JLS for Japanese articles; RRC and JLS for English articles) independently assessed the risk of bias in the included studies. For RCTs, we used the revised Cochrane Risk of Bias Tool (RoB 2) to evaluate the overall risk of bias based on five

domains: randomization process, deviations from the intended intervention, missing outcome data, outcome measurement, and selective reporting of results.[23]

For non-RCTs, we used the following risk of bias assessment tools: ROBINS-I for non-randomized studies,[24] Critical Appraisal Skills Program checklist for qualitative studies,[25] NIH quality assessment tool for observational cohort and cross-sectional studies,[26] and the mixed methods appraisal tool for mixed-method studies.[27] Disagreements were discussed and resolved through a consensus between the authors.

Additionally, we used the Grading of Recommendations Assessment, Development and Evaluation (GRADE) framework to assess the certainty of the evidence in quantitative studies,[28] and the GRADE-CERQual (confidence in the evidence from reviews of qualitative research) framework for qualitative studies.[29]

Synthesis of findings

All the authors participated in the data analysis. We conducted a narrative synthesis owing to the heterogeneity of study designs among the included studies and the lack of pooled data for a meta-analysis. Therefore, we followed the synthesis without meta-analysis (SWiM) reporting guidelines for the narrative synthesis of findings,[30] instead of the PRISMA guidelines. To evaluate the effects of the intervention (home-based records), we conducted a detailed examination of the numeric and textual summary of the findings and conclusions of the included studies. We coded the outcomes as having a positive, mixed, or no effect; a detailed description of this coding process has been reported elsewhere.[4] We grouped the studies for synthesis based on the following research questions:

1. Do home-based records (intervention) improve communication, satisfaction, and mother-child bonding, as opposed to the non-use of home-based records (control)?
2. Does a different type of home-based record (intervention) improve communication, satisfaction, and mother-child bonding, compared to a standard home-based record (control)?

We presented the direction and magnitude of the effect (effect sizes that cannot be meta-analyzed) in the GRADE table (Table S3). We also presented the qualitative evidence profile in the GRADE-CERQual table (Table S4). We ordered the heterogeneity of the included studies according to the participants, methods, and outcomes reported. We prioritized studies based on their study design, risk of bias assessment, and relevance to the research question.

RESULTS

Study characteristics

Table S2 presents a summary of study characteristics.

Study designs. Among the included studies, there were three RCTs, four quasi-experimental studies (open, non-randomized trials), six cohort studies, fifteen cross-sectional studies, three mixed-method studies (pre-post intervention and qualitative evidence), eight qualitative studies, and four case studies.

Location. We used the World Bank definition to categorize countries according to income levels.[31] Thirty studies were conducted in high-income countries (HIC): Japan (n = 15), the UK (n = 7), Australia (n = 4), the US (n = 2), New Zealand (n = 1), and Norway (n = 1). Thirteen studies were conducted in low- and middle-income countries (LMIC): two studies in South Africa, one each in Ethiopia, Palestine, Bosnia and Herzegovina, Thailand, Indonesia, Vietnam, Bangladesh, Mongolia, Brazil, and Dominican Republic, and one multi-country study.

Study participants. We noted differences in the inclusion criteria for the study participants. Across studies, mothers were enrolled at different points in time either during pregnancy, childbirth, or post birth. One multi-country study targeted both literate and illiterate mothers who lived in communities with easy or low access to healthcare services.[32] Other studies targeted women from an ethnic minority group,[33] women who had experienced miscarriages,[34-35] as well as parents of children with special educational needs.[36] Studies were primarily conducted in health settings, although a few were conducted in community settings. The sample sizes also varied greatly (range: 1–250,000) among included studies.

Types of interventions. We identified differences in the type of home-based records used by mothers or caregivers. Among the 43 studies included in the review, 22 involved the use of the MCH handbook. The remaining studies used other types of home-based records, including plunket books, road-to-health (RTH) booklets, maternity case notes, child personal health records, speaking books, and patient passports. Some studies did not include a comparison group when evaluating the intervention, while others compared users of home-based records with non-users of records or standard care groups. Thus, the studies considered home-based records as a single intervention when reporting their findings. We have presented the findings from the English and Japanese articles separately (Tables 1-2).

297 **Table 1. English articles included in the review**

Outcomes	Reference	Study design	Intervention	Effect of intervention	Comments
Communication within the household	Elbourne, 1987 UK [40]	RCT	Maternity case notes	No impact	No significant difference was observed between mothers in the case note group and cooperation card group concerning the involvement of the baby's father. The number of events not reported.
	Phipps, 2001 Australia [39]	Qualitative	Women-held maternity records	Positive	Women had the opportunity to share what they were experiencing during their pregnancy with their husbands/partners, grandparents, and friends.
	Hagiwara, 2013 Palestine [37]	Quasi-experimental	MCH handbook	Positive	Women experienced more partner involvement during pregnancy, delivery, and child care and reduced misconceptions about pregnancy and child care among family members.
	Osaki, 2018 Indonesia [38]	Cluster RCT	MCH handbook	Positive	Mothers in the intervention arm reported that their husbands showed their support in saving money for delivery (OR=1.82, 95% CI: 1.20-2.76), keeping their baby warm (OR=1.58, 95% CI: 1.02-2.46), and giving their infant/child developmental stimulation (OR=1.62, 95% CI: 1.06-2.48).
Communication between mothers/ caregivers and healthcare providers	Elbourne, 1987 UK [40]	RCT	Maternity case notes	Positive	Women holding their full records were significantly more likely to feel it was easier to talk to doctors and midwives (RR [Rate Ratio] = 1.73, 95% CI: 1.16-2.59) and in control of their antenatal care (RR = 1.45, 95% CI: 1.08-1.95) than cooperation card holders.
	Young, 1990 USA [41]	Qualitative	Family-carried growth record	Positive	Parents receiving the records appeared more attentive and receptive to nutrition counseling. They also asked more questions and volunteered more pertinent information about their children. The number of events not reported.
	Shah, 1993 Multi-countries [32]	Quasi-experimental	Home-based maternal record (HBMR)	Positive	Healthcare providers' training and involvement from the start of the HBMR scheme promoted maternal, newborn and child health among pregnant women and mothers.
	Harrison, 1998 South Africa [46]	Descriptive prospective study	Road-to-Health (RTH) card	Mixed	Most mothers (74%) in public clinics received some explanation of the card. The sections discussed were weight (58%), immunization schedules (26%), sensory tests (5%), and developmental milestones (5%). In private clinics, relatively few mothers (31%) received an explanation of the RTH card, and the weight chart interpretation tended to be ignored (92%).
	Moore, 2000 UK [36]	Quasi-experimental	Personal child health record	No impact	Half of the responses included a comment about a perceived lack of communication or the failure of professionals to respond to messages.
	Phipps, 2001 Australia [39]	Qualitative	Women-held maternity records	Positive	Women believed that carrying their records encouraged the healthcare workers to explain better what was being recorded and why certain things were done. They were aware the women would go home and reread the records.
	Grøvdal, 2006 Norway [47]	RCT	Parent-held child health record	No impact	No significant difference in the difficulty parents felt when talking to professionals (nurse, p-value =0.66; doctor, p-value =0.78; other doctors, p-value =0.39, and other health personnel, p-value =0.60) between parent-held child health record and control groups.
	Grippo, 2007 Brazil [61]	Mixed methods	Educational booklet	Positive	The booklet served as a strengthening element in the relationship between family caregivers and the healthcare providers. Frequency of contact is more common with community health agents, followed by nurses.

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Table 1. (continued)

Outcomes	Reference	Study design	Intervention	Effect of intervention	Comments
	Walton, 2007 UK [45]	Cross-sectional	Personal child health record (PCHR)	Mixed	Some parents (22%) were not given a satisfactory explanation of using the PCHR when issued to them. Health visitors were more likely to use the PCHR to obtain and record child information than other healthcare providers.
	Clendon, 2010 New Zealand [42]	Qualitative	Child health and development record book	Positive	As a clinical tool, the record book helped nurses to guide interventions and track mothers' progress. It is also a valuable tool for mothers to facilitate building a relationship with their nurses.
	Hamilton, 2012 Australia [62]	Mixed methods	Child personal health record (CPHR)	Mixed	Parent's lack of engagement with the CPHR could be attributed to health care providers' lack of involvement. However, the CPHR empowered parents to communicate their perceptions about their children's health.
	Hagiwara, 2013 Palestine [37]	Quasi-experimental	MCH handbook	Positive	The MCH handbook may be an effective communication tool between healthcare providers and women with low and high education during their first pregnancy (p-value <0.05).
	Engida, 2013 Ethiopia [43]	Qualitative	Speaking books	Positive	The speaking book allowed mothers to ask questions and receive additional information during book sessions with the health development army (e.g., solutions to infants' throat and tooth problems).
	Whitford, 2014 Scotland [63]	Qualitative	Birth plan within woman-held maternity records	Mixed	The birth plan provided an opportunity to stimulate discussions and enhance communication between pregnant women and healthcare providers. However, not all women experienced the benefits, and staff noted some challenges.
	Lee, 2016 USA [44]	Qualitative	Patient passport	Positive	The passport enriched the overall communication between families and healthcare providers. They could take and refer to the passport book for their child's recent hospitalization even after discharge.
	McKinn, 2017 Vietnam [33]	Qualitative	MCH handbook	No impact	Ethnic minority women received didactic, one-way style communication and not context-adjusted information from healthcare providers. Providers relied on written information (MCH handbook) in place of interpersonal communication.
Satisfaction with the information provided by the home-based records	Shah, 1993 Multi-countries [32]	Quasi-experimental	Home-based maternal record (HBMR)	Positive	HBMR provided useful information on maternal, newborn and child health. Mothers kept the cards until the end of the evaluation period. The mean record retention in all centers was about 80%.
	Jeffs, 1994 Australia [64]	Quasi-experimental	Personal health record (PHR)	Positive	The most helpful sections of the PHR were records of immunization (36%), developmental milestones (29%), and progress notes (16%).
	McMaster, 1996 Bosnia and Herzegovina [65]	Cross-sectional	Personal child health record and advice booklet	Positive	Both parents and older children appreciated the health information content of the booklet. Nearly all had read the booklet, reflecting the lack of other reading materials.
	Harrison, 1998 South Africa [46]	Descriptive prospective study	Road-to-Health (RTH) card	Mixed	Most mothers carried the card, but this number dropped for hospital visits and consultations with private doctors. Mothers hardly understood the weight-for-age chart, immunization schedule, and milestone section.
	Hampshire, 2004 UK [66]	Cross-sectional	Personal child health record (PCHR)	Positive	Most of the mothers (82.5%) thought that the PCHR was very good or good. Higher scores for the usage of the PCHR were significantly associated with teenage- (B=1.8, 95% CI: 0.84-2.75) and first-time mothers (B=0.88, 95% CI: 0.35-1.4)

Table 1. (continued)

Outcomes	Reference	Study design	Intervention	Effect of intervention	Comments
	Grøvdal, 2006 Norway [47]	RCT	Parent-held child health record	Positive	Some parents (65%) were satisfied with parent-held records, and 92% favored making them permanently available. Satisfaction and support were especially high among parents of children with chronic diseases.
	Bhuiyan, 2006 Bangladesh [67]	Mixed methods	MCH handbook	Positive	Most of the mothers (78%) perceived the MCH handbook as a useful tool.
	Grippo, 2007 Brazil [61]	Mixed methods	Educational booklet	Mixed	The most important topics were 'protect and care,' followed by 'children's rights.' The topic of 'sick child and accident prevention' appears to have minor importance among the emerged themes.
	Walton, 2007 UK [45]	Cross-sectional	Personal child health record (PCHR)	Positive	The level of maternal education that parents can document in their child's PCHR made them (78%) happy.
	Engida, 2013 Ethiopia [43]	Qualitative	Speaking books	Positive	The speaking book is a good tool to deliver complete information. Caretakers trusted the messages and claimed that they were learning something new.
	Du Plessis, 2017 South Africa [68]	Cross-sectional	Road-to-health booklet health promotion messages	Mixed	Of 1,644 caregivers, 66.7% found the messages very important, and 59% regarded them helpful. Some caregivers did not know why the messages were included in the booklet (12.4%) and were unsure of their purpose (2.9%).
Satisfaction with services/provider performance	O'Flaherty, 1987 Australia [55]	Prospective cohort	Personal health record	Mixed	Both parents and community health staff used personal health records frequently during health visits. However, most private doctors did not find them useful.
	Polnay, 1989 UK [69]	Prospective cohort	Nottingham baby book	Positive	The baby book was well used by most parents, with 80% of them had read all the content by the time their babies were three months old. The majority of the parents (70%) used the booklet until their children reached one year.
	Wright, 2005 UK [70]	Prospective cohort	Personal child health record	Mixed	Parents used the record books for information and regularly took them to baby clinics for health services. Health visitors frequently wrote in the record, compared with only 50% of parents and less than 25% of family physicians.
	Lee, 2016 USA [44]	Qualitative	Patient passport	Positive	Families were satisfied with passport rounds. It added value to make families feel more secure and confident with discharge planning and understand the provision of care during hospitalization.

Table 2. Japanese articles included in the review

Outcomes	Reference	Study design	Intervention	Effect of intervention	Comments
Communication between mothers/ caregivers and health care providers	Shimizu, 2007 Dominican Republic [71]	Cross-sectional	MCH handbook	Positive	The handbook helped health personnel clarify the division of work and enhanced their sense of responsibility, communication, continuity, and integration of services.
	Umeda, 2015 Mongolia [51]	Cross-sectional	MCH handbook	Mixed	Of 42 health providers, 57% used it as a communication tool with mothers and 28% saw the handbook as a tool to nurture the next future generation's parents.
	Naito, 2019 Japan [72]	Retrospective cohort	MCH handbook	Positive	The MCH handbook was handed directly by public health nurses and midwives at community health centers. Direct contact provided mothers an opportunity to learn and consult with healthcare providers.
Satisfaction with the information provided by the home-based records	Hokama, 2000 Japan [48]	Cross-sectional	MCH handbook	Positive	Over 90% of mothers replied that the information in the handbook was useful. The most highly evaluated pages were those on child health, growth, and vaccination.
	Takeda, 2002 Japan [49]	Cross-sectional	MCH handbook	Positive	About 89% of mothers said that the information on childcare was useful, and 87.1% said that the information helped eliminate their worries about their child's health and growth.
	Yahata, 2005 Japan [73]	Qualitative	MCH handbook	Mixed	To raise the vaccination coverage rate, caregivers proposed having a more explicit message on 'measles vaccination safety in the MCH handbook' and information that 'vaccination can be done even outside your local borough.'
	Aoki, 2009 Japan [50]	Cross-sectional	MCH handbook	No impact	Parents did not frequently use the information in the MCH handbook. They used the handbook passively rather than actively, and only about half regarded the handbook as user-friendly.
	Umeda, 2015 Mongolia [51]	Cross-sectional	MCH handbook	Mixed	One respondent wrote that there should be a space for the doctor to write advice instead of just providing information. Another wrote that the handbook should have a space where advice for the father could be written.
Satisfaction with services/provider performance	Sugi, 1985 Japan [52]	Cross-sectional	MCH handbook	Mixed	Both caregivers and healthcare providers used the MCH handbook more frequently during health check-ups than consultations. Child and maternal oral hygiene were of the slightest interest, and nutrition during pregnancy was the most used section.
	Fujimoto, 2001 Japan [54]	Cross-sectional	MCH handbook	Mixed	Many caregivers replied in neutral when asked about the usefulness of the handbook. Oral hygiene was the least filled-out, and only a minimum of people responded that this page was useful.
	Aihara, 2006 Thailand [74]	Cross-sectional	MCH handbook	Mixed	There was a low reading rate (14.3% of mothers had read all of the contents) and self-recording (0.9% of mothers had recorded every part). Utilization of the MCH handbook was related to both mother's MCH promoting belief ($p = 0.001$) and action ($p = 0.039$).
	Yuge, 2010 Japan [53]	Cross-sectional	MCH handbook	Positive	Mothers found the pages which medical workers filled out useful. These were 'delivery record,' 'vaccination record,' and 'neonatal record' pages. There were very few childcare instruction items/pages which were useful.

Table 2. (continued)

Outcomes	Reference	Study design	Intervention	Effect of intervention	Comments
Mother-child bonding	Matsumoto, 1996 Japan [56]	Quantitative case study	MCH handbook	Positive	About 82.9% of mothers considered giving their MCH handbook to their children, and 76.4% thought that "marriage or pregnancy" was the best time. The MCH handbook is health guidance that can be passed on to future generations and used for a lifetime.
	Seto, 2006 Japan [34]	Qualitative case study	MCH handbook	Positive	After confirming the death, the baby's footprint and handprint were taken as a token, and the baby's name and words of gratitude for the child's birth were written in the MCH handbook.
	Yuge, 2010 Japan [53]	Cross-sectional	MCH handbook	Positive	Mothers who had seen their own handbook when younger had a higher continuity awareness than those who had not.
	Tanabe, 2011 Japan [57]	Multi-facility cohort study	MCH handbook	Positive	Associations were found between a mother's course of pregnancy and delivery and her daughter's. The MCH handbook could offer some predictions concerning her daughter's pregnancy and delivery.
	Higashiyama, 2013 Japan [59]	Qualitative case study	MCH handbook	Positive	Nurses explained how to apply for an MCH handbook before the birth of their adopted child. They introduced the handbook to reduce the anxiety of adoptive parents and build good parent-child relationships.
	Akiba, 2016 Japan [60]	Cross-sectional	MCH handbook	Positive	Children of mothers who wrote at least one record of worrying or anxiety in the MCH handbook were more likely to develop maladaptation in school environment (p-value <0.05).
	Ogasawara, 2016 Japan [58]	Cross-sectional	MCH handbook	Positive	The loss of records was painful for the mother. The MCH handbook is used by mothers who look forward to their child's growth. Even if the handbook was dirtied from the tsunami, they would have been happy if they did not lose it.
	Minewaki, 2019 Japan [35]	Qualitative case study	MCH handbook	Positive	Birth plan was realized according to the wishes of the mother and have the medical staff fill out the MCH handbook. The nurse who reflects on the experience tries to understand the grieving process of the mother.

Risk of bias in included studies

The risk of bias varied among the included studies. Table S5 shows the risk of bias assessment of RCTs, observational studies, qualitative studies, and mixed-method studies. Based on the RoB 2 algorithm, the three RCTs showed a high overall risk of bias, mainly because of concerns in the randomization process and challenges with the blinding/masking of assessors owing to the nature of the intervention. For non-RCTs, we observed methodological issues and a lack of information and adjustment for potential confounding variables.

Communication within the household

Four studies published in English reported the effects of home-based records on communication within the household (Table 1). Of these, three reported positive effects, but one did not. In Palestine and Indonesia, women who shared the MCH handbook with their husbands experienced greater involvement from their partners during pregnancy, delivery, and childcare (GRADE certainty of evidence: very low).[37-38] Husbands expressed support by way of saving money for the delivery (Odds Ratio [OR] = 1.82, 95% Confidence Interval [CI]: 1.20-2.76), keeping their babies warm (OR = 1.58, 95% CI: 1.02–2.46), and providing developmental stimulation (OR = 1.62, 95% CI: 1.06–2.48).[38] Moreover, pregnant women in Australia found handheld maternity records to be beneficial because they could go through the records at home with their husbands and could share information with their grandparents and friends (GRADE-CERQual certainty of evidence: very low).[39] In Palestine, such sharing of information helped reduce misconceptions related to pregnancy and child care among family members.[37]

Communication between mothers/caregivers and healthcare providers

Nineteen studies reported the effects of home-based records on communication between mothers/caregivers and healthcare providers. Of these, eleven reported positive effects, five showed mixed effects, and three showed no effect. One RCT conducted in the UK reported that women having access to their complete records found it easier to talk to doctors and midwives (RR = 1.73, 95% CI: 1.16-2.59, GRADE certainty of evidence: very low) than the other group comprising cooperation card holders.[40] Similarly, few qualitative studies also found home-based records to be an effective tool for communication and relationship building with healthcare providers (GRADE-CERQual certainty of evidence: low).[39, 41-44] In Ethiopia, pregnant women and mothers had the opportunity to ask

questions related to a child's development during "speaking book" sessions and received solutions to throat and tooth related problems experienced by infants.[43]

However, other studies reported mixed or no effects of home-based records on communication with healthcare providers. In a study in the UK, some parents (22%) indicated that they had not been given a satisfactory explanation on how to use the personal child health record (PCHR) when it was issued.[45] Additionally, health visitors were more likely to make use of PCHRs than other healthcare providers.[45] In South Africa, there were marked differences in the usage of RTH cards between private and public clinics; relatively few mothers in private clinics (31% vs. 74% in public clinics) received an explanation regarding the RTH card, and the interpretation of the weight chart tended to be ignored in private clinics (92% vs. 42% in public clinics).[46] A qualitative study conducted with ethnic minority women in Vietnam suggested healthcare providers' reliance on written information (MCH handbook) over interpersonal communication.[33]; the participants further indicated that the health information they received (verbally and in written) was often non-specific and not adjusted for their personal circumstances.[33]

Satisfaction with the information provided by the home-based records

Sixteen studies reported on mothers' satisfaction with the information provided by home-based records. Among these, ten reported positive effects, five reported mixed effects, and one showed no effect. One RCT conducted in Norway reported that 65% parents were satisfied with the use of parent-held records and 92% were in favor of making it available permanently.[47] Satisfaction and support were particularly high among parents of children with chronic diseases.[47] In Japan, observational studies have reported the usefulness of the MCH handbook in providing information regarding the child's health, growth, and vaccination history.[48-49] However, one study highlighted the following recommendations made by parents to make the MCH handbook more "user-friendly": an appropriate size, easy-to-understand expressions, and better and more relevant information for parents.[50] In a study conducted in Mongolia, an MCH handbook user suggested the handbook should leave space for the doctor to offer some advice, especially for the father (such as showing support and information on tobacco and alcohol use), instead of only providing information.[51]

Satisfaction with the services/provider performance

Eight studies reported on mothers' satisfaction with health services received through home-based records. While three studies reported positive effects, five reported mixed effects.

In Japan, interest in the MCH handbook was higher at the time of a check-up, as opposed to a consultation, among both healthcare providers and parents.[52] For mothers, the pages filled out by healthcare providers were the most useful, such as delivery records, vaccination records, and neonatal records.[53]; the section that was least useful to mothers was the one related to child and maternal oral hygiene.[54] In Australia, most parents and the community health staff liked personal health records and used them frequently, while most private doctors did not find them useful.[55]

Mother-child bonding

Eight studies published in Japanese reported on the positive impact of the MCH handbook on mother-child bonding (GRADE certainty of evidence: very low; Table S4). In Japan, mothers who used the MCH handbook were found to be more likely to pass on the handbook to their children at the time of their marriage or pregnancy.[53, 56] The handbook offered guidance on some healthy behaviors (e.g., self-care, disease management) that could be passed on to future generations,[56] and could also predict the course of pregnancy and delivery for the next generation of daughters.[57] For mothers who had experienced neonatal death, the MCH handbook served as an aide-memoire because it had the newborn's footprint and handprint, as well as words of gratitude for the mother had written at the time of the child's birth.[34-35] For mothers who had experienced a natural disaster (e.g., earthquake, tsunami), losing their MCH handbook, and hence, all pregnancy and child health records, was painful.[58] Nurses also introduced the MCH handbook to reduce adoptive parents' anxiety and foster good parent-child relationships.[59] Furthermore, children of mothers who wrote at least one record of being worried or anxious in the MCH handbook, were more likely to develop maladaptive behavior at school compared to children of mothers who wrote nothing or did not receive the handbook ($p < .05$).[60]

DISCUSSION

This systematic review provided evidence of the effects of the MCH handbook and other home-based records on mothers' non-health outcomes. We found positive effects of these records on communication within the household and on mother-child bonding, but mixed effects on mothers'/caregivers' communication with healthcare providers. Mothers were generally satisfied with the content of the record, but they suggested making it more user-friendly. Their satisfaction with healthcare services, following the use of these records, was associated with providers' commitment to use or refer to records during check-ups and

consultations. However, we noted inconsistency in the use of home-based records across health settings and professionals.

Of the different types of home-based records, only the MCH handbook may have fostered mother-child bonding. This finding is new and is only found in Japanese articles. Various ways could explain how the use of the MCH handbook facilitated mother-child bonding. First, the handbook was considered a special gift, filled with parental love and mothers' messages for their children, given to children during their marriage or pregnancy.[53, 56] Mothers in Japan wrote down their worries, joy, and expectations from pregnancy and child rearing in the handbook, along with some healthy behaviors that could be passed on to the next generation.[56, 75] Losing these handbooks to a natural disaster was a painful experience for Japanese mothers, as it meant losing all their pregnancy and child health records.[58] Second, the handbook could be used to predict the child's school adaptation,[60] and the possible course of pregnancy and delivery for the daughter.[57] That is, school maladaptation was evident among children whose mothers had recorded at least one incident of worry or anxiety in the MCH handbook. This can be attributed to the fact that the emotional bond with the mother is critical for the child's social, emotional, and cognitive development.[76-78] Thus, the mother's worry or anxiety is likely to hinder the development of such a bond, leading to difficulties in adaptation for the child. Third, it served as an aide-memoire for mothers who had experienced neonatal death.[34-35] Mothers' words of gratitude written in the handbook served as evidence of the bonds formed during pregnancy. Finally, the handbook served as a tool to help reduce parental anxiety and build good parent-child relationships, even among adoptive parents.[59] Overall, the findings showed that the MCH handbook is an essential source of information to learn more about the mother-child relationship.

Mothers were generally satisfied with home-based records and were in favor of making them available permanently. Satisfaction and support were exceptionally high among parents of children with chronic diseases.[47] However, several issues were noted regarding the design and content of these records. Accordingly, participants in one study suggested making the MCH handbook more user-friendly by choosing an appropriate size, using easy-to-understand expressions, and including more relevant content for parents.[50] In Mongolia, users suggested the inclusion of blank space for doctors' notes, advice for fathers, and information on tobacco and alcohol use.[51] Such feedback from end-users and communities should be incorporated into the design and content of home-based records to ensure that these

records align with the local context and individual needs, and are, therefore, more likely to be adopted and used in the long term.

Healthcare providers' commitment to using home-based records was found to influence mothers' satisfaction with health services. For Japanese mothers, the information (pertaining to delivery, vaccination, neonatal health, etc.) in the handbook filled out by healthcare providers was the most useful.[53]; alternately, information related to child and maternal oral hygiene in the handbook was least useful.[54] Thus, mothers were more satisfied with health services when they received health information directly from their healthcare providers. Furthermore, in South Africa, mothers were unsure of what to do with the weight-for-age chart, immunization schedule, and milestone section.[46] Unused sections may be perceived as being unnecessary and may undermine the value of the entire record. Hence, it is crucial that both mothers and healthcare providers be encouraged to fully utilize these records.

However, we observed inconsistencies in the use of records across health settings and professionals, which might discourage mothers from using home-based records. Private clinics and hospitals were less likely to use the records than public and primary care settings.[45-46, 55] Moreover, doctors (e.g., general practitioners, pediatricians) were less likely to use and refer to home-based records than nurses and health visitors during check-ups and consultations.[55, 66, 70]; this finding is consistent that from a previous systematic review.[10] Such reluctance to fill out a home-based record may arise if doctors are not properly oriented to see the benefits of using these records for themselves and their patients.

Home-based records were regarded as being effective tools for communication and relationship building between mothers/caregivers and healthcare providers.[39, 41-44] However, the healthcare provider's attitude toward home-based records acted as a barrier to communication. While some providers did not provide a satisfactory explanation for using the records when they were issued to mothers,[45] others relied primarily on the written information in the MCH handbook and neglected interpersonal communication.[33] Furthermore, ethnic minority women in Vietnam reported receiving health information from providers that was non-specific and not relevant to their context.[33] This finding is new and requires special attention. That is, it is imperative that the handbook offers personalized guidance, especially for women with lower education and from minority populations. This can help build trust and strong partnerships between mothers and healthcare providers and reduce barriers for women in accessing healthcare [37, 79-80].

Lastly, home-based records provided a mechanism to improve communication within the household and clarify pregnancy- and child care-related misconceptions among family members. For instance, in Palestine and Indonesia, women who shared the MCH handbook with their husbands experienced greater involvement from them during pregnancy, delivery, and childcare.[37-38] In Australia, home-based records provided opportunities for pregnant women to share their journeys with their husbands, grandparents, and friends.[39] These findings are consistent with a review conducted by Magwood et al.[12] Given that previous studies have identified the influence of mothers-in-law and gender roles as barriers to husbands' involvement in childcare,[81-83], use of home-based records may help overcome these barriers to increase husbands' involvement.

This systematic review, however, has several limitations. First, we obtained our results primarily from observational and qualitative studies, as only three RCTs were available for this review. The Cochrane Handbook recommends including observational studies if RCTs cannot completely answer the research question.[84] While the findings from observational and qualitative studies provide evidence necessary to answer our research question, these findings should be interpreted with caution owing to potential biases and low certainty of evidence according to the GRADE and GRADE-CerQUAL criteria. Second, we could not perform a subgroup analysis to compare HIC and LMIC or a network meta-analysis to compare different types of home-based records due to an insufficient number of studies. Thus, we only summarized the data based on the country where the study was conducted and the types of home-based records used. Third, we observed marked heterogeneity across studies in terms of population, intervention types, and comparator groups, all of which may have modified the study outcomes. Hence, we conducted a narrative synthesis, and evaluated the risk of bias and certainty of evidence for all included studies.

Despite these limitations, this systematic review had its own strengths in that it examined a relatively large number of studies that were published in English or Japanese and encompassed several study designs, to highlight the effects of home-based records on mothers' non-health outcomes.

CONCLUSION

The effectiveness of home-based records can be measured using mothers' non-health outcomes. The MCH handbook fostered mother-child bonding. This outcome could be added to the WHO's recommendations on home-based records for MNCH. Healthcare providers may choose to refer to the mothers' notes in the MCH handbook to address issues in the

bonding process. Mothers were generally satisfied with the use of home-based records, but their engagement depended on how these records were communicated and utilized by healthcare providers. Thus, various types of training must be conducted at the local level across health settings and for all healthcare professionals to orient them to the use and benefits of home-based records and, therefore, help them provide patient-centered care. Policymakers need to consider the non-health-related value of home-based records and ensure that mothers and their children are not leaving behind in the era of SDGs.

Supporting information

Text S1: PROSPERO registration; Text S2: Search strategy for English and Japanese articles; Table S1: Table of excluded studies with reasons; Table S2: PICO table; Table S3: GRADE table; Table S4: GRADE-CERQual table; Table S5: Risk of bias assessment; Table S6: SWiM checklist

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Figure Legend

Figure 1. PRISMA flow diagram of the screening process

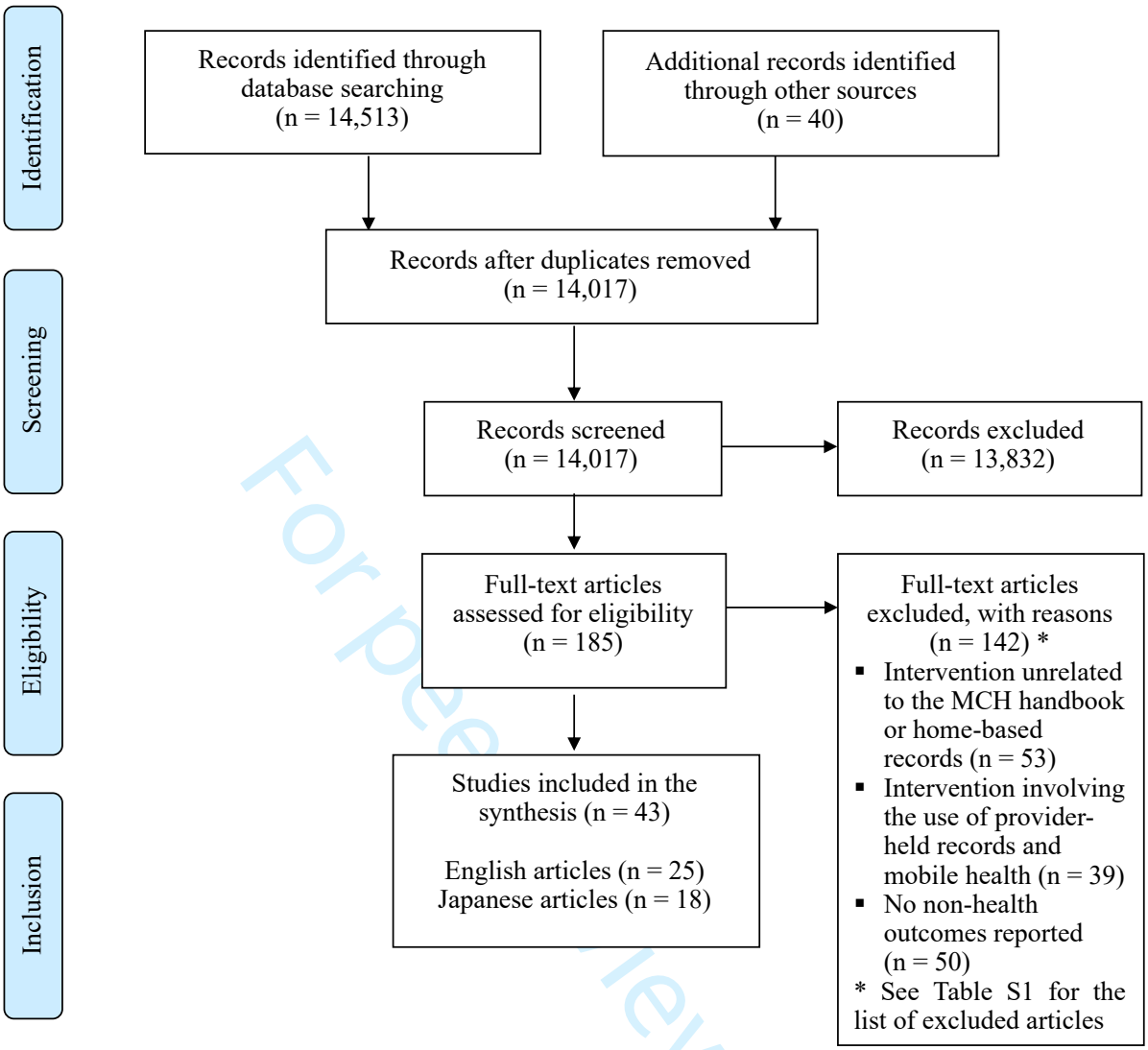

Figure 1. PRISMA flow diagram of the screening process

Table S1. Table of excluded studies with reasons

No.	Study ID	Reasons for exclusion
1	Abbott 2013	Outcomes not related
2	Abughali 2014	Electronic medical records
3	Adachi 2010	Outcomes not related
4	Adams 2013	Electronic medical records
5	Aiga 2016	Outcomes not related
6	Aiga 2018	Outcomes not related
7	Akashi 2018	Not related to home-based records nor the MCH handbook
8	Akhund 2011	Outcomes not related
9	Albers 1997	Electronic medical records
10	Angier 2014	Electronic medical records
11	Araujo 2017	Outcomes not related
12	Balakrishnan 2016	Mobile health intervention
13	Baqui 2019	Not related to home-based records nor the MCH handbook
14	Bartsch 2018	Electronic medical records
15	Belemsaga 2018	Not related to home-based records nor the MCH handbook
16	Bellows 2013	Not related to home-based records nor the MCH handbook
17	Bilenko 2017	Not related to home-based records nor the MCH handbook
18	Boothroyd 2011	Not related to home-based records nor the MCH handbook
19	Bose 2015	Electronic medical records
20	Braeye 2019	Electronic medical records
21	Bremberg 2000	Not related to home-based records nor the MCH handbook
22	Brodgribb 2016	Not related to home-based records nor the MCH handbook
23	Brown 2018	Outcomes not related
24	Bryanton 2013	Not related to home-based records nor the MCH handbook
25	Bundy 2013	Electronic medical records
26	Carsley 2018	Electronic medical records
27	Chung 2018	Electronic medical records
28	Clancy 2013	Electronic medical records
29	Coleman 2017	Mobile health intervention
30	Dagvadorj 2017	Outcomes not related
31	de Hoon 2017	Electronic medical records
32	DeVoe 2018	Electronic medical records
33	Enokido 1964	Outcomes not related
34	Ferreccio 2008	Not related to home-based records nor the MCH handbook
35	Fiks 2006	Electronic medical records
36	Fiks 2012	Electronic medical records
37	Fiks 2015	Electronic medical records
38	Franchetti 2014	Not related to home-based records nor the MCH handbook
39	Froen 2016	Electronic medical records
40	Fujii 2020	Outcomes not related
41	Fukuda 2019	Not related to home-based records nor the MCH handbook
42	Fukushima 2016	Not related to home-based records nor the MCH handbook
43	Guyer 2000	Not related to home-based records nor the MCH handbook
44	Haeri Mazanderani 2018	Outcomes not related
45	Hagelin 1998	Not related to home-based records nor the MCH handbook
46	Haider 2017	Not related to home-based records nor the MCH handbook

47	Hasegawa 2015	Not related to home-based records nor the MCH handbook
48	Hawley 2014	Electronic medical records
49	Helle 2019	Electronic medical records
50	Hidechika 2018	Not related to home-based records nor the MCH handbook
51	Hirayama 2011	Outcomes not related
52	Hiura 2002	Not related to home-based records nor the MCH handbook
53	Ichikawa 2016	Outcomes not related
54	Inoue 2015	Outcomes not related
55	Irwanto 2019	Outcomes not related
56	Kamiya 2016	Outcomes not related
57	Kaneko 2017	Outcomes not related
58	Kanno 1988	Outcomes not related
59	Kawakatsu 2015	Outcomes not related
60	Kelaher 2009	Not related to home-based records nor the MCH handbook
61	Kelle 2015	Electronic medical records
62	Khresheh 2008	Electronic medical records
63	Kimura 2010	Outcomes not related
64	Kitayama 2014	Electronic medical records
65	Kreuter 2004	Outcomes not related
66	Kubota 2000	Not related to home-based records nor the MCH handbook
67	Kusumayati 2007	Outcomes not related
68	Lain 2009	Not related to home-based records nor the MCH handbook
69	Lakhani 1984	Outcomes not related
70	Lansdown 1996	Not related to home-based records nor the MCH handbook
71	Leppert 1993	Not related to home-based records nor the MCH handbook
72	Liabsuetrakul 2017	Electronic medical records
73	Liberato 2016	Electronic medical records
74	Little 2013	Mobile health intervention
75	Lovell 1987	Outcomes not related
76	Luman 2009	Outcomes not related
77	Lund 2016	Mobile health intervention
78	Lupton 2017	Mobile health intervention
79	Lwembe 2016	Not related to home-based records nor the MCH handbook
80	Mahanta 2016	Not related to home-based records nor the MCH handbook
81	Markellis 1973	Not related to home-based records nor the MCH handbook
82	Matsushita 2011	Outcomes not related
83	Mawarni 2017	Electronic medical records
84	McElligott 2010	Outcomes not related
85	Mengoni 2014	Not related to home-based records nor the MCH handbook
86	Miyake 2018	Outcomes not related
87	Mori 2015	Outcomes not related
88	Mudany 2015	Outcomes not related
89	Mukanga 2006	Outcomes not related
90	Nakazawa 2007	Outcomes not related
91	Nasir 2017	Outcomes not related
92	Nishi 1990	Not related to home-based records nor the MCH handbook
93	Nokubo 2006	Outcomes not related
94	Odai 2014	Not related to home-based records nor the MCH handbook
95	Oguchi 2014	Outcomes not related

96	Okawa 2019	Not related to home-based records nor the MCH handbook
97	Okereke 2015	Not related to home-based records nor the MCH handbook
98	Ooki 2005	Not related to home-based records nor the MCH handbook
99	Osaka 1995	Not related to home-based records nor the MCH handbook
100	Osaki 2013	Outcomes not related
101	Panagiotou 1998	Electronic medical records
102	Pies 2012	Not related to home-based records nor the MCH handbook
103	Popovich 2008	Not related to home-based records nor the MCH handbook
104	Pratinidhi 2015	Not related to home-based records nor the MCH handbook
105	Rahman 2016	Not related to home-based records nor the MCH handbook
106	Ramraj 2018	Outcomes not related
107	Reddaiah 1985	Outcomes not related
108	Reich 2010	Not related to home-based records nor the MCH handbook
109	Riverin 2015	Electronic medical records
110	Rourke 2009	Electronic medical records
111	Rourke 2010	Electronic medical records
112	Rourke 2013	Electronic medical records
113	Sachs 2011	Outcomes not related
114	Sadiq Sheikh 2014	Outcomes not related
115	Saeedzai 2019	Outcomes not related
116	Shibahara 2010	Outcomes not related
117	Shimada 2017	Not related to home-based records nor the MCH handbook
118	Spencer 2000	Not related to home-based records nor the MCH handbook
119	Stanton 2013	Not related to home-based records nor the MCH handbook
120	Stille 2001	Outcomes not related
121	Takahashi 2007	Outcomes not related
122	Takehara 2016	Not related to home-based records nor the MCH handbook
123	Takeuchi 2014	Not related to home-based records nor the MCH handbook
124	Talbott 2015	Not related to home-based records nor the MCH handbook
125	Tamburlini 2011	Not related to home-based records nor the MCH handbook
126	Tamburlini 2013	Not related to home-based records nor the MCH handbook
127	Tanabe 2011	Outcomes not related
128	Thomas 2011	Not related to home-based records nor the MCH handbook
129	Tobe 2018	Mobile health intervention
130	Tom 2014	Outcomes not related
131	Tunçalp 2013	Not related to home-based records nor the MCH handbook
132	Uneke 2017	Not related to home-based records nor the MCH handbook
133	Uneke 2018	Not related to home-based records nor the MCH handbook
134	Usman 2009	Outcomes not related
135	Usman 2011	Outcomes not related
136	Vanosdoll 2019	Mobile health intervention
137	Vincelet 2003	Outcomes not related
138	Vinceten 2012	Not related to home-based records nor the MCH handbook
139	Wilkinson 2010	Not related to home-based records nor the MCH handbook
140	Wilcox 2019	Mobile health intervention
141	Wilson 2014	Mobile health intervention
142	Yanagisawa 2015	Outcomes not related

Table S2. Characteristics of included studies

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Aihara, 2006 Thailand	Cross-sectional study	One district in Kanchanburi province, Thailand	Mothers	224	MCH handbook	No comparison group	There was a low rate of reading (14.3% mother had read all of the contents) and self-recording (0.9% mother had recorded every part). Multiple regression coefficients showed utilization of the MCH handbook was related to both mother's MCH promoting belief (*p*-value=0.001) and action (*p*-value=0.039). This was the strongest predictor variable of mother's MCH promoting belief. Other factors which significantly related to MCH promoting belief were family income, age, and education, and relation to action were marital status, occupation and age.
Akiba, 2016 Japan	Cross-sectional	College of Education, Ibaraki University, Ibaraki, Japan	Female university students between 18-22 years of age whose parents also provided consent to participate in the study	41	MCH handbook	Those who did not receive or record in MCH Handbook	Personal records written in the MCH Handbook could be a predictor of school maladaptation. Children of mothers who wrote at least one record of worrying/anxious behavior in the MCH Handbook were more likely to develop maladaptation in school environment (*p*-value<0.05).
Aoki, 2009 Japan	Cross-sectional	Three nursery schools in Tokyo and one nursery school in Saitama Prefecture	Parents of nursery school students (0-5 years old)	298	MCH handbook	No comparison group	Checking of developmental milestones at various time points was frequent, but recording of growth curves or observations of children was done less often. Lnformation in the MCH handbook was not used frequently. In general, guardians used the handbook passively rather than actively, and only about half regarded the handbook as user-friendly. To improve the quality of the MCH handbook, guardians requested more information on child health, such as first aid, the timing of immunization, or weaning foods. On the basis of categorical data analysis of the results, a "user-friendly MCH handbook" was considered to incorporate the following points: an appropriate size, easy-to-understand expressions, and a higher content of information relevant to guardians.
Bhuiyan, 2006 Bangladesh	Mixed methods	Maternal and Child Health Training Institute in Dhaka, Bangladesh	Pregnant women	600	MCH handbook	Standard cards	Findings from the focus group discussions emphasized the need for including MCH handbook in maternal and child program in Bangladesh. In addition, quantitative data suggests that mothers in study group had higher knowledge on MCH issues, better practices in MCH care, and higher utilization of MCH services than mothers in control groups who used other health cards.
Clendon, 2010 New Zealand	Qualitative	New Zealand Plunket society	Mothers who used the plunket book	35	Plunket book	No comparison group	The book plays an important role in the relationship between mother and nurse. It is used as a point of commonality that supports the efforts of both as they work toward establishing an effective relationship, as a tool of practice, and as a means of building strength within families.
Du Plessis, 2017 South Africa	Cross-sectional	143 PHC facilities across all six health districts in Western Cape Province	Children between the ages of 0 and 36 months	5,193	Road-to-Health-Booklet	No comparison group	All healthcare workers indicated that health promotion messages were important. However, messages were only conveyed in 51% of observed consultations. When it was communicated, health promotion messages were age-appropriate in 97% of cases. Barriers to the implementation of health promotion messages hinged on time and staf constraints, workload and language barriers. Various forms of health promotion material were available in facilities.

Table S2 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Elbourne, 1987 UK	RCT	Peripheral consultant clinic in Newbury, West Berkshire	Expectant mothers	290	Maternity case notes (full records)	Standard cooperation card (abbreviated version of the full obstetric record)	Women holding their full records were significantly more likely to feel in control of their antenatal care (RR [Rate Ratio] =1.45, 95% CI: 1.08-1.95) and to feel it was easier to talk to doctors and midwives. No further beneficial effects were detected. Women holding their own records were more likely to say that they would prefer the same kind of record again in a subsequent pregnancy than were women holding a cooperation card (RR=1.56, 95% CI= 1.34-1.81). Women holding their case notes did not feel more anxious than cooperation card holders.
Engida, 2013 Ethiopia	Qualitative	Amhara region, Ethiopia	Health extension workers, health development army members, care takers (breast feeding mothers and pregnant women)	112	Speaking books	No comparison group	Speaking Books were perceived well by the health extension workers and health development army members, and it was agreed that it is an effective tool to disseminate information.
Fujimoto, 2001 Japan	Cross-sectional	231 local towns and wards in Niigata, Yokohama, Shizuoka, and Hiroshima	Caregivers who have come with their 18-month old child for 18-month check-up	10,900	MCH handbook	No comparison group	High ratio of caregivers who read and wrote in the MCH handbook. Loss was minimal at 0.9%. The most responses for the most useful page was the "vaccination record". Many expected to see improvements in "child rearing" information. Many caregivers replied in neutral when asked about the usefulness of the handbook. Oral hygiene was the least filled-out and there was only a minimum of people who replied that this page was useful.
Grippo, 2007 Brazil	Mixed methods	Family Health Program in the city of Sao Paolo	Family caregivers responsible for 0–59-month-old children	89	Educational booklet *Toda hora e hora de cuidar* (Anytime is time to care)	No comparison group	Even though mothers had not completed basic education, they reported the booklet contents were understandable and interesting. The concept regarding childcare was related to affective and work activities. The booklet is effective as an instrument to promote skills and potentials of the community, family, and individuals.
Grøvdal, 2006 Norway	RCT	Maternal and child health centers in 10 municipalities in Norway	Parents of 309 children attending the National Preschool Health Surveillance Programme	309	Half of the parents were given a parent-held child health record (PHCHR) and short instructions on how it was expected to be used.	Parents and children who did not use PHCHR, just ordinary national health surveillance program	Some 73% of the intervention group used the PHCHR regularly when visiting the health centers, 79% reported that their own writing in the record was helpful, and 92% favored the PHCHR being permanently adopted. Use of the record did not influence the utilization of healthcare services, parents' knowledge of their child's health, or parents' satisfaction with information or communication with professionals.
Hagiwara, 2013 Palestine	Quasi-experimental	MCH treatment centers	Mothers who were expose and not exposed to the MCH Handbook	340	MCH handbook	Mothers who did not use the MCH Handbook	Knowledge related to MCH such as the importance of exclusive breastfeeding and how to cope with the risks of rupture of membranes during pregnancy increased among MCH handbook users, especially among less-educated women. The MCH handbook may be an effective tool for communication with health providers and husbands, for both highly educated and less-educated women during their first pregnancy.

Table S2 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Hamilton, 2012 Australia	Mixed methods	New South Wales (NSW)	Parents (mothers) who had at least one child aged between 0-4 years old	126	Child personal health record (CPHR)	No comparison group	CPHR can play an important role in communicating information regarding a child's health and development between parents and professionals, it is perhaps underutilised. Opportunities for use were reduced where there were dual systems in place, such as online records for immunization. Some information in the CPHR had the potential to escalate concerns about infant development. This was particularly the case for the growth charts, and it appeared that further explanation may have supported mothers and reduced their concerns. It was also the case that mothers did not pay attention to developmental indicators that they did not understand, such as head circumference.
Hampshire, 2004 UK	Cross-sectional	Nottingham	Mothers	401	Personal child health record (PCHR)	No comparison group	The PCHR is used by most mothers and is important for providing health promotion material to all families with young children. It may be particularly useful for first-time and teenage mothers.
Harrison, 1998 South Africa	Descriptive prospective study	17 child health clinics	Health personnel, mothers/caregivers	35 health personnel and 150 mothers/ caregivers	Road-to-Health (RTH) card	No comparison group	Most nurses supported the concept of an RTH card, but a large majority recommended that it be replaced with a notebook retained by the mother. A significant proportion of health personnel did not know how to use the weight-for-age chart. Most mothers attending clinics carried the card, but this number dropped for hospital visits and consultations with private doctors. Mother's understanding of the card was limited. For mothers, the weight-for-age chart, immunization schedule, and milestone section are obscure.
Higashiyama 2013 Japan	Qualitative case study	Hospital in the Kansai (Osaka) area	Couple adopting a baby	2	MCH handbook and nursing counseling	No comparison group	A case in which perinatal staff and medical social workers cooperated with a child guidance center to reduce the anxiety of adoptive parents and build good parent-child relationships for adoptive parents of special adoption. Nurses explained how to apply for a MCH handbook before the birth of their adopted child.
Hokama, 2000, Japan	Cross-sectional	Naha, Okinawa	Mothers of 3-5 month old children who have come for check-up	281	MCH handbook	No comparison group	Over 70% of mothers had read the pages on parenting. More than half of the mothers had filled in the pages of their child's development and growth chart. Reading and filling out the handbook were associated with maternal characteristics, with older mothers and mothers with little childcare experience filling out the handbook more. Over 90% of mothers replied that the information in the handbook was useful. The most highly evaluated pages were those on child health, growth and vaccination.

Table S2 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Jeffs, 1994 Australia	Quasi-experimental	New South Wales (NSW), Australia	Households with children aged four years or less and health care providers	1,533	Introduction of personal health records (PHR) since 1988	Five years after the introduction of personal health records	PHR was well retained, with 89% claimed retention at 4 years, and over 78% of parents able to produce the record for inspection at interview. Of the records examined, 91% had at least one immunization recorded while 68% had a complete regimen documented by age 4 years. Overall, 93% of parents expressed satisfaction with the PHR, while 64% of all health care providers also felt that the PHR was 'beneficial to the health care children received', although only 53% of them used it regularly to record their findings. It is concluded that the PHR currently issued in NSW is well retained and valued by parents, and used by and useful to a range of health professionals.
Lee, 2016 USA	Qualitative	Hospital	Spanish-speaking families and minority English-speaking families	40	Patient Passport	Usual care	The most common themes in the qualitative analysis of the interviews were: 1) organization of medical care; 2) emotional expressions about the hospitalization experience; and 3) overall understanding of the process of care. Spanish- and English-speaking families had similar patient satisfaction experiences, but the Passport families reported improved quality of communication with the medical care team.
Matsumoto, 1996 Japan	Quantitative case study	Teaching hospital in Nagoya	Post-partum women, first-time and second time mothers	210	MCH handbooks of 1st and 2nd generation mothers	No comparison group	Among the intervention group, 151 cases (71.9%) had seen or had received their MCH handbook when they were young, which was used by their mothers during pregnancy. However, the degree of utilization varied depending on the timing of when they had seen or received it. Utilization was high from those who had received the MCH handbook from their mothers. Regardless of the intervention or control, 174 cases (82.9) were considering giving their MCH handbook to their children and 76.4% (133 cases) were thinking that "marriage or pregnancy" was the best time. However, that awareness did not necessarily correlate with the self-filling status of the MCH handbook. To promote the intergenerational utilization of the MCH handbook, support for each period in the life cycle, including school health, is indispensable. The MCH handbook is a health guidance that can be passed on to future generations and used for a lifetime. By promoting the use of the MCH handbook book within the current generation, behaviors such as self-management of health, can be passed down to future generations.

Table S2 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
McKinn, 2017 Vietnam	Qualitative	Tuan Giao District, Dien Bien Province	Thai and Hmong ethnic minority women who were currently pregnant or mothers of children under five in October 2015	37	MCH handbook	No comparison group	Ethnic minority women generally reported that health professionals delivered health information in a didactic, one-way style, and there was a reliance on written information (Maternal and Child Health handbook) in place of interpersonal communication. The health information they receive (both verbal and written) was often non-specific, and not context-adjusted for their personal circumstances. Women were therefore required to take a more active role in interpersonal interactions in order to meet their own specific information needs, but they are then faced with other challenges including language and gender differences with health professionals, time constraints, and a reluctance to ask questions.
McMaster, 1996 Bosnia and Herzegovina	Cross-sectional	Near Tuzla	Mothers and children in the collective centers and from the local community	571	Booklets (incorporating health records and health advice) were distributed to displaced and other families	No comparison group	Personal child health record and advice booklets not only provided essential data on immunization, nutrition, and prevalent medical disorders but also appeared to benefit the young population by supplying a permanent health record and health education material.
Minewaki, 2019 Japan	Qualitative case study	Public hospital in Kawasaki City, Kanagawa Prefecture	Mother who had previously experienced two early term miscarriages and was diagnosed with intrauterine fetal death (IUFD) at the 11th week of pregnancy	1	MCH handbook	No comparison group	Birth plan was realized according to the wishes of the mother and have the medical staff fill out the MCH handbook. The nurse who reflects on the experience tries to understand the grieving process of the mother by using Neimeyer's framework "those who experience the death of a loved one goes back and forth between the three phases of avoidance, assimilation, and adaptation. " and concludes that the mother was going back and forth from the assimilation phase. She thinks of how she could have better communicated but feels relieved when the mothers says, *"Thank you for holding the box as you would hold a sleeping baby when you brought the baby to me. Thank you for treating this child as a human being. By choosing the baby's clothes and hugging it, I was able to do something as it's mother. "*
Moore, 2000 UK	Quasi-experimental	Leicestershire county	Parents of British children who are likely to have special educational needs	99	Designed a record for disabled children as a supplement to the Leicestershire child health record. The intervention phase lasted 6 months. Only families in groups 1 and 3 received the new record.	Families who did not use the new record (Group 2)	Most of the entries were factual, and the principal use of the new document was as an aide-memoire. There was no evidence that the record improved the parent's perception of their child's general health care, nor that it contributed to the overall level of communication between parents and professionals.

Table S2 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Naito, 2019 Japan	Retrospective cohort	Community health center in Kurume City, Fukuoka	Pregnant women who submitted a pregnancy notification form in 2014.	2,986	MCH handbook	Those who were not registered and did not receive the MCH handbook	Being 35 years or older (OR[odds ratio]=1.41), height less than 158 cm (OR=1.45), non-pregnant body mass index (BMI) less than 18.5 (OR=1.48), and detection of physical abnormalities by a physician during the pregnancy (OR=2.20) were independent maternal factors that were significantly associated with low birth weight. Being aged 35 years or older (OR=2.05) and smoking (OR=3.42) were independent factors that were significantly associated with miscarriage and stillbirth. Also, the cessation of alcohol use (OR=0.51) significantly reduced this risk.
O'Flaherty, 1987 Australia	Prospective cohort	Maternity unit of Camden hospital	All mothers of babies who were born over one calendar month and health care providers	237	Personal health record	No comparison group	Eight per cent of mothers lost the records and three more said they had not been given a record while in hospital; a total of 10% of mothers had either lost or misplaced the record. There were no particular demographic characteristics which identified the mothers who were more likely to lose the record. Most parents liked personal health records and used them frequently, as did the community health staff. Most private doctors, however, did not find them useful. Before wider distribution of such records is contemplated, health workers should be adequately prepared, especially doctors in the private sector.
Ogasawara, 2016 Japan	Cross-sectional	Great East Japan Earthquake disaster areas	Mothers, health and medical staff working in the disaster area	51	MCH handbook	No comparison group	The "vaccination record", "delivery situation", "1 month check-up" and other useful information were recorded. Iwate Prefecture's perinatal medical information system "Iiha-tobu" and the MCH handbook were useful during the disaster and utilized widely. For the MCH handbook to be able to survive future large disasters, efforts must be made to realize e-MCH handbook and for data to be kept in the cloud.
Osaki, 2018 Indonesia	Cluster RCT	13 health centers in Garut district of rural Java, Indonesia	Pregnant women attending one of the selected health centers between 2007 and 2009	454	MCH handbook	Usual care	Respondents in the intervention area received consecutive MCH services including two doses of tetanus toxoid injections and antenatal care four times or more during pregnancy, professional assistance during child delivery and vitamin A supplements administration to their children, after adjustment for confounding variables and cluster effects (OR=2.03, 95% CI: 1.19–3.47). In the intervention area, home care (continued breastfeeding; introducing complementary feeding; proper feeding order; varied foods feeding; self-feeding training; and care for cough), perceived support by husbands, and lower underweight rates and stunting rates among children were observed.
Phipps, 2001 Australia	Qualitative	Home or antenatal appointment in hospital	Pregnant women	21	Woman-held maternity records	No comparison group	Maternal record holding had the potential to improve the level of communication between the health care worker and the pregnant woman and provided a greater sense of sharing and communication within the family. Woman's partner become better informed and more involved in the pregnancy.

Table S2 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Polnay, 1989 United Kingdom	Prospective cohort	Two largely working-class areas of Nottingham with large council estates	Mothers of all the children who were born from January to December 1983	67	Nottingham baby book	Non-user of Nottingham baby book	The book was well used by the majority of parents with 80% of parents having read all the booklet by the time their babies were three months old. Among the parents, 70% of them had retained the booklet when their children had reached the age of one year.
Seto, 2006 Japan	Qualitative case study	Public hospital in Iwamizawa City, Hokkaido Prefecture	Teenage mother and father	2	MCH handbook and kangaroo care	No comparison group	An 18-year-old woman underwent maternity checkup from the beginning of her pregnancy without any abnormalities. Around the 22nd week and 4 days of pregnancy, she was diagnosed with imminent preterm birth due to abdominal tension and vaginal bleeding, and was hospitalized. She delivered a boy, but doctors were not able to save his life. Even after active treatment was discontinued, there was a heartbeat and some breathing movement, therefore, the family spent time with the baby boy. After confirming the death, kangaroo care was continued for about an hour. After that, the baby was dressed in clothes that the family had prepared and a foot print and a handprint was taken as a token. When the mother discharged, the baby's name was written in the MCH handbook and words of gratitude for the birth of the child were written.
Shah, 1993 Multi-countries	Quasi-experimental	13 centers in eight countries (Egypt, India, Pakistan, Philippines, Senegal, Sri Lanka, Democratic Yemen, and Zambia)	The participating centers tested the HBMR in a variety of circumstances, such as literate and illiterate populations, different geographical and cultural conditions, and communities with easy or poor access to health services in rural and urban populations.	14,000 to 250,000	Home-based maternal record (HBMR)	Non-user of HBMR	The used of the HBMR had a favorable impact on utilization of health care services and continuity of the health care of women during their reproductive period. When adapted to local risk conditions, the HBMR succeeded in promoting self-care by mothers and their families. The introduction of the HBMR increased the diagnosis and referral of at-risk pregnant women and newborn infants, improved family planning and health education, led to an increase in tetanus toxoid immunization, and provided a means of collecting health information in the community. The HBMR was liked by mothers, community health workers and other health care personnel. Mothers became more involved in looking after their own health and that of their babies. The training and involvement of health personnel from the start of the HBMR scheme influenced its success in promoting maternal and child health care. It also improved the collection of community-based data and the linking of referral networks.

Table S2 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Shimizu, 2007 Dominican Republic	Cross-sectional	Dajabón	Mothers who received the MCH Handbook and children under the age of 5 using the handbook	6,633	MCH handbook	No comparison group	The evaluation and regular monitoring visits revealed positive results: as for pregnant women, the handbooks were well accepted for their friendliness, simplicity, durability and mobility, and the rate of their receiving antenatal and postpartum cares at designated clinics or hospitals increased; as for newborns and children, the immunization coverage improved while common problems such as diarrhea decreased; and as for health personnel, the handbook helped clarify the division of work and enhanced their sense of responsibility, communication, and continuity and integration of service.
Sugi, 1985 Japan	Cross-sectional	Health check-up stations	Caregivers of 18-month-old children	111	MCH handbook	No comparison group	Interest in the MCH handbook was higher at check-up time compared to consultation time, for both the medical health care workers and the caregivers. The section which was of least interest was child and maternal oral hygiene. The page which was read the most was nutrition during pregnancy. However, the page on financial support and subsidies for maternal and child medical care was the least read. About 63.2% of mothers made notes (recorded) with those who were pregnant with their first child and was not working more likely to record the process. Item-wise, names of the parents, birth certificate record, due date and other items to be filled out by the pregnant woman, as well as the first month. Extra notes, dental records up until 18 months, timing of restart of menstruation and other post-natal maternal records were less likely to have been filled out.
Takeda, 2002 Japan	Cross-sectional	A city in Okinawa Prefecture	Caregivers of 18-month-old children	230	MCH handbook	No comparison group	Most mothers read the vaccination page (85.8%), information on childcare (77.7%), and accident prevention (76.2%). However, only 33.4% out of those who replied that they read the handbook and read the Children's Charter. About 90% of those who replied that the handbook was useful, replied that the information on the vaccination page helped eliminate worries, 88.8% said the information on childcare was useful, 87.1% said that the information helped eliminate worries on her child's health and growth. No significant association was identified between those who read the handbook, those who accepted the utility of vaccination and the mother's age, schooling, maternal employment and child rank.

Table S2 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Tanabe, 2011 Japan	Multi-facility cohort study	Four out of five delivery facilities within Sendai City, Miyagi Prefecture	First generation and current generation mothers	724	MCH handbooks of current generation mothers	MCH handbooks of first-generation mothers	Using the MCH handbook, the associations of anthropometric factors and course of pregnancy and delivery comparisons between the two generations were evaluated. The study found some associations between a mother's course of pregnancy and delivery and her daughter's. The data showed a significant and positive association in: height, weight, and body mass index (BMI) before pregnancy, weight gain during pregnancy, systolic and diastolic blood pressure in both second and third trimester, baby's weight and head circumference. Birth weight of offspring was more associated with mother's birth weight than BMI before pregnancy and weight gain during pregnancy. This suggests that the research of a mother's course of pregnancy and delivery could offer some predictions concerning her daughter's pregnancy and delivery.
Umeda, 2015 Mongolia	Cross-sectional	Zavkhan Prefecture, Mongolia (1100 km west of Ulaanbaatar)	Mothers and medical workers of Zavkhan General Hospital and village health center	42	MCH handbook	No comparison group	Of 42 health providers, 66% used the mother and child handbook as a medical record, 57% used it as a communication tool with mothers, 50% saw the mother handbook as an individual record to record the fetus growth, and a textbook or guidebook on childcare support, 45% saw the handbook as a tool to promote participation in childcare for fathers and 28% saw the handbook as a tool to nurture the next future generation's parents. One respondent wrote that there should be a space for the doctor to write advice instead of just providing information. Another wrote that the handbook should have a space where advice for the father could be written in. What could be done to support his wife and should include information on tobacco and alcohol so that the husband and family could be more attentive to the health of mother-child.
Walton, 2007 UK	Cross-sectional	10 child health clinics located in two primary care trusts; one in central London and the other in Buckinghamshire in July 2004	Parents who arrived at the clinic with new PCHR	89	New Personal Child Health Record (PCHR)	No comparison group	Nearly all parents (98%) reported that they used the PCHR as a record of their child's health and development and 92% reported that they 'always' took it with them when seeing healthcare staff about their child. Some parents (22%) indicated that they had not been given a satisfactory explanation as to how to use the PCHR, at the time it was issued to them. Parents reported that health visitors were more likely than other health professionals to use the PCHR both to obtain information about their child and to record information. The majority of respondents (78%) were happy for the level of maternal education to be documented in their child's PCHR.

Table S2 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Whitford, 2014 Scotland	Qualitative	Two National Health Service Board regions in northeast Scotland	Pregnant women (after 34 weeks) and if they agreed, at about eight weeks postnatally.	42	Birth plan within woman-held maternity records	No comparison group	Staff and women were generally positive about the provision of the birth plan section within the record. Perceived benefits included the opportunity to highlight preferences, enhance communication, stimulate discussions, and address anxieties. However, not all women experienced these benefits or understood the birth plan's purpose. Some were unaware of the opportunity to complete it or could not access the support they needed from staff to discuss or be confident about their options. Some were reluctant to plan too much. Staff recognized the need to support women with birth plan completion but noted practical challenges to this.
Wright, 2005 UK	Prospective cohort	One district in England (Gateshead)	Mothers of all babies born between June 1, 1999 to August 31, 2000	1,369	Personal Child Health Record (new and old)	No comparison group	Parents rated both record types highly and the majority used them regularly to take to baby clinics and for information. Health visitors wrote frequently in the record, compared with only half of parents and less than a quarter of family doctors. Old format records were significantly more likely to be taken to and written in by the family doctor. Parents used new format records less as a source of information, but were no more likely to use other recommended information sources. Parents with new format records showed better recall of information found only, or more prominently in the new records, but the actual differences were small.
Yahata, 2005 Japan	Qualitative	Akita prefecture	Parents of non-measles vaccinated children	9	MCH handbook	No comparison group	Caregivers were not against measles vaccination (positive attitude) The main reasons why they had not vaccinated their child against measles were "My child caught a cold, and it was difficult to find time afterwards", "I also intend to go vaccinate my child but can not seem to get there", "I don't have time to go for vaccination". In order to raise vaccination coverage rate, caregivers proposed clearer messaging on "measles vaccination safety in the MCH handbook" and information that "Vaccination can be done even outside your local burrough", or other information such as "If measles vaccination dates were fixed, I would do everything to get my child vaccinated then".Others also said that the health administrators should play a more active role such as "Getting health workers to flag that measles vaccination has not been done at child health days".
Young, 1990 USA	Qualitative	Federally funded clinic open year round	Infants and preschool-age children who received well-child services at Tri-County Community Health Center	560	Growth chart	No comparison group	Professional staff consistently reported that the record was a useful aid in teaching migrant parents about their children's growth. Parents receiving the records appeared more attentive and receptive to nutrition counseling. They also asked more questions and volunteered more pertinent information about their children. Including a photo of the child also distinguishes these from other versions of family-carried records.

Table S2 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Yuge, 2010 Japan	Cross-sectional	Health check-up stations	Mothers of four-month-old, 18-month-old and three-year old children who have come for check-up	321	MCH handbook	No comparison group	Utility point average was 3.4-3.5. There was no difference between child age and mother and child health status. Mothers found the pages which medical workers filled out useful. These were "delivery record", "vaccination record" and "neonatal record" pages. There were very few childcare instruction items/pages which were useful. Mothers with previous children found the pages "experience of seeing the MCH handbook during childhood", "discuss the handbook", "received explanations from the pediatrician using the handbook" more useful than first-time mothers. Average points on the whether mothers wanted to show the handbook to their children, on continuity was 4.5-4.8 points, mothers with 4-month old children had a higher continuity awareness than 3 year old children. Mothers who had seen their own handbook when younger had a higher continuity awareness than those who had not. There is a statistically significant association between those who see utility in the handbook and handing over the handbook to their children.

Table S3. GRADE

Question: Do home-based records (intervention) compared to no use of any home-based records (control) facilitate communication within the household?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95% CI)		
Communication within the household (RCT) (study: Osaki, 2018 (Indonesia))												
1	randomised trials	serious [a]	not serious	serious [b]	serious [c]	none	Saving money for child birth: 109/183 (59.6%) Keeping infant warm: 65/183 (35.5%) Giving infant/child developmental stimulation: 78/183 (42.6%)	Saving money for child birth: 119/271 (43.9%) Keeping infant warm: 72/271 (26.6%) Giving infant/child developmental stimulation: 86/271 (31.7%)	Saving money for child birth: **OR 1.82** (1.20-2.76) Keeping infant warm: **OR 1.58** (1.02-2.46) Giving infant/child developmental stimulation: **OR 1.62** (1.06-2.48)	Not calculated	⨁◯◯◯ VERY LOW	IMPORTANT
Communication within the household related to newborn an childcare (observational study) (study: Hagiwara, 2013 (Palestine))												
1	observational studies	not serious	not serious	serious [b]	serious [d]	none	Number of events not reported	Number of events not reported	not estimable	not estimable	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval

Explanations

a. Bias in measurement of the outcome.
b. Indirect evidence.
c. A low number of events (<300).
d. Unable to assess the number of events as not reported.

Question: Do home-based records (intervention) compared to no use of any home-based records (control) facilitate communication between mothers and healthcare providers?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95% CI)		
Communication between mothers and healthcare providers (study: Grøvdal, 2006 (Norway))												
1	randomised trials	serious [a]	not serious	serious [b]	serious [c]	none	Parents with more difficulty talking to health personnel: Nurse: 8/119 (6.7%) Doctor: 19/118 (16.1%) Other doctors: 16/89 (18%) Other health personnel: 1/24 (4.2%)	Parents with more difficulty talking to health personnel: Nurse: 11/115 (9.6%) Doctor: 17/122 (13.9%) Other doctors: 12/104 (11.5%) Other health personnel: 6/47 (12.8%)	Ordinal outcome measure: Nurse: p = 0.66 Doctor: p = 0.78 Other doctors: p = 0.39 Other health personnel: p = 0.60	Not calculated	⨁◯◯◯ VERY LOW	IMPORTANT
Communication between mothers and healthcare providers (observational study) (studies: Shah, 1993 (multi-countries); Harrison, 1998 (South Africa); Moore, 2000 (UK); Grippo, 2007 (Brazil); Walton, 2007 (UK); Shimizu, 2007 (Dominican Republic); Hamilton, 2012 (Australia); Hagiwara, 2013 (Palestine), Umeda, 2015 (Mongolia); Naito, 2019 (Japan))												
10	observational studies	serious [d]	serious [e]	serious [b]	not serious	none	not estimable	not estimable	not estimable	not estimable	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval

Explanations

a. Bias in measurement of the outcome.
b. Indirect evidence.
c. Unable to assess the number of events as outcome data are ordinal.
d. Some methodological considerations and key potential confounding variables not measured nor adjusted statistically.
e. Mixed results were obtained among included studies.

Question: Are mothers satisfied with the information provided by home-based records (intervention) compared to no use of any home-based records (control)?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95%		
Satisfaction with the information provided by home-based records (RCT) (study: Grøvdal, 2006 (Norway))												
1	randomised trials	serious [a]	not serious	serious [b]	very serious [c]	none	Not reported	Not reported	Not reported	Some 65% of parents were satisfied with the record and 92% were in favor of making it available permanent. Satisfaction and support were especially high among parents of children with chronic diseases	⨁◯◯◯ VERY LOW	IMPORTANT
Satisfaction with the information provided related to newborn and childcare (observational study) (studies: Shah, 1993 (multi-countries); Jeffs, 1994 (Australia); McMaster, 1996 (Bosnia and Herzegovina); Harrison, 1998 (South Africa); Hokama, 2000 (Japan); Takeda, 2002 (Japan); Hampshire, 2004 (UK); Grippo, 2007 (Brazil); Walton, 2007 (UK); Aoki, 2009 (Japan); Engida, 2013 (Ethiopia); Umeda, 2015 (Mongolia); Du Plessis, 2017 (South Africa))												
13	observational studies	serious [d]	serious [e]	serious [b]	not serious	none	not estimable	not estimable	not estimable	not estimable	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval

Explanations

a. Bias in measurement of the outcome.
b. Indirect evidence.
c. The number of cases not reported.
d. Some methodological considerations and key potential confounding variables not measured nor adjusted statistically.
e. Mixed results were obtained among included studies.

Question: Are mothers satisfied with services/provider performance via home-based records (intervention) compared to no use of any home-based records (control)?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95%		
Satisfaction with the newborn and child health services received via records (studies: Sugi, 1985 (Japan); O'Flaherty, 1987 (Australia); Polnay, 1989 (UK); Fujimoto, 2001 (Japan); Wright, 2005 (UK); Aihara, 2006 (Thailand); Yuge, 2010 (Japan))												
7	observational studies	serious [a]	serious [b]	serious [c]	not serious	none	not estimable	not estimable	not estimable	not estimable	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval

Explanations

a. Some methodological considerations and key potential confounding variables not measured nor adjusted statistically.
b. Mixed results were obtained among included studies.
c. Indirect evidence.

Question: Do home-based records (intervention) compared to no use of any home-based records (control) foster mother-child bonding?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95% CI)		
Mother-child bonding (studies: Matsumoto, 1996 (Japan); Yuge, 2010 (Japan); Tanabe, 2011 (Japan); Akiba, 2016 (Japan); Ogasawara, 2016 (Japan)												
5	observational studies	serious [a]	not serious	serious [b]	not serious	none	not estimable	not estimable	not estimable	not estimable	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval

Explanations

a. Some methodological considerations and key potential confounding variables not measured nor adjusted statistically.
b. Indirect evidence.

Question: Does a different type of home-based record (intervention) compare to a standard home-based record (control) facilitate communication within the household?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95% CI)		
Communication within the household (study: Elbourne, 1987 (UK))												
1	randomised trials	serious [a]	not serious	serious [b]	serious [c]	none	Number of events not reported	Number of events not reported	not estimable	No significant difference was observed between mothers in the case-note group and cooperation card group with regard to involvement of babies fathers	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval

Explanations

a. Bias due to deviations from intended intervention, missing outcome data, and selection of the reported result.
b. Indirect evidence.
c. Unable to assess the number of events as not reported.

Question: Does a different type of home-based record (intervention) compare to a standard home-based record (control) facilitate communication between mothers and healthcare providers?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95% CI)		
Communication between mothers and healthcare providers (study: (study: Elbourne, 1987 (UK))												
1	randomised trials	serious [a]	not serious	serious [b]	serious [c]	none	Number of events not reported	Number of events not reported	not estimable	Expectant mothers felt in control of their antenatal care (RR=1.38, 95% CI: 1.08-1.95) and it was easier to talk to doctors and midwives (RR=1.73, 95% CI: 1.16-2.59)	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval

Explanations

a. Bias due to deviations from intended intervention, missing outcome data, and selection of the reported result.
b. Indirect evidence
c. Unable to assess the number of events as not reported.

Question: Are mothers satisfied with the information provided by a different type of home-based record (intervention) compared to a standard home-based record (control)?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95% CI)		
Satisfaction with the information provided by home-based records (Bhuiyan, 2006 (Bangladesh))												
1	observational studies	serious [a]	not serious	serious [b]	serious [c]	none	Number of events not reported	Number of events not reported	not estimable	Most of the mothers (78%) perceived the MCH handbook as a useful tool.	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval

Explanations

a. Some methodological considerations and key potential confounding variables not measured nor adjusted statistically.
b. Indirect evidence.
c. Unable to assess the number of events as not reported.

Table S4. CERQual qualitative evidence profile

Key finding	Studies contributing to the review finding	Assessment of methodological limitations	Assessment of relevance to the research question	Assessment of coherence	Assessment of adequacy	Overall CERQual assessment of confidence	Explanation of judgement
Home-based records facilitated communication within the household. Illustrative quote: The authors stated that women-held maternity records facilitated husband involvement and women enjoyed sharing the information with their grandparents and friends (Phipps 2001).	Phipps 2001	**Moderate methodological limitations.** Average CASP rating: 8.0 Limited justification of the research design and data analysis was not sufficiently rigorous.	**Minor concerns about relevance.** Findings were related to the research question as to how women carrying their own medical records would benefit them.	**Moderate concerns about coherence.** Illustrative quotes are missing in the text.	**Major concerns about adequacy.** Only one study and offers thin data.	**Very low confidence**	The major concern was with the adequacy because of only one available evidence supporting the key finding.
Home-based records facilitated communication between mothers/caregivers and healthcare providers. Illustrative quote: "I found the book worked really well, that it was like a communication between the both of you… basically the Plunket book was the foundation of that relationship, other than the baby I suppose" (Clendon 2010).	Young 1990, Phipps 2001, Grippo 2007, Clendon 2010, Hamilton 2012, Engida 2013, Whitford 2014, Lee 2016, McKinn 2017	**Moderate methodological limitations.** Average CASP rating: 8.0 Average MMAT rating: 13.0 Limited justification of the research design and analysis process of the studies.	**Moderate concerns about relevance.** Findings on communication with healthcare providers were at times not related to the main research question.	**Moderate concerns about coherence.** Two studies showed mixed results and one study showed no impact on communication.	**Moderate concern about adequacy** Limited richness and quantity of data and participants.	**Low confidence**	The major concerns were the relevance of the findings and their adequacy because of the limited number of participants in the included studies.
Users of home-based records were generally satisfied with the information received from the records Illustrative quote: The authors stated that the topics "protect and care" standout as the most important in the caregiver's report (Grippo 2007).	Yahata 2005, Bhuiyan 2006, Grippo 2007	**Moderate methodological limitations.** Average CASP rating: 4.0 Average MMAT rating: 12.0 Limited justification of the research design and analysis process of the studies.	**Moderate concerns about relevance.** Satisfaction findings related to newborn and childcare information were at times not related to the main research question.	**Moderate concerns about coherence.** Two studies showed mixed results and one study showed positive impact on satisfaction with the information provided.	**Moderate concern about adequacy** Limited richness and quantity of data and participants.	**Low confidence**	The major concerns revolved around the relevance of the finding to the research question and the limited number of studies.

CASP — Critical Appraisal Skills Programme, MMAT — Mixed Methods Appraisal Tool

Table S4. (continued)

Key finding	Studies contributing to the review finding	Assessment of methodological limitations	Assessment of relevance to the research question	Assessment of coherence	Assessment of adequacy	Overall CERQual assessment of confidence	Explanation of judgement
Home-based records upheld satisfaction with services/provider performance Illustrative quote: "What made the care better was I entered the Passport Program and then I could understand everything inside of it" (Lee 2016).	Lee 2016	**Moderate methodological limitations.** Average CASP rating: 8.0 Limited justification of the research design and data analysis was not sufficiently rigorous.	**Minor concerns about relevance.** Findings were related to the research question to measure the improvement in healthcare experience and satisfaction of culturally diverse families of hospitalized children.	**Moderate concerns about coherence.** Some illustrative quotes are missing in the text.	**Major concerns about adequacy.** Only one study and offers thin data.	**Very low confidence**	The major concern was with the adequacy because of only one available evidence supporting the key finding.
Home-based records fostered mother-child bonding. Illustrative quote: The authors stated that when the mother who experienced preterm birth was discharged, the baby's name was written in the MCH handbook, and words of gratitude for the child's birth were written (Seto, 2006).	Seto 2006, Higashiyama 2013, Minewaki 2019	**Moderate methodological limitations.** Average CASP rating: 7.3 Limited justification of the research design and analysis process of the studies.	**Minor concerns about relevance.** Findings were related to the main research question.	**Minor concerns about coherence.** Data reasonably consistent within and across all studies.	**Moderate concerns about adequacy** Limited richness and quantity of data and participants.	**Low confidence**	The major concern was the adequacy because of the limited number of participants and the number of studies available.

CASP — Critical Appraisal Skills Programme, MMAT — Mixed Methods Appraisal Tool

Table S5. Risk of bias assessment in included studies

Risk of bias assessment of randomized controlled trials
(Please indicate whether low, some concerns, and high)

Author	Bias arising from the randomization process	Bias due to deviations from intended intervention	Bias due to missing outcome data	Bias in measurement of the outcome	Bias in selection of the reported result	Overall risk of bias
Elbourne 1987	Low	High	High	Some concerns	High	High
Grøvdal, 2006	Low	Some concerns	Low	High	Low	High
Osaki 2018	Some concerns	Some concerns	Low	High	Low	High

Risk of bias assessment of quasi-experimental studies
(Please indicate whether low, moderate, serious, critical, no information)

Author	Selection of participants	Confounding variables	Classification of interventions	Deviations from intended interventions	Missing data	Measurement of the outcome	Selection of the reported result	Overall risk of bias
Hagiwara 2013	Low	Moderate	Low	Moderate	Low	Low	Low	Moderate
Jeffs 1994	Low	Moderate	Low	Moderate	Low	Low	Low	Moderate
Moore 2000	Low	Moderate	Low	Serious	Moderate	Moderate	Moderate	Serious
Shah 1993	Low	Serious	Moderate	Moderate	Serious	Serious	Serious	Serious

Risk of bias assessment of observational cohort and cross-sectional studies
(Please indicate whether yes, no, CD [cannot determine], NA [not applicable], NR [not reported])

Author	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Overall
Aihara 2006	Yes	Yes	CD	Yes	No	Yes	Yes	Yes	Yes	No	Yes	NR	NA	Yes	Good
Akiba 2016	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No	Yes	NR	NA	No	Fair
Aoki 2009	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	Yes	NA	NA	No	Fair
Du Plessis 2017	Yes	Yes	CD	Yes	No	Yes	Yes	Yes	Yes	No	Yes	NR	NA	No	Fair
Fujimoto 2001	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	Yes	No	No	No	Fair
Hampshire 2004	Yes	Yes	CD	Yes	No	Yes	Yes	Yes	Yes	No	Yes	NR	NA	Yes	Good
Harrison 1998	Yes	Yes	CD	Yes	No	Yes	Yes	No	No	No	Yes	NR	NA	NA	Fair
Hokama 2000	Yes	Yes	CD	Yes	No	No	Yes	No	Yes	No	Yes	NA	NA	Yes	Fair
Matsumoto 1996	Yes	Yes	Yes	Yes	NR	Yes	Yes	Yes	Yes	No	Yes	NA	NA	No	Good
McMaster 1996	Yes	Yes	CD	No	No	Yes	No	No	Yes	No	Yes	NR	NA	No	Fair
Naito 2019	Yes	Yes	NA	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	NA	Yes	Fair

(continued)

Author	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Overall
O'Flaherty 1987	No	Yes	Yes	Yes	NR	Yes	Yes	No	Yes	No	Yes	No	Yes	No	Fair
Ogasawara 2016	Yes	Yes	Yes	Yes	No	No	Yes	No	No	No	Yes	No	NA	No	Fair
Polnay 1989	No	Yes	Yes	Yes	NR	Yes	Yes	Yes	Yes	Yes	Yes	NR	NR	No	Good
Shimizu 2007	Yes	CD	CD	Yes	No	No	Yes	No	No	No	Yes	NA	NR	NA	Poor
Sugi 1985	Yes	Yes	CD	Yes	No	No	Yes	Yes	Yes	No	Yes	No	NA	NR	Fair
Takeda 2002	Yes	Yes	NR	Yes	No	No	No	Yes	Yes	No	Yes	NA	NA	Yes	Fair
Tanabe 2011	Yes	Yes	NR	Yes	No	Yes	Yes	Yes	Yes	No	Yes	NA	NA	Yes	Good
Umeda 2015	Yes	Yes	NR	Yes	No	No	No	No	No	No	Yes	NA	NA	No	Poor
Walton 2007	Yes	Yes	CD	No	No	Yes	NR	NA	Yes	No	Yes	No	NA	No	Fair
Wright 2005	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	NA	No	No	Good
Yuge 2010	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	No	Yes	NR	NA	No	Fair

1: Was the research question or objective in this paper clearly stated? **2:** Was the study population clearly specified and defined? **3:** Was the participation rate of eligible persons at least 50%? **4:** Were all the subjects selected or recruited from the same or similar populations (including the same time period)? Were inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants? **5:** Was a sample size justification, power description, or variance and effect estimates provided? **6:** For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured? **7:** Was the timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed? **8:** For exposures that can vary in amount or level, did the study examine different levels of the exposure as related to the outcome (e.g., categories of exposure, or exposure measured as continuous variable)? **9:** Were the exposure measures (independent variables) clearly defined, valid, reliable, and implemented consistently across all study participants? **10:** Was the exposure(s) assessed more than once over time? **11:** Were the outcome measures (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants? **12:** Were the outcome assessors blinded to the exposure status of participants? **13:** Was loss to follow-up after baseline 20% or less? **14:** Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?

Risk of bias assessment of qualitative studies
(Please indicate whether yes, no, or can't tell)

Author	1	2	3	4	5	6	7	8	9	10	Overall
Clendon 2010	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Yes	Yes	Yes	Good
Engida 2013	Yes	Yes	Yes	Yes	Yes	Can't tell	Can't tell	No	Yes	Yes	Good
Higashiyama 2013	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	Good
Lee 2016	Yes	Yes	Yes	Yes	Yes	Can't tell	No	Yes	Yes	Yes	Good
McKinn 2017	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Minewaki 2019	Yes	Yes	Yes	Can't tell	Can't tell	No	Yes	Yes	Yes	Yes	Good
Phipps 2001	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	No	Yes	Yes	Good
Seto 2006	Yes	Yes	Yes	Can't tell	Can't tell	Can't tell	Yes	Yes	No	Yes	Good
Whitford 2014	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	Good
Yahata 2005	Yes	No	No	No	No	No	Yes	No	Yes	Yes	Fair
Young 1990	Yes	No	Yes	Yes	Yes	Can't tell	Can't tell	No	Yes	Yes	Good

1: Was there a clear statement of the aims of the research? **2:** Is a qualitative methodology appropriate? **3:** Was the research design appropriate to address the aims of the research? **4:** Was the recruitment strategy appropriate to the aims of the research? **5:** Was the data collected in a way that addressed the research issue? **6:** Has the relationship between researcher and participants been adequately considered? **7:** Have ethical issues been taken into consideration? **8:** Was the data analysis sufficiently rigorous? **9:** Is there a clear statement of findings? **10:** Is the research valuable?

Risk of bias assessment of mixed methods studies
(Please indicate whether yes, no, or can't tell)

Author	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Overall
Bhuiyan 2006	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Good
Grippo 2007	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Good
Hamilton 2012	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good

1: Is there an adequate rationale for using a mixed methods design to address the research question? **2:** Are the different components of the study effectively integrated to answer the research question? **3:** Are the outputs of the integration of qualitative and quantitative components adequately interpreted? **4:** Are divergences and inconsistencies between quantitative and qualitative results adequately addressed? **5:** Do the different components of the study adhere to the quality criteria of each tradition of the methods involved? **6:** Is the qualitative approach appropriate to answer the research question? **7:** Are the qualitative data collection methods adequate to address the research question? **8:** Are the findings adequately derived from the data? **9:** Is the interpretation of results sufficiently substantiated by data? **10:** Is there coherence between qualitative data sources, collection, analysis and interpretation? Questions 11-15 depends on whether it involves RCT, non-randomized, or quantitative descriptive studies.

Table S6. Synthesis Without Meta-analysis (SWiM) reporting items

The citation for the Synthesis Without Meta-analysis explanation and elaboration article is: Campbell M, McKenzie JE, Sowden A, Katikireddi SV, Brennan SE, Ellis S, Hartmann-Boyce J, Ryan R, Shepperd S, Thomas J, Welch V, Thomson H. Synthesis without meta-analysis (SWiM) in systematic reviews: reporting guideline BMJ 2020;368:l6890 http://dx.doi.org/10.1136/bmj.l6890

SWiM is intended to complement and be used as an extension to PRISMA			
SWiM reporting item	**Item description**	**Page in manuscript where item is reported**	**Other***
Methods			
1 Grouping studies for synthesis	1a) Provide a description of, and rationale for, the groups used in the synthesis (e.g., groupings of populations, interventions, outcomes, study design)	5-6	
	1b) Detail and provide rationale for any changes made subsequent to the protocol in the groups used in the synthesis	8	
2 Describe the standardised metric and transformation methods used	Describe the standardised metric for each outcome. Explain why the metric(s) was chosen, and describe any methods used to transform the intervention effects, as reported in the study, to the standardised metric, citing any methodological guidance consulted	8	
3 Describe the synthesis methods	Describe and justify the methods used to synthesise the effects for each outcome when it was not possible to undertake a meta-analysis of effect estimates	8	
4 Criteria used to prioritise results for summary and synthesis	Where applicable, provide the criteria used, with supporting justification, to select the particular studies, or a particular study, for the main synthesis or to draw conclusions from the synthesis (e.g., based on study design, risk of bias assessments, directness in relation to the review question)	7-8, Tables S3-5	

Synthesis Without Meta-analysis (SWiM) reporting items

SWiM reporting item	Item description	Page in manuscript where item is reported	Other*
5 Investigation of heterogeneity in reported effects	State the method(s) used to examine heterogeneity in reported effects when it was not possible to undertake a meta-analysis of effect estimates and its extensions to investigate heterogeneity	8, Tables S3-4	
6 Certainty of evidence	Describe the methods used to assess certainty of the synthesis findings	7-8, Tables S3-4	
7 Data presentation methods	Describe the graphical and tabular methods used to present the effects (e.g., tables, forest plots, harvest plots). Specify key study characteristics (e.g., study design, risk of bias) used to order the studies, in the text and any tables or graphs, clearly referencing the studies included	8, Fig 1, Tables 1-2 Tables S3-S5	
Results			
8 Reporting results	For each comparison and outcome, provide a description of the synthesised findings, and the certainty of the findings. Describe the result in language that is consistent with the question the synthesis addresses, and indicate which studies contribute to the synthesis	9-17, Tables 1-2	
Discussion			
9 Limitations of the synthesis	Report the limitations of the synthesis methods used and/or the groupings used in the synthesis, and how these affect the conclusions that can be drawn in relation to the original review question	20	

PRISMA=Preferred Reporting Items for Systematic Reviews and Meta-Analyses.
*If the information is not provided in the systematic review, give details of where this information is available (e.g., protocol, other published papers (provide citation details), or website (provide the URL)).

Text S1. Protocol

NIHR | National Institute for Health Research

PROSPERO
International prospective register of systematic reviews

Roles of Maternal and Child Health Handbook and other Home-based Records on Newborn and Child Health: A Systematic Review

Rogie Royce Carandang, Jennifer Lisa Sakamoto, Akira Shibanuma, Ekaterina Yarotskaya, Milana Basargina, Mika Kunieda, Masamine Jimba

Citation

Rogie Royce Carandang, Jennifer Lisa Sakamoto, Akira Shibanuma, Ekaterina Yarotskaya, Milana Basargina, Mika Kunieda, Masamine Jimba. Roles of Maternal and Child Health Handbook and other Home-based Records on Newborn and Child Health: A Systematic Review. PROSPERO 2020 CRD42020166545 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42020166545

Review question

What are the roles of Maternal and Child Health (MCH) Handbook and other home-based records on the promotion of newborn/child health and the prevention and management of newborn/childhood illnesses?

Searches

We will search the following databases: PubMed/MEDLINE, Web of Science, CINAHL, PsycINFO, PsycARTICLES, Academic Search Complete, SocINDEX, Cochrane Central Register of Controlled Trials, DARE, NHS EED, HTA, and Grey Literature (WHO, CDC, ECDC, JICA, UNAIDS, among others). We will also search for Japanese databases: J-STAGE, Ichushi, UTokyo Resource Explorer (TREE). We will hand-search the reference list of articles selected for analysis. We will include all published papers in the English and Japanese language up till January 2020.

Our search strategy will combine both Medical Subject Headings (MeSH) terms and free text terms (in English and Japanese).

Search strategy

https://www.crd.york.ac.uk/PROSPEROFILES/166545_STRATEGY_20200123.pdf

Types of study to be included

We will include original research articles in English and Japanese of all study designs such as randomized controlled trial (RCT), quasi-experimental, cohort, observational, cross-sectional, and other comparative studies as well as multiple case studies and evaluation reports. We will not include single case studies, letters, editorials, reviews, conference abstracts, and books.

Condition or domain being studied

A home-based record is a paper or electronic health record retained and used by women or caregivers in the household to document maternal, newborn, and child health (WHO, 2018). To date, over 163 countries have been using home-based records.

In 1948, the Ministry of Health of Japan introduced the MCH handbook to improve the health of vulnerable mothers and children (Hagiwara, 2013). As of 2016, at least 25 countries used the fully integrated MCH handbook (Osaki 2016).

One study systematically reviews the effectiveness of home-based records on maternal and child health (Magwood, 2019), which was used as a basis for WHO's recommendations on home-based records (WHO, 2018). However, Magwood et al. did not mention about health promotion and management of newborn/childhood illnesses. In addition, they covered only original articles with controlled study designs and written in the English language. In this review, we aim to include original articles in both English and

Japanese language of all study designs. Since Japan is the proponent of the MCH handbook, it would be worthy of including Japanese articles in the analysis. By doing so, we could capture more evidence on the effectiveness of home-based records on newborn/child health.

Participants/population

Participants will include parents, fathers, mothers, and caregivers of children 0-12 years.

Intervention(s), exposure(s)

The intervention of interest is the MCH handbook and other home-based records, available in either hard copy or online, and kept or managed by parents/caregivers.

Comparator(s)/control

The comparator will be no record, conventional information or usual care given to parents/caregivers following childbirth.

Main outcome(s)

Newborn/child health promotion and reporting

Newborn/child health care seeking and care practices

Newborn/childhood illness prevention and management

Newborn/child morbidity and mortality

* Measures of effect

Not applicable

Additional outcome(s)

Parent/caregiver's health knowledge

Communication within the household and between women/caregivers and health care providers

Satisfaction with services

Continuity of care

* Measures of effect

Not applicable

Data extraction (selection and coding)

Two review authors will be involved in the process of literature search, article screening, and data extraction. The databases will be independently searched using the aforementioned search strategy and identify the studies by title and abstract screening. The team will review the list of articles for eligibility. We will discuss disagreements on the eligibility of study until a consensus is reached. If required, we will consult our supervisor for the final decision.

The data to be extracted include:

title, citation (author, publication year, source), objectives, study design, study setting, study population, sample size, types of home-based records, comparison group, and reported outcomes.

Risk of bias (quality) assessment

We will assess the quality of randomized trials using the risk of bias tools from the Cochrane Handbook. The quality of nonrandomized controlled trials will also be assessed using the same tool. By default, it will receive a judgment of "high risk of bias" for random allocation and allocation concealment. To assess the certainty of the evidence for the included studies, we will apply the GRADE approach. For qualitative studies, we will use the Critical Appraisal Skill Programme (CASP) tool.

Strategy for data synthesis

We will follow the PRISMA checklist for appropriate data synthesis. We will construct a PRISMA flowchart to show the search strategy results at each stage of review. We will conduct a descriptive analysis of individual studies according to the type of intervention, sample size, duration, outcome, quality, and risk of bias. We will analyze the effectiveness of the intervention, based on the nature of reported outcomes. If we find enough studies with quality data, we will conduct a meta-analysis to examine the effectiveness of the MCH handbook and other home-based records on newborn/child health.

Analysis of subgroups or subsets

None

Contact details for further information

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Organisational affiliation of the review

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http://www.ich.m.u-tokyo.ac.jp/en/index.html

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Professor Masamine Jimba. Department of Community and Global Health, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan

Type and method of review

Meta-analysis, Systematic review

Anticipated or actual start date

01 February 2020

Anticipated completion date

31 August 2020

Funding sources/sponsors

Department of Community and Global Health, Graduate School of Medicine, The University of Tokyo, Japan

Conflicts of interest

Language

English, Japanese

Country

Japan, Russian Federation

Stage of review

Review Ongoing

Subject index terms status

Subject indexing assigned by CRD

Subject index terms
MeSH headings have not been applied to this record

Date of registration in PROSPERO
28 April 2020

Date of first submission
23 January 2020

Stage of review at time of this submission

Stage	Started	Completed
Preliminary searches	Yes	No
Piloting of the study selection process	Yes	No
Formal screening of search results against eligibility criteria	No	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

The record owner confirms that the information they have supplied for this submission is accurate and complete and they understand that deliberate provision of inaccurate information or omission of data may be construed as scientific misconduct.

The record owner confirms that they will update the status of the review when it is completed and will add publication details in due course.

Versions
28 April 2020

Text S2. Search strategy

Strategy 1: Search terms for "newborn"

infant [MeSH] OR infant [tw]
OR newborn [MeSH] OR newborn [tw]
OR neonate [MeSH] OR neonate [tw]

Strategy 2: Search terms for "child"

child [MeSH] OR child [tw]
OR children [MeSH] OR children [tw]

Strategy 3: Search terms for "MCH handbook and other home-based records"

maternal and child health handbook [MeSH] OR maternal and child health handbook [tw]
OR MCH Handbook [MeSH] OR MCH handbook [tw]
OR home-based record [MeSH] OR home-based record [tw]
OR paper-based record [MeSH] OR paper-based record [tw]
OR personal health record [MeSH] OR personal health record [tw]
OR child health record [MeSH] OR child health record [tw]
OR child health book [MeSH] OR child health book [tw]
OR maternal health record [MeSH] OR maternal health record [tw]
OR maternal health book [MeSH] OR maternal health book [tw]
OR maternal and child health book [MeSH] OR maternal and child health book [tw]
OR vaccination record [MeSH] OR vaccination record [tw]
OR vaccination book [MeSH] OR vaccination book [tw]
OR immunization record [MeSH] OR immunization record [tw]
OR immunization book [MeSH] OR immunization book [tw]

Strategy 4: Search terms for "child health promotion and prevention and management of childhood illnesses"

infant health [MeSH] OR infant health [tw]
OR child health [MeSH] OR child health [tw]
OR health of children [MeSH] OR health of children [tw]
OR newborn health [MeSH] OR newborn health [tw]
OR neonate health [MeSH] OR neonate health [tw]
OR health promotion [MeSH] OR health promotion [tw] OR promotion of child health [tw]
OR satisfaction [MeSH] OR satisfaction [tw]
OR communication [MeSH] OR communication [tw]
OR bonding [MeSH] OR bonding [tw]
OR childhood disease* [tw] OR childhood illness* [tw]
OR disease management [MeSH] OR disease management [tw]
OR pneumonia [MeSH] OR pneumonia [tw] OR respiratory tract disease [MeSH]
OR diarrhea [MeSH] OR diarrhea [tw] OR diarrhoea [tw]
OR tuberculosis [MeSH] OR tuberculosis [tw]
OR fever [MeSH] OR fever [tw]
OR malaria [MeSH] OR malaria [tw]
OR otitis [MeSH] OR ear problems [tw]

OR dengue [MeSH] OR dengue [tw]
OR meningitis [MeSH] OR meningitis [tw]
OR measles [MeSH] OR measles [tw]
OR sepsis [MeSH] OR sepsis [tw] OR septicemia [tw]
OR typhoid fever [MeSH] OR typhoid fever [tw]
OR malnutrition [MeSH] OR malnutrition [tw]
OR HIV [MeSH] OR HIV [tw] OR AIDS [tw]
OR developmental disabilities [MeSH] OR developmental disabilit* [tw] OR developmental disorder* [tw]
OR epilepsy [MeSH] OR epilepsy [tw] OR seizure disorder* [tw]
OR supportive care [tw]
OR treatment [tw] OR therapy [tw]
OR prevention [tw] OR prevention and control [MeSH] OR prevention and control [tw]
OR attitude [MeSH] OR attitude* [tw] OR behavior [MeSH] OR behavior* [tw]
OR practice* [tw]

Combination of search strategies

((infant[MeSH] OR infant[tw] OR newborn[MeSH] OR newborn[tw] OR neonate[MeSH] OR neonate[tw]) AND (child[MeSH] OR child[tw] OR children[MeSH] OR children[tw]) AND (maternal and child health handbook[MeSH] OR maternal and child health handbook[tw] OR MCH Handbook[MeSH] OR MCH handbook[tw] OR home-based record[MeSH] OR home-based record[tw] OR paper-based record[MeSH] OR paper-based record[tw] OR personal health record[MeSH] OR personal health record[tw] OR child health record[MeSH] OR child health record[tw] OR child health book[MeSH] OR child health book[tw] OR maternal health record[MeSH] OR maternal health record[tw] OR maternal health book[MeSH] OR maternal health book[tw] OR maternal and child health book[MeSH] OR maternal and child health book[tw] OR vaccination record[MeSH] OR vaccination record[tw] OR vaccination book[MeSH] OR vaccination book[tw] OR immunization record[MeSH] OR immunization record[tw] OR immunization book[MeSH] OR immunization book[tw]) AND (infant health[MeSH] OR infant health[tw] OR child health[MeSH] OR child health[tw] OR health of children[MeSH] OR health of children[tw] OR newborn health[MeSH] OR newborn health[tw] OR neonate health[MeSH] OR neonate health[tw] OR health promotion[MeSH] OR health promotion[tw] OR promotion of child health[tw] OR satisfaction [MeSH] OR satisfaction [tw] OR communication [MeSH] OR communication [tw] OR bonding [MeSH] OR bonding [tw] OR childhood disease*[tw] OR childhood illness*[tw] OR disease management[MeSH] OR disease management[tw] OR pneumonia[MeSH] OR pneumonia[tw] OR respiratory tract disease[MeSH] OR diarrhea[MeSH] OR diarrhea[tw] OR diarrhoea[tw] OR tuberculosis[MeSH] OR tuberculosis[tw] OR fever[MeSH] OR fever[tw] OR malaria[MeSH] OR malaria[tw] OR otitis[MeSH] OR ear problems[tw] OR dengue[MeSH] OR dengue[tw] OR meningitis[MeSH] OR meningitis[tw] OR measles[MeSH] OR measles[tw] OR sepsis[MeSH] OR sepsis[tw] OR septicemia[tw] OR typhoid fever[MeSH] OR typhoid fever[tw] OR malnutrition[MeSH] OR malnutrition[tw] OR HIV[MeSH] OR HIV[tw] OR AIDS[tw] OR developmental disabilities[MeSH] OR developmental disabilit*[tw] OR developmental disorder*[tw] OR epilepsy[MeSH] OR epilepsy[tw] OR seizure disorder*[tw] OR supportive care[tw] OR treatment[tw] OR therapy[tw] OR prevention[tw] OR prevention and control[MeSH] OR prevention and control[tw] OR attitude[MeSH] OR attitude*[tw] OR behavior[MeSH] OR behavior*[tw] OR practice*[tw]))

Search strategy for Japanese databases

Ichushi

(母子健康手帳)・原著論文

(母子手帳)・原著論文

J-STAGE

(母子健康手帳)・ジャーナル・査読あり

(母子手帳)・ジャーナル・査読あり

BMJ Open

Effects of the Maternal and Child Health handbook and other home-based records on mothers' non-health outcomes: a systematic review

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2021-058155.R1
Article Type:	Original research
Date Submitted by the Author:	07-Apr-2022
Complete List of Authors:	Carandang , Rogie Royce ; The University of Tokyo Graduate School of Medicine Faculty of Medicine, Department of Community and Global Health; University of Connecticut Health Center, Department of Public Health Sciences Sakamoto, Jennifer Lisa; The University of Tokyo Graduate School of Medicine Faculty of Medicine, Department of Community and Global Health Kunieda, Mika; The University of Tokyo Graduate School of Medicine Faculty of Medicine, Department of Community and Global Health; Keio University, Faculty of Policy Management Shibanuma, Akira; The University of Tokyo Graduate School of Medicine Faculty of Medicine, Department of Community and Global Health Yarotskaya, Ekaterina; VI Kulakov Federal Research Center of Obstetrics Gynecology and Perinatology Basargina, Milana; FSAI National Medical Research Center for Children's Health, Department of Neonatal Pathology Jimba, Masamine; The University of Tokyo Graduate School of Medicine Faculty of Medicine, Department of Community and Global Health
Primary Subject Heading:	Global health
Secondary Subject Heading:	Public health
Keywords:	PUBLIC HEALTH, SOCIAL MEDICINE, Community child health < PAEDIATRICS

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Effects of the Maternal and Child Health handbook and other home-based records on mothers' non-health outcomes: a systematic review

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Type of article: systematic review

Name of the registry: PROSPERO

Registration number: CRD42020166545

Word Count: 5,093

Number of figures: 1

Number of tables: 2

ABSTRACT

Objective This review aimed to investigate the effects of the maternal and child health (MCH) handbook and other home-based records on mothers' non-health outcomes.

Design Systematic review

Data sources Pubmed, Web of Science, CINAHL, Academic Search Complete, PsycArticles, PsycINFO, SocINDEX, CENTRAL, NHS EED, HTA, DARE, Ichuushi, and J-STAGE through 26 March 2022.

Eligibility criteria for selecting studies Original research articles examining home-based records and mothers' non-health outcomes published in English or Japanese across various study designs.

Data extraction and synthesis Two independent reviewers extracted relevant data and assessed the risk of bias. The certainty of evidence for each study was assessed using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach. Due to the heterogeneity of the included studies, we conducted a narrative synthesis of their findings.

Results Of the 4,199 articles identified through the search, 47 articles (20 in Japanese) were included in the review. The MCH handbook provided essential information about the mother-child relationship, and its use facilitated the mother-child bonding process. Mothers reported generally feeling satisfied with the use of home-based records; although their satisfaction with health services was influenced by healthcare providers' level of commitment to using these records. While home-based records positively affected communication within the household, we observed mixed effects on communication between mothers/caregivers and healthcare providers. Barriers to effective communication included a lack of satisfactory explanations regarding the use of home-based records and personalized guidance from healthcare providers. These records were also inconsistently used across different health facilities and professionals.

Conclusions The MCH handbook fostered the mother-child bond. Mothers were generally satisfied with the use of home-based records, but their engagement depended on how these records were communicated and utilized by healthcare providers. Additional measures are necessary to ensure the implementation and effective use of home-based records.

PROSPERO registration number: CRD42020166545

Strengths and limitations of this study

- This systematic review examined a relatively large number of studies that were published in English or Japanese and encompassed several study designs, to highlight the effects of home-based records on mothers' non-health outcomes.
- Unlike past reviews, this systematic review focuses on non-health outcomes as a measure of the effectiveness of home-based records.
- The majority of the studies were observational and qualitative, which leads to potential biases and low certainty of evidence.
- Due to marked heterogeneity across studies regarding the study designs, intervention types, and comparator groups, a narrative synthesis was conducted.

INTRODUCTION

Over 163 countries worldwide have made use of home-based records to improve maternal, newborn, and child health (MNCH).[1] Home-based records are handheld records used by mothers or caregivers in households to record essential information related to MNCH, including visits to a healthcare provider, vaccination history, and the child's developmental milestones.[1] The design and content of these records vary considerably across countries and regions. While their use is nearly universal in some countries, it tends to be limited in others.[1] The records are available in paper or electronic format, complement facility-based records, and can be either single- or multi-focus. Single-focus records contain information relevant to one health topic or population group (e.g., antenatal care notes, vaccination-only cards, growth charts), while multi-focus records consist of chronologically ordered information pertaining to more than one health topic and can be used for an extended period.[2] The difference in focus as per health topic or population group resorted to policy debates on whether home-based records should be developed and distributed per mother or child.[3] Due to problems encountered in full integration (e.g., poor coordination across stakeholders), most countries prefer to implement program-specific, stand-alone home-based records for MCH services.[3]

The Maternal and Child Health (MCH) handbook is an example of multi-focus records. Its use originated in Japan in 1948 and it is known to be the first integrated home-based record covering the entire spectrum of pregnancy, childbirth, infancy, and childcare until six years of age.[4] The integration may have facilitated the continuum of care [5] and might help achieve the Sustainable Development Goal (SDG) 3 — ensuring healthy lives and promoting well-being for all at all ages.[6] As part of universal health care, this handbook is

distributed to pregnant women in Japan when they register their pregnancy.[7] This record is shared between mothers and healthcare providers and contains educational messages related to MNCH. Mothers bring it when receiving MNCH services and healthcare providers complete the medical charts in the handbook.[8] Following decentralization in 1991, Japanese municipalities started distributing the handbook and may add more information from the 48-page national version to meet their local needs and socioeconomic changes.[4, 8] It has been theorized to contribute to Japan's decreased infant mortality, which may have encouraged several countries to adopt the handbook.[7] To date, more than 50 countries worldwide have used the MCH handbook and found it to be useful.[4] This is especially true for countries where access to healthcare services is restricted.[9]

Previous systematic reviews have evaluated the impact of home-based records on MNCH and reported improvements in the uptake of antenatal care services, childhood vaccinations, and newborn and childcare practices.[5, 10-11] Studies in Myanmar and Palestine also showed a positive association between using the MCH handbook and receiving high-quality maternal health services.[8, 12] These are considered essential indicators for evaluating the effectiveness of home-based records for MNCH. However, these reviews have failed to offer any insights related to non-health outcomes, such as communication within the household, communication between mothers/caregivers and healthcare providers, mother-child bonding, and satisfaction with health services and home-based records.[1] This is despite the World Health Organization's (WHO) recommendation regarding the use of non-health outcomes for evaluating the effectiveness of home-based records for MNCH.[1] For example, a systematic review by Magwood et al. suggested that home-based records could empower women and children and act as a point of commonality between patients and healthcare providers.[13] While they presented compelling results, they did not find any evidence pertaining to mother-child bonding and there is a lack of in-depth discussion about communication and satisfaction with these records. Exploring these non-health outcomes can be crucial for providing a more holistic picture of the effectiveness of home-based records and result in insights of theoretical and practical relevance.[14-17] This would capture the user experience to help improve the implementation of home-based records. Moreover, non-health outcomes may impact health outcomes,[14] although more studies need to be conducted to clarify this effect.

The review mentioned above by Magwood et al. included only qualitative studies available in English, without taking into consideration essential findings resulting from quantitative studies. The lack of data saturation or richness is a limitation of qualitative

studies and will affect the certainty of evidence.[18] Quantitative studies may bring evidence on real-life outcomes of records as they provide more information on actual adherence. Furthermore, given that Japan developed and popularized the use of the MCH handbook, the inclusion of studies published in Japanese can lead to an enhanced understanding of how users perceive home-based records.

In light of these gaps left unaddressed by existing literature, the present study aimed to investigate the effects of the MCH handbook and other home-based records on mothers' non-health outcomes, through a review of studies published in English and Japanese. This systematic review was conducted as part of a larger systematic review aimed at exploring the roles of the MCH handbook and other home-based records on MNCH.

METHODS

Patient and public involvement statement

Patients and/or the public were not involved in this review.

Review protocol

The protocol was registered in PROSPERO (no. CRD42020166545; see online supplemental file 1) and conducted in accordance with the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) reporting guidelines.[19]

Selection criteria

Study inclusion criteria: This review included research studies published in English or Japanese and conducted using various study designs, such as randomized controlled trials (RCTs), observational studies (quasi-experimental, cohort, and cross-sectional), case studies, and qualitative studies. We excluded books, conference abstracts, editorials, letters, protocols, and systematic reviews. We defined the inclusion criteria based on the Population, Intervention, Comparator, Outcome (PICO) framework:

Participants. We included studies conducted with parents, including mothers or other caregivers of newborns and children. Both health and community settings were considered in this review.

Intervention. The intervention consisted of home-based records managed or kept by mothers or caregivers in the form of hard copies. These records included women-held maternity records, child health books, vaccination-only cards, and integrated maternal and

child health books (i.e., the MCH handbook). We excluded patient diaries, mobile health interventions (apps, text messages), and provider-held records, such as electronic medical records and web-based summaries of patients' appointments.

Comparison. The comparator included standard care provided to mothers or caregivers before or after childbirth, conventional information, or the absence of any home-based records. We also included studies that did not include a comparison group.

Outcome. We followed the WHO guidelines for defining non-health outcomes.[1] These included communication within the household, communication with healthcare providers, satisfaction with home-based records, and satisfaction with services/provider performance.[1] Communication within the household refers to how home-based records improved partner/family members' involvement in pregnancy and childcare, while communication with healthcare providers covers counseling sessions using the records and mothers' engagement. Satisfaction with home-based records refers to mothers' perceived agreement with its content (e.g., health or recording information). In contrast, satisfaction with services/provider performance refers to mothers' perceived use of the records to deliver MCH services. As an additional outcome, we included mother-child bonding based on the assumption that the integration of the mother's and child's records in the MCH handbook can foster a stronger mother-child bond. We defined 'mother-child bonding' as the development of a core relationship between mother and child.[20] This bond is unidirectional (from mother to child), shapes during pregnancy, and continues developing until early childhood.[21-23]

Search strategy

Two authors (RRC and JLS) developed a search strategy using Medical Subject Headings (MeSH) terms and keywords (see online supplemental file 2), without restrictions on date. Electronic databases were searched for articles published in English and Japanese until March 26, 2022. For articles published in English, RRC and JLS searched the following databases: MEDLINE, CINAHL, Web of Science, PsycArticles, PsycINFO, SocINDEX, Academic Search Complete, Cochrane Central Register of Controlled Trials, NHS Economic Evaluation Database, Health Technology Assessment database, and the Database of Abstracts of Reviews of Effects.

A different set of authors (JLS and MKK) searched Japanese databases, including Igakuchuo-zasshi (Ichushi; https://search.jamas.or.jp/) and J-STAGE (https://www.jstage.jst.go.jp/), to search for articles published until March 26, 2022. Both

these databases publish over 300,000 articles annually from 2,500 Japanese biomedical journals.

Furthermore, three authors (RRC, JLS, and MKK) searched gray literature using the WHO databases, United Nations Children's Fund, the European Centre for Disease Prevention and Control, the US Center for Disease Control and Prevention, and the Japan International Cooperation Agency. The authors also manually searched the reference lists of articles, whose full texts had been retrieved, to identify additional relevant articles. All records identified through the search were uploaded to a reference-managing software package (Endnote X9) to facilitate the identification and selection of articles eligible for inclusion in this review.

Evidence retrieval

The search strategy yielded 4,199 articles from both English and Japanese databases; additionally, 36 articles were identified through manual searching. Of these, 854 were articles published in Japanese. After removing duplicate entries, a total of 3,315 articles remained. Subsequently, RRC and JLS assessed the English articles to determine their eligibility, while MKK and JLS assessed the Japanese articles. This was done by screening the titles and abstracts of the studies in a blinded, standardized manner. Any disagreements were resolved through discussion among the three authors until a consensus was reached or by consulting a fourth author (MJ or AS). A total of 3,097 articles were excluded following the initial screening.

In the next stage of screening, the three authors obtained the full texts of the remaining 218 articles from the University of Tokyo Library System, National Diet Library Online, and Keio University KOSMOS System. Consequently, 171 articles were excluded for the following reasons (see online supplemental file 3): intervention unrelated to the use of home-based records (n = 56), intervention involving provider-held records and mobile health (n = 41), and outcomes not pertaining to communication, satisfaction, and mother-child bonding (n = 74). Finally, 47 articles (including 20 Japanese articles) were deemed eligible for inclusion in the narrative synthesis. Figure 1 shows the PRISMA flow diagram of the screening process.

[insert Figure 1]

Data extraction

The three authors (RRC, JLS, and MKK) created a library using the Endnote referencing software consisting of PDF versions of the included articles. We extracted and independently entered the following data in a Microsoft Excel sheet: citations (i.e., name of the first author, publication year, title, and journal name), study design, country and settings, population and sample size, type of home-based records used, comparator, and relevant outcomes (see online supplemental file 4). The same authors discussed the strategies and presentation of the results throughout the data extraction process.

Quality appraisal

The authors (MKK and JLS for Japanese articles; RRC and JLS for English articles) independently assessed the risk of bias in the included studies. For RCTs, we used the revised Cochrane Risk of Bias Tool (RoB 2) to evaluate the overall risk of bias based on five domains: randomization process, deviations from the intended intervention, missing outcome data, outcome measurement, and selective reporting of results.[24]

For non-RCTs, we used the following risk of bias assessment tools: ROBINS-I for non-randomized studies,[25] Critical Appraisal Skills Program checklist for qualitative studies,[26] NIH quality assessment tool for observational cohort and cross-sectional studies,[27] and the mixed methods appraisal tool for mixed-method studies.[28] Disagreements were discussed and resolved through a consensus between the authors.

Additionally, we used the Grading of Recommendations Assessment, Development and Evaluation (GRADE) framework to assess the certainty of the evidence in quantitative studies,[29] and the GRADE-CERQual (confidence in the evidence from reviews of qualitative research) framework for qualitative studies.[30]

Synthesis of findings

All the authors participated in the data analysis. We conducted a narrative synthesis owing to the heterogeneity of study designs among the included studies and the lack of pooled data for a meta-analysis. Therefore, we followed the synthesis without meta-analysis (SWiM) reporting guidelines (see online supplemental file 5) for the narrative synthesis of findings,[31] instead of the PRISMA guidelines (see online supplemental file 6). To evaluate the effects of the intervention (home-based records), we conducted a detailed examination of the numeric and textual summary of the findings and conclusions of the included studies. We coded the outcomes as having a positive, mixed, or no effect. We considered an outcome to

have a 'positive effect' if the home-based record showed a statistically significant effect (e.g., women experienced more partner involvement) and narrative findings indicated positive results (e.g., healthcare providers explained what is being recorded). We coded an outcome to have a 'mixed effect' when it showed some evidence of the usefulness of the record but not necessarily a significant effect. When there was no significant effect and narrative findings reported negative results (e.g., perceived lack of communication with healthcare providers), we considered the outcome as 'no effect.' We grouped the studies for synthesis based on the following research questions:

1. Do home-based records (intervention) improve communication, satisfaction, and mother-child bonding, as opposed to the non-use of home-based records (control)?
2. Does a different type of home-based record (intervention) improve communication, satisfaction, and mother-child bonding, compared to a standard home-based record (control)?

We presented the direction and magnitude of the effect (effect sizes that cannot be meta-analyzed) in the GRADE table (see online supplemental file 7). We also presented the qualitative evidence profile in the GRADE-CERQual table (see online supplemental file 8). We ordered the heterogeneity of the included studies according to the participants, methods, and outcomes reported. We prioritized studies based on their study design, risk of bias assessment, and relevance to the research question.

RESULTS

Study characteristics

Supplementary file 4 presents a summary of study characteristics.

Study designs. Among the included studies, there were four RCTs, four quasi-experimental studies (open, non-randomized trials), six cohort studies, seventeen cross-sectional studies, three mixed-method studies (pre-post intervention and qualitative evidence), nine qualitative studies, and four case studies.

Location. We used the World Bank definition to categorize countries according to income levels.[32] Thirty-three studies were conducted in high-income countries (HIC): Japan (n = 18), the UK (n = 7), Australia (n = 4), the US (n = 2), New Zealand (n = 1), and Norway (n = 1). Fourteen studies were conducted in low- and middle-income countries (LMIC): two studies in South Africa, one each in Ethiopia, Palestine, Iran, Bosnia and

Herzegovina, Thailand, Indonesia, Vietnam, Bangladesh, Mongolia, Brazil, and Dominican Republic, and one multi-country study.

Study participants. We noted differences in the inclusion criteria for the study participants. Across studies, mothers were enrolled at different points in time either during pregnancy, childbirth, or post birth. One multi-country study targeted both literate and illiterate mothers who lived in communities with easy or low access to healthcare services.[33] Other studies targeted women from an ethnic minority group,[34] women who had experienced miscarriages,[35-36] as well as parents of children with special educational needs.[37] Studies were primarily conducted in health facilities, although a few were conducted in community settings. The sample sizes also varied greatly (range: 1–250,000) among included studies.

Types of interventions. We identified differences in the type of home-based records used by mothers or caregivers. Among the 47 studies included in the review, 25 involved the use of the MCH handbook. The remaining studies used other types of home-based records, including plunket books, road-to-health (RTH) booklets, maternity case notes, child personal health records, speaking books, and patient passports. Some studies did not include a comparison group (n = 33) when evaluating the intervention, while others compared users of home-based records with non-users of records or standard care groups. Thus, the studies considered home-based records as a single intervention when reporting their findings. We have presented the findings from the English and Japanese articles separately (Tables 1-2).

Table 1. English articles included in the review

Outcomes	Reference	Study design	Intervention	Effect of intervention	Comments
Communication within the household	Elbourne, 1987 UK [41]	RCT	Maternity case notes	No impact	No significant difference was observed between mothers in the case note group and cooperation card group concerning the involvement of the baby's father. The number of events not reported.
	Phipps, 2001 Australia [40]	Qualitative	Women-held maternity records	Positive	Women had the opportunity to share what they were experiencing during their pregnancy with their husbands/partners, grandparents, and friends.
	Hagiwara, 2013 Palestine [38]	Quasi-experimental	MCH handbook	Positive	Women experienced more partner involvement during pregnancy, delivery, and child care and reduced misconceptions about pregnancy and child care among family members.
	Osaki, 2018 Indonesia [39]	Cluster RCT	MCH handbook	Positive	Mothers in the intervention arm reported that their husbands showed their support in saving money for delivery (OR=1.82, 95% CI: 1.20-2.76), keeping their baby warm (OR=1.58, 95% CI: 1.02-2.46), and giving their infant/child developmental stimulation (OR=1.62, 95% CI: 1.06-2.48).
Communication between mothers/ caregivers and healthcare providers	Elbourne, 1987 UK [41]	RCT	Maternity case notes	Positive	Women holding their full records were significantly more likely to feel it was easier to talk to doctors and midwives (RR [Rate Ratio] = 1.73, 95% CI: 1.16-2.59) and in control of their antenatal care (RR = 1.45, 95% CI: 1.08-1.95) than cooperation card holders.
	Young, 1990 USA [42]	Qualitative	Family-carried growth record	Positive	Parents receiving the records appeared more attentive and receptive to nutrition counseling. They also asked more questions and volunteered more pertinent information about their children. The number of events not reported.
	Shah, 1993 Multi-countries [33]	Quasi-experimental	Home-based maternal record (HBMR)	Positive	Healthcare providers' training and involvement from the start of the HBMR scheme promoted maternal, newborn and child health among pregnant women and mothers.
	Harrison, 1998 South Africa [43]	Descriptive prospective study	Road-to-Health (RTH) card	Mixed	Most mothers (74%) in public clinics received some explanation of the card. The sections discussed were weight (58%), immunization schedules (26%), sensory tests (5%), and developmental milestones (5%). In private clinics, relatively few mothers (31%) received an explanation of the RTH card, and the weight chart interpretation tended to be ignored (92%).
	Moore, 2000 UK [37]	Quasi-experimental	Personal child health record	No impact	Half of the responses included a comment about a perceived lack of communication or the failure of professionals to respond to messages.
	Phipps, 2001 Australia [40]	Qualitative	Women-held maternity records	Positive	Women believed that carrying their records encouraged the healthcare workers to explain better what was being recorded and why certain things were done. They were aware the women would go home and reread the records.
	Grøvdal, 2006 Norway [44]	RCT	Parent-held child health record	No impact	No significant difference in the difficulty parents felt when talking to professionals (nurse, p-value =0.66; doctor, p-value =0.78; other doctors, p-value =0.39, and other health personnel, p-value =0.60) between parent-held child health record and control groups.
	Grippo, 2007 Brazil [45]	Mixed methods	Educational booklet	Positive	The booklet served as a strengthening element in the relationship between family caregivers and the healthcare providers. Frequency of contact is more common with community health agents, followed by nurses.

Table 1. (continued)

Outcomes	Reference	Study design	Intervention	Effect of intervention	Comments
	Walton, 2007 UK [46]	Cross-sectional	Personal child health record (PCHR)	Mixed	Some parents (22%) were not given a satisfactory explanation of using the PCHR when issued to them. Health visitors were more likely to use the PCHR to obtain and record child information than other healthcare providers.
	Clendon, 2010 New Zealand [47]	Qualitative	Child health and development record book	Positive	As a clinical tool, the record book helped nurses to guide interventions and track mothers' progress. It is also a valuable tool for mothers to facilitate building a relationship with their nurses.
	Hamilton, 2012 Australia [48]	Mixed methods	Child personal health record (CPHR)	Mixed	Parent's lack of engagement with the CPHR could be attributed to health care providers' lack of involvement. However, the CPHR empowered parents to communicate their perceptions about their children's health.
	Hagiwara, 2013 Palestine [38]	Quasi-experimental	MCH handbook	Positive	The MCH handbook may be an effective communication tool between healthcare providers and women with low and high education during their first pregnancy (p-value <0.05).
	Engida, 2013 Ethiopia [49]	Qualitative	Speaking books	Positive	The speaking book allowed mothers to ask questions and receive additional information during book sessions with the health development army (e.g., solutions to infants' throat and tooth problems).
	Whitford, 2014 Scotland [50]	Qualitative	Birth plan within woman-held maternity records	Mixed	The birth plan provided an opportunity to stimulate discussions and enhance communication between pregnant women and healthcare providers. However, not all women experienced the benefits, and staff noted some challenges.
	Lee, 2016 USA [51]	Qualitative	Patient passport	Positive	The passport enriched the overall communication between families and healthcare providers. They could take and refer to the passport book for their child's recent hospitalization even after discharge.
	McKinn, 2017 Vietnam [34]	Qualitative	MCH handbook	No impact	Ethnic minority women received didactic, one-way style communication and not context-adjusted information from healthcare providers. Providers relied on written information (MCH handbook) in place of interpersonal communication.
Satisfaction with the information provided by the home-based records	Shah, 1993 Multi-countries [33]	Quasi-experimental	Home-based maternal record (HBMR)	Positive	HBMR provided useful information on maternal, newborn and child health. Mothers kept the cards until the end of the evaluation period. The mean record retention in all centers was about 80%.
	Jeffs, 1994 Australia [55]	Quasi-experimental	Personal health record (PHR)	Positive	The most helpful sections of the PHR were records of immunization (36%), developmental milestones (29%), and progress notes (16%).
	McMaster, 1996 Bosnia and Herzegovina [56]	Cross-sectional	Personal child health record and advice booklet	Positive	Both parents and older children appreciated the health information content of the booklet. Nearly all had read the booklet, reflecting the lack of other reading materials.
	Harrison, 1998 South Africa [43]	Descriptive prospective study	Road-to-Health (RTH) card	Mixed	Most mothers carried the card, but this number dropped for hospital visits and consultations with private doctors. Mothers hardly understood the weight-for-age chart, immunization schedule, and milestone section.
	Hampshire, 2004 UK [57]	Cross-sectional	Personal child health record (PCHR)	Positive	Most of the mothers (85.5%) thought that the PCHR was very good or good. Higher scores for the usage of the PCHR were significantly associated with teenage- (B=1.8, 95% CI: 0.84-2.75) and first-time mothers (B=0.88, 95% CI: 0.35-1.4)

Table 1. (continued)

Outcomes	Reference	Study design	Intervention	Effect of intervention	Comments
	Grøvdal, 2006 Norway [44]	RCT	Parent-held child health record	Positive	Some parents (65%) were satisfied with parent-held records, and 92% favored making them permanently available. Satisfaction and support were especially high among parents of children with chronic diseases.
	Bhuiyan, 2006 Bangladesh [58]	Mixed methods	MCH handbook	Positive	Most of the mothers (7[illegible]%) perceived the MCH handbook as a useful tool.
	Grippo, 2007 Brazil [45]	Mixed methods	Educational booklet	Mixed	The most important topics were 'protect and care,' followed by 'children's rights.' The topic of 'sick child and accident prevention' appears to have minor importance among the emerged themes.
	Walton, 2007 UK [46]	Cross-sectional	Personal child health record (PCHR)	Positive	The level of maternal education that parents can document in their child's PCHR made them (78%) happy.
	Engida, 2013 Ethiopia [49]	Qualitative	Speaking books	Positive	The speaking book is a good tool to deliver complete information. Caretakers trusted the messages and claimed that they were learning something new.
	Du Plessis, 2017 South Africa [59]	Cross-sectional	Road-to-health booklet health promotion messages	Mixed	Of 1,644 caregivers, 62.7% found the messages very important, and 59% regarded them helpful. Some caregivers did not know why the messages were included in the booklet (2.4%) and were unsure of their purpose (2.9%).
	Ogawa, 2021 Japan [60]	Cross-sectional	MCH handbook	Positive	The MCH handbook provided disaster preparedness knowledge, especially among mothers who used the self-reporting sections of the MCH handbook.
Satisfaction with services/provider performance	O'Flaherty, 1987 Australia [67]	Prospective cohort	Personal health record	Mixed	Both parents and community health staff used personal health records frequently during health visits. However, most private doctors did not find them useful.
	Polnay, 1989 UK [68]	Prospective cohort	Nottingham baby book	Positive	The baby book was well used by most parents, with 80% of them had read all the content by the time their babies were three months old. The majority of the parents (70%) used the booklet until their children reached one year.
	Wright, 2005 UK [69]	Prospective cohort	Personal child health record	Mixed	Parents used the record books for information and regularly took them to baby clinics for health services. Health visitors frequently wrote in the record, compared with only 50% of parents and less than 25% of family physicians.
	Lee, 2016 USA [51]	Qualitative	Patient passport	Positive	Families were satisfied with passport rounds. It added value to make families feel more secure and confident with discharge planning and understand the provision of care during hospitalization.
	Gholipour, 2018 Iran [70]	Cluster RCT	Maternity books	Positive	The use of maternity books coupled with group support sessions improved service quality and customer quality of maternity care. Mothers became more involved and engaged in the care process.

Table 2. Japanese articles included in the review

Outcomes	Reference	Study design	Intervention	Effect of intervention	Comments
Communication between mothers/ caregivers and health care providers	Shimizu, 2007 Dominican Republic [52]	Cross-sectional	MCH handbook	Positive	The handbook helped health personnel clarify the division of work and enhanced their sense of responsibility, communication, continuity, and integration of services.
	Umeda, 2015 Mongolia [53]	Cross-sectional	MCH handbook	Mixed	Of 42 health providers, 57% used it as a communication tool with mothers and 28% saw the handbook as a tool to nurture the next future generation's parents.
	Naito, 2019 Japan [54]	Retrospective cohort	MCH handbook	Positive	The MCH handbook was handed directly by public health nurses and midwives at community health centers. Direct contact provided mothers an opportunity to learn and consult with healthcare providers.
Satisfaction with the information provided by the home-based records	Hokama, 2000 Japan [61]	Cross-sectional	MCH handbook	Positive	Over 90% of mothers replied that the information in the handbook was useful. The most highly evaluated pages were those on child health, growth, and vaccination.
	Takeda, 2002 Japan [62]	Cross-sectional	MCH handbook	Positive	About 89% of mothers said that the information on childcare was useful, and 87.1% said that the information helped eliminate their worries about their child's health and growth.
	Yahata, 2005 Japan [63]	Qualitative	MCH handbook	Mixed	To raise the vaccination coverage rate, caregivers proposed having a more explicit message on 'measles vaccination safety in the MCH handbook' and information that 'vaccination can be done even outside your local borough.'
	Aoki, 2009 Japan [64]	Cross-sectional	MCH handbook	No impact	Parents did not frequently use the information in the MCH handbook. They used the handbook passively rather than actively, and only about half regarded the handbook as user-friendly.
	Umeda, 2015 Mongolia [53]	Cross-sectional	MCH handbook	Mixed	One respondent wrote that there should be a space for the doctor to write advice instead of just providing information. Another wrote that the handbook should have a space where advice for the father could be written.
	Fujii, 2020 Japan [65]	Qualitative	MCH handbook	Positive	Mothers who gave birth to twins regarded the MCH handbook as evidence of their readiness to become mothers of twins. It provided them hope of becoming a good mother and reduced their anxiety to having a high-risk pregnancy.
	Ikeda, 2020 Japan [66]	Cross-sectional	MCH handbook	Mixed	The MCH handbook provided important information about the foster child. Though, inconvenience was noted for those without an MCH handbook and lack some birth information (e.g., birth weight, birthplace, blood type, etc.)

Satisfaction with services/provider performance	Sugi, 1985 Japan [71]	Cross-sectional	MCH handbook	Mixed	Both caregivers and healthcare providers used the MCH handbook more frequently during health check-ups than consultations. Child and maternal oral hygiene were of the slightest interest, and nutrition during pregnancy was the most used section.
	Fujimoto, 2001 Japan [72]	Cross-sectional	MCH handbook	Mixed	Many caregivers replied in neutral when asked about the usefulness of the handbook. Oral hygiene was the least filled-out, and only a minimum of people responded that this page was useful.
	Aihara, 2006 Thailand [73]	Cross-sectional	MCH handbook	Mixed	There was a low reading rate (14.3% of mothers had read all of the contents) and self-recording (0.9% of mothers had recorded every part). Utilization of the MCH handbook was related to both mother's MCH promoting belief ($p = 0.001$) and action ($p = 0.039$).
	Yuge, 2010 Japan [74]	Cross-sectional	MCH handbook	Positive	Mothers found the pages which medical workers filled out useful. These were 'delivery record,' 'vaccination record,' and 'neonatal record' pages. There were very few childcare instruction items/pages which were useful.
Mother-child bonding	Matsumoto, 1996 Japan [75]	Quantitative case study	MCH handbook	Positive	About 82.9% of mothers considered giving their MCH handbook to their children, and 76.4% thought that "marriage or pregnancy" was the best time. The MCH handbook is health guidance that can be passed on to future generations and used for a lifetime.
	Seto, 2006 Japan [35]	Qualitative case study	MCH handbook	Positive	After confirming the death, the baby's footprint and handprint were taken as a token, and the baby's name and words of gratitude for the child's birth were written in the MCH handbook.
	Yuge, 2010 Japan [74]	Cross-sectional	MCH handbook	Positive	Mothers who had seen their own handbook when younger had a higher continuity awareness than those who had not.
	Tanabe, 2011 Japan [76]	Multi-facility cohort study	MCH handbook	Positive	Associations were found between a mother's course of pregnancy and delivery and her daughter's. The MCH handbook could offer some predictions concerning her daughter's pregnancy and delivery.
	Higashiyama, 2013 Japan [78]	Qualitative case study	MCH handbook	Positive	Nurses explained how to apply for an MCH handbook before the birth of their adopted child. They introduced the handbook to reduce the anxiety of adoptive parents and build good parent-child relationships.
	Akiba, 2016 Japan [79]	Cross-sectional	MCH handbook	Positive	Children of mothers who wrote at least one record of worrying or anxiety in the MCH handbook were more likely to develop maladaptation in school environment (p-value < 0.05).
	Ogasawara, 2016 Japan [77]	Cross-sectional	MCH handbook	Positive	The loss of records was painful for the mother. The MCH handbook is used by mothers who look forward to their child's growth. Even if the handbook was dirtied from the tsunami, they would have been happy if they did not lose it.
	Minewaki, 2019 Japan [36]	Qualitative case study	MCH handbook	Positive	Birth plan was realized according to the wishes of the mother and have the medical staff fill out the MCH handbook. The nurse who reflects on the experience tries to understand the grieving process of the mother.

335 **Table 2.** (continued)

Risk of bias in included studies

The risk of bias varied among the included studies. Supplementary file 9 shows the risk of bias assessment of RCTs, observational studies, qualitative studies, and mixed-method studies. Based on the RoB 2 algorithm, the four RCTs showed a high overall risk of bias, mainly because of concerns in the randomization process and challenges with the blinding/masking of assessors owing to the nature of the intervention. For non-RCTs, we observed methodological issues and a lack of information and adjustment for potential confounding variables.

Communication within the household

Four studies published in English reported the effects of home-based records on communication within the household (Table 1).[38-41] Of these, three reported positive effects, but one did not. In Palestine and Indonesia, women who shared the MCH handbook with their husbands experienced greater involvement from their partners during pregnancy, delivery, and childcare (GRADE certainty of evidence: very low).[38-39] Husbands expressed support by way of saving money for the delivery (Odds Ratio [OR] = 1.82, 95% Confidence Interval [CI]: 1.20-2.76), keeping their babies warm (OR = 1.58, 95% CI: 1.02–2.46), and providing developmental stimulation (OR = 1.62, 95% CI: 1.06–2.48).[39] Moreover, pregnant women in Australia found handheld maternity records to be beneficial because they could go through the records at home with their husbands and could share information with their grandparents and friends (GRADE-CERQual certainty of evidence: very low).[40] In Palestine, such sharing of information helped reduce misconceptions related to pregnancy and child care among family members.[38]

Communication between mothers/caregivers and healthcare providers

Nineteen studies reported the effects of home-based records on communication between mothers/caregivers and healthcare providers.[33-34, 37-38, 40-54] Of these, eleven reported positive effects, five showed mixed effects, and three showed no effect. One RCT conducted in the UK reported that women having access to their complete records found it easier to talk to doctors and midwives (RR = 1.73, 95% CI: 1.16-2.59, GRADE certainty of evidence: very low) than the other group comprising cooperation card holders.[41] Similarly, few qualitative studies also found home-based records to be an effective tool for communication and relationship building with healthcare providers (GRADE-CERQual certainty of evidence: low).[40, 42, 47, 49, 51] In Ethiopia, pregnant women and mothers had

the opportunity to ask questions related to a child's development during "speaking book" sessions and received solutions to throat and tooth related problems experienced by infants.[49]

However, other studies reported mixed or no effects of home-based records on communication with healthcare providers. In a study in the UK, some parents (22%) indicated that they had not been given a satisfactory explanation on how to use the personal child health record (PCHR) when it was issued.[46] Additionally, health visitors were more likely to make use of PCHRs than other healthcare providers.[46] In South Africa, there were marked differences in the usage of RTH cards between private and public clinics; relatively few mothers in private clinics (31% vs. 74% in public clinics) received an explanation regarding the RTH card, and the interpretation of the weight chart tended to be ignored in private clinics (92% vs. 42% in public clinics).[43] A qualitative study conducted with ethnic minority women in Vietnam suggested healthcare providers' reliance on written information (MCH handbook) over interpersonal communication.[34]; the participants further indicated that the health information they received (verbally and in written) was often non-specific and not adjusted for their personal circumstances.[34]

Satisfaction with the information provided by the home-based records

Nineteen studies reported on mothers' satisfaction with the information provided by home-based records.[33, 43-46, 49, 53, 55-66] Among these, twelve reported positive effects, six reported mixed effects, and one showed no effect. One RCT conducted in Norway reported that 65% parents were satisfied with the use of parent-held records and 92% were in favor of making it available permanently.[44] Satisfaction and support were particularly high among parents of children with chronic diseases.[44] In Japan, observational studies have reported the usefulness of the MCH handbook in providing information regarding the child's health, growth, and vaccination history.[61-62] However, one study highlighted the following recommendations made by parents to make the MCH handbook more 'user-friendly': an appropriate size, easy-to-understand expressions, and better and more relevant information for parents.[64] In a study conducted in Mongolia, an MCH handbook user suggested the handbook should leave space for the doctor to offer some advice, especially for the father (such as showing support and information on tobacco and alcohol use), instead of only providing information.[53]

Satisfaction with the services/provider performance

Nine studies reported on mothers' satisfaction with health services received through home-based records.[51, 67-74] While four studies reported positive effects, five reported mixed effects. In Japan, interest in the MCH handbook was higher at the time of a check-up, as opposed to a consultation, among both healthcare providers and parents.[71] For mothers, the pages filled out by healthcare providers were the most useful, such as delivery records, vaccination records, and neonatal records.[74]; the section that was least useful to mothers was the one related to child and maternal oral hygiene.[72] In Australia, most parents and the community health staff liked personal health records and used them frequently, while most private doctors did not find them useful.[67]

Mother-child bonding

Eight studies published in Japanese reported on the positive impact of the MCH handbook on mother-child bonding (GRADE certainty of evidence: very low).[35-36, 74-79] In Japan, mothers who used the MCH handbook were found to be more likely to pass on the handbook to their children at the time of their marriage or pregnancy.[74-75] The handbook offered guidance on some healthy behaviors (e.g., self-care, disease management) that could be passed on to future generations,[75] and could also predict the course of pregnancy and delivery for the next generation of daughters.[76] For mothers who had experienced neonatal death, the MCH handbook served as an aide-memoire because it had the newborn's footprint and handprint, as well as words of gratitude for the mother had written at the time of the child's birth.[35-36] For mothers who had experienced a natural disaster (e.g., earthquake, tsunami), losing their MCH handbook, and hence, all pregnancy and child health records, was painful.[77] Nurses also introduced the MCH handbook to reduce adoptive parents' anxiety and foster good parent-child relationships.[78] Furthermore, children of mothers who wrote at least one record of being worried or anxious in the MCH handbook, were more likely to develop maladaptive behavior at school compared to children of mothers who wrote nothing or did not receive the handbook ($p < .05$).[79]

DISCUSSION

This systematic review provided evidence of the effects of the MCH handbook and other home-based records on mothers' non-health outcomes. We found positive effects of these records on communication within the household and on mother-child bonding, but mixed effects on mothers'/caregivers' communication with healthcare providers. Mothers

were generally satisfied with the content of the record, but they suggested making it more user-friendly. Their satisfaction with healthcare services, following the use of these records, was associated with providers' commitment to use or refer to records during check-ups and consultations. However, we noted inconsistency in the use of home-based records across health facilities and professionals.

Of the different types of home-based records, only the MCH handbook may have fostered mother-child bonding. This finding is new and is only found in Japanese articles. Various ways could explain how the use of the MCH handbook facilitated mother-child bonding. First, the handbook was considered a special gift, filled with parental love and mothers' messages for their children, given to children during their marriage or pregnancy.[74-75] Mothers in Japan wrote down their worries, joy, and expectations from pregnancy and child rearing in the handbook, along with some healthy behaviors that could be passed on to the next generation.[75, 80] Losing these handbooks to a natural disaster was a painful experience for Japanese mothers, as it meant losing all their pregnancy and child health records.[77] Second, the handbook could be used to predict the child's school adaptation,[79] and the possible course of pregnancy and delivery for the daughter.[76] That is, school maladaptation was evident among children whose mothers had recorded at least one incident of worry or anxiety in the MCH handbook. This can be attributed to the fact that the emotional bond with the mother is critical for the child's social, emotional, and cognitive development.[81-83] Thus, the mother's worry or anxiety is likely to hinder the development of such a bond, leading to difficulties in adaptation for the child. Third, it served as an aide-memoire for mothers who had experienced neonatal death.[35-36] Mothers' words of gratitude written in the handbook served as evidence of the bonds formed during pregnancy. Finally, the handbook served as a tool to help reduce parental anxiety and build good parent-child relationships, even among adoptive parents.[78] Overall, the findings showed that the MCH handbook is an essential source of information to learn more about the mother-child relationship. The bonding formation may be attributed to the integration of MCH records and how mothers in Japan use the handbook.

Mothers were generally satisfied with home-based records and were in favor of making them available permanently. Satisfaction and support were exceptionally high among parents of children with chronic diseases.[44] However, several issues were noted regarding the design and content of these records. Accordingly, participants in one study suggested making the MCH handbook more user-friendly by choosing an appropriate size, using easy-to-understand expressions, and including more relevant content for parents.[64] In Mongolia,

users suggested the inclusion of blank space for doctors' notes, advice for fathers, and information on tobacco and alcohol use.[53] Such feedback from end-users and communities should be incorporated into the design and content of home-based records to ensure that these records align with the local context and individual needs, and are, therefore, more likely to be adopted and used in the long term.

Healthcare providers' commitment to using home-based records was found to influence mothers' satisfaction with health services. For Japanese mothers, the information (pertaining to delivery, vaccination, neonatal health, etc.) in the handbook filled out by healthcare providers was the most useful.[74]; alternately, information related to child and maternal oral hygiene in the handbook was least useful.[72] Thus, mothers were more satisfied with health services when they received health information directly from their healthcare providers. Furthermore, in South Africa, mothers were unsure of what to do with the weight-for-age chart, immunization schedule, and milestone section.[43] Unused sections may be perceived as being unnecessary and may undermine the value of the entire record. Hence, it is crucial that both mothers and healthcare providers be encouraged to fully utilize these records.

However, we observed inconsistencies in the use of records across health facilities and professionals, which might discourage mothers from using home-based records. Private clinics and hospitals were less likely to use the records than public and primary care settings.[43, 46, 67] Moreover, doctors (e.g., general practitioners, pediatricians) were less likely to use and refer to home-based records than nurses and health visitors during check-ups and consultations.[57, 67, 69]; this finding is consistent that from a previous systematic review.[11] Generally, community nurses are the most likely professionals to use/refer to the home-based records in the health facilities.[11] Such reluctance from doctors to fill out a home-based record may arise if they are not properly oriented to see the benefits of using these records for themselves and their patients.

Home-based records were regarded as being effective tools for communication and relationship building between mothers/caregivers and healthcare providers.[40, 42, 47, 49, 51] However, the healthcare provider's attitude toward home-based records acted as a barrier to communication. While some providers did not provide a satisfactory explanation for using the records when they were issued to mothers,[46] others relied primarily on the written information in the MCH handbook and neglected interpersonal communication.[34] Furthermore, ethnic minority women in Vietnam reported receiving health information from providers that was non-specific and not relevant to their context.[34] For instance, they were

not given specific dietary advice and told to eat from all food groups and take iron supplements when they 'lack blood,' which is unclear how they would assess this themselves.[34] This finding is new and requires special attention. That is, it is imperative that the handbook offers personalized guidance, especially for women with lower education and from minority populations. This can help build trust and strong partnerships between mothers and healthcare providers and reduce barriers for women in accessing healthcare [38, 84-85].

Lastly, home-based records provided a mechanism to improve communication within the household and clarify pregnancy- and child care-related misconceptions among family members. For instance, in Palestine and Indonesia, women who shared the MCH handbook with their husbands experienced greater involvement from them during pregnancy, delivery, and childcare.[38-39] In Australia, home-based records provided opportunities for pregnant women to share their journeys with their husbands, grandparents, and friends.[40] These findings are consistent with a review conducted by Magwood et al.[13] Given that previous studies have identified the influence of mothers-in-law and gender roles as barriers to husbands' involvement in childcare,[86-88], use of home-based records may help overcome these barriers to increase husbands' involvement.

This systematic review, however, has several limitations. First, we obtained our results primarily from observational and qualitative studies, as only four RCTs were available for this review. The Cochrane Handbook recommends including observational studies if RCTs cannot completely answer the research question.[89] While the findings from observational and qualitative studies provide evidence necessary to answer our research question, these findings should be interpreted with caution owing to potential biases and low certainty of evidence according to the GRADE and GRADE-CerQUAL criteria. Second, we could not perform a subgroup analysis to compare HIC and LMIC or a network meta-analysis to compare different types of home-based records due to an insufficient number of studies. Thus, we only summarized the data based on the country where the study was conducted and the types of home-based records used. Third, we observed marked heterogeneity across studies regarding the study designs, intervention types, and comparator groups, all of which may have modified the study outcomes. Hence, we conducted a narrative synthesis, and evaluated the risk of bias and certainty of evidence for all included studies.

Despite these limitations, this systematic review had its own strengths in that it examined a relatively large number of studies that were published in English or Japanese and

encompassed several study designs, to highlight the effects of home-based records on mothers' non-health outcomes.

CONCLUSION

The effectiveness of home-based records can be measured using mothers' non-health outcomes. The MCH handbook fostered mother-child bonding. This outcome could be added to the WHO's recommendations on home-based records for MNCH. Healthcare providers may choose to refer to the mothers' notes in the MCH handbook to address issues in the bonding process. Mothers were generally satisfied with the use of home-based records, but their engagement depended on how these records were communicated and utilized by healthcare providers. Thus, various types of training must be conducted at the local level across health facilities and for all healthcare professionals to orient them to the use and benefits of home-based records and, therefore, help them provide patient-centered care. Moreover, we should monitor and evaluate the use of the MCH handbook and other home-based records to ensure their effective implementation. Policymakers need to consider the non-health-related value of home-based records and ensure that mothers and their children are not leaving behind in the era of SDGs.

Supporting information

Supplementary file 1: PROSPERO registration; Supplementary file 2: Search strategy for English and Japanese articles; Supplementary file 3: Table of excluded studies with reasons; Supplementary file 4: PICO table; Supplementary file 5: SWiM checklist; Supplementary file 6: PRISMA 2020 checklist; Supplementary file 7: GRADE table; Supplementary file 8: GRADE-CERQual table; Supplementary file 9: Risk of bias assessment.

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88. Gibore NS, Bali TAL. Community perspectives: an exploration of potential barriers to men's involvement in maternity care in a central Tanzanian community. *PLoS One* 2020;15(5):e0232939.
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Figure Legend

Figure 1. PRISMA flow diagram of the screening process

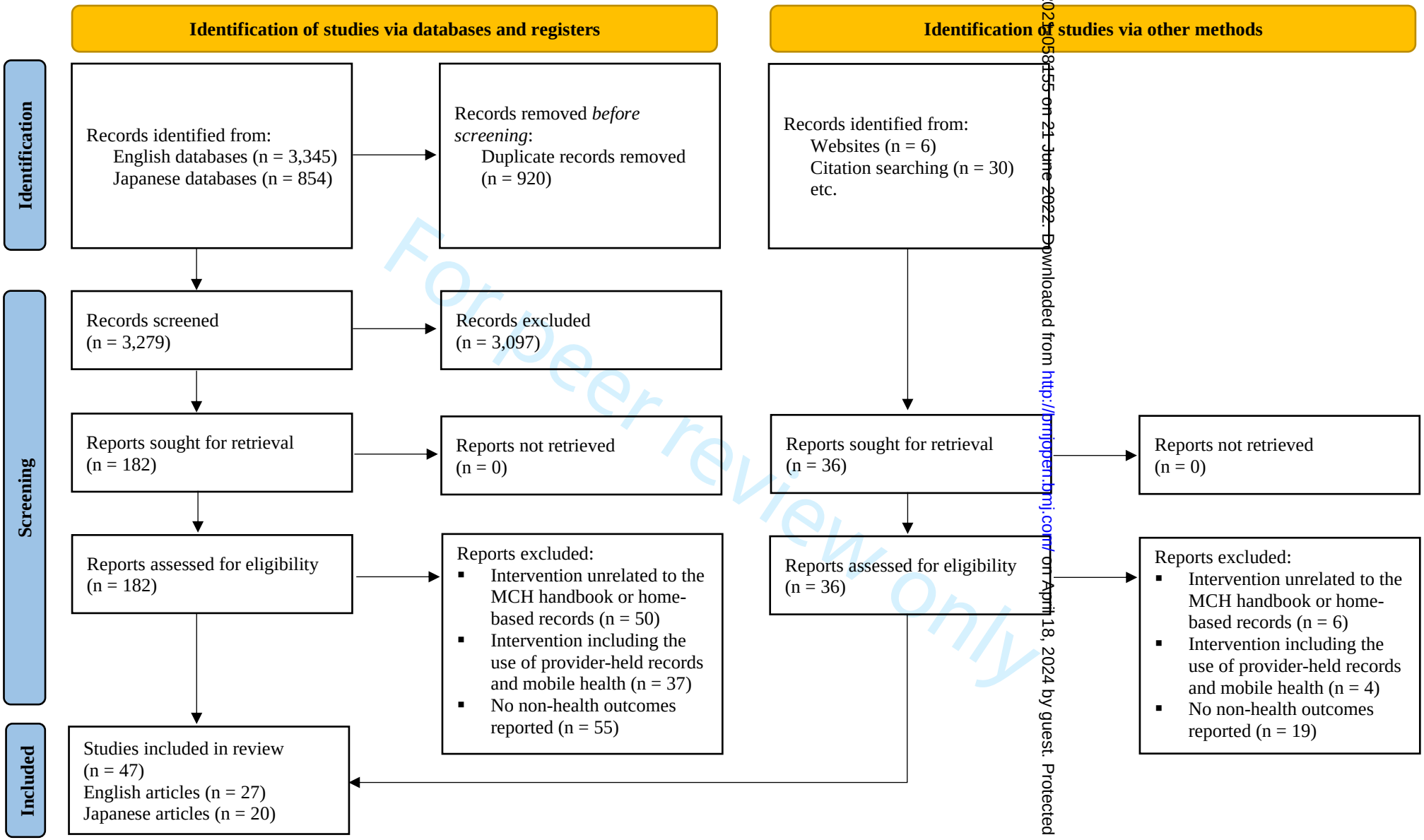

Figure 1. PRISMA flow diagram of the screening process

Supplementary file 1. Protocol

NIHR | National Institute for Health Research

PROSPERO
International prospective register of systematic reviews

Roles of Maternal and Child Health Handbook and other Home-based Records on Newborn and Child Health: A Systematic Review

Rogie Royce Carandang, Jennifer Lisa Sakamoto, Akira Shibanuma, Ekaterina Yarotskaya, Milana Basargina, Mika Kunieda, Masamine Jimba

Citation

Rogie Royce Carandang, Jennifer Lisa Sakamoto, Akira Shibanuma, Ekaterina Yarotskaya, Milana Basargina, Mika Kunieda, Masamine Jimba. Roles of Maternal and Child Health Handbook and other Home-based Records on Newborn and Child Health: A Systematic Review. PROSPERO 2020 CRD42020166545 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42020166545

Review question

What are the roles of Maternal and Child Health (MCH) Handbook and other home-based records on the promotion of newborn/child health and the prevention and management of newborn/childhood illnesses?

Searches

We will search the following databases: PubMed/MEDLINE, Web of Science, CINAHL, PsycINFO, PsycARTICLES, Academic Search Complete, SocINDEX, Cochrane Central Register of Controlled Trials, DARE, NHS EED, HTA, and Grey Literature (WHO, CDC, ECDC, JICA, UNAIDS, among others). We will also search for Japanese databases: J-STAGE, Ichushi, UTokyo Resource Explorer (TREE). We will hand-search the reference list of articles selected for analysis. We will include all published papers in the English and Japanese language up till January 2020.

Our search strategy will combine both Medical Subject Headings (MeSH) terms and free text terms (in English and Japanese).

Search strategy

https://www.crd.york.ac.uk/PROSPEROFILES/166545_STRATEGY_20200123.pdf

Types of study to be included

We will include original research articles in English and Japanese of all study designs such as randomized controlled trial (RCT), quasi-experimental, cohort, observational, cross-sectional, and other comparative studies as well as multiple case studies and evaluation reports. We will not include single case studies, letters, editorials, reviews, conference abstracts, and books.

Condition or domain being studied

A home-based record is a paper or electronic health record retained and used by women or caregivers in the household to document maternal, newborn, and child health (WHO, 2018). To date, over 163 countries have been using home-based records.

In 1948, the Ministry of Health of Japan introduced the MCH handbook to improve the health of vulnerable mothers and children (Hagiwara, 2013). As of 2016, at least 25 countries used the fully integrated MCH handbook (Osaki 2016).

One study systematically reviews the effectiveness of home-based records on maternal and child health (Magwood, 2019), which was used as a basis for WHO's recommendations on home-based records (WHO, 2018). However, Magwood et al. did not mention about health promotion and management of newborn/childhood illnesses. In addition, they covered only original articles with controlled study designs and written in the English language. In this review, we aim to include original articles in both English and

Japanese language of all study designs. Since Japan is the proponent of the MCH handbook, it would be worthy of including Japanese articles in the analysis. By doing so, we could capture more evidence on the effectiveness of home-based records on newborn/child health.

Participants/population

Participants will include parents, fathers, mothers, and caregivers of children 0-12 years.

Intervention(s), exposure(s)

The intervention of interest is the MCH handbook and other home-based records, available in either hard copy or online, and kept or managed by parents/caregivers.

Comparator(s)/control

The comparator will be no record, conventional information or usual care given to parents/caregivers following childbirth.

Main outcome(s)

Newborn/child health promotion and reporting

Newborn/child health care seeking and care practices

Newborn/childhood illness prevention and management

Newborn/child morbidity and mortality

* Measures of effect

Not applicable

Additional outcome(s)

Parent/caregiver's health knowledge

Communication within the household and between women/caregivers and health care providers

Satisfaction with services

Continuity of care

* Measures of effect

Not applicable

Data extraction (selection and coding)

Two review authors will be involved in the process of literature search, article screening, and data extraction. The databases will be independently searched using the aforementioned search strategy and identify the studies by title and abstract screening. The team will review the list of articles for eligibility. We will discuss disagreements on the eligibility of study until a consensus is reached. If required, we will consult our supervisor for the final decision.

The data to be extracted include:

title, citation (author, publication year, source), objectives, study design, study setting, study population, sample size, types of home-based records, comparison group, and reported outcomes.

Risk of bias (quality) assessment

We will assess the quality of randomized trials using the risk of bias tools from the Cochrane Handbook. The quality of nonrandomized controlled trials will also be assessed using the same tool. By default, it will receive a judgment of "high risk of bias" for random allocation and allocation concealment. To assess the certainty of the evidence for the included studies, we will apply the GRADE approach. For qualitative studies, we will use the Critical Appraisal Skill Programme (CASP) tool.

Strategy for data synthesis

We will follow the PRISMA checklist for appropriate data synthesis. We will construct a PRISMA flowchart to show the search strategy results at each stage of review. We will conduct a descriptive analysis of individual studies according to the type of intervention, sample size, duration, outcome, quality, and risk of bias. We will analyze the effectiveness of the intervention, based on the nature of reported outcomes. If we find enough studies with quality data, we will conduct a meta-analysis to examine the effectiveness of the MCH handbook and other home-based records on newborn/child health.

Analysis of subgroups or subsets

None

Contact details for further information

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http://www.ich.m.u-tokyo.ac.jp/en/index.html

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Type and method of review

Meta-analysis, Systematic review

Anticipated or actual start date

01 February 2020

Anticipated completion date

31 August 2020

Funding sources/sponsors

Department of Community and Global Health, Graduate School of Medicine, The University of Tokyo, Japan

Conflicts of interest

Language

English, Japanese

Country

Japan, Russian Federation

Stage of review

Review Ongoing

Subject index terms status

Subject indexing assigned by CRD

Subject index terms
MeSH headings have not been applied to this record

Date of registration in PROSPERO
28 April 2020

Date of first submission
23 January 2020

Stage of review at time of this submission

Stage	Started	Completed
Preliminary searches	Yes	No
Piloting of the study selection process	Yes	No
Formal screening of search results against eligibility criteria	No	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

The record owner confirms that the information they have supplied for this submission is accurate and complete and they understand that deliberate provision of inaccurate information or omission of data may be construed as scientific misconduct.

The record owner confirms that they will update the status of the review when it is completed and will add publication details in due course.

Versions
28 April 2020

Supplementary file 2. Search strategy

Search strategy for English databases:

Mothers [MeSH] OR mothers [tw]
OR pregnant women [MeSH] OR pregnant women [tw]

maternal and child health handbook [MeSH] OR maternal and child health handbook [tw]
OR MCH Handbook [MeSH] OR MCH handbook [tw]
OR home-based record [MeSH] OR home-based record [tw]
OR paper-based record [MeSH] OR paper-based record [tw]
OR personal health record [MeSH] OR personal health record [tw]
OR child health record [MeSH] OR child health record [tw]
OR child health book [MeSH] OR child health book [tw]
OR maternal health record [MeSH] OR maternal health record [tw]
OR maternal health book [MeSH] OR maternal health book [tw]
OR maternal and child health book [MeSH] OR maternal and child health book [tw]
OR vaccination record [MeSH] OR vaccination record [tw]
OR vaccination book [MeSH] OR vaccination book [tw]
OR immunization record [MeSH] OR immunization record [tw]
OR immunization book [MeSH] OR immunization book [tw]

Non-health outcomes [tw] OR nonhealth outcomes [tw]
OR satisfaction [MeSH] OR satisfaction [tw]
OR communication [MeSH] OR communication [tw]
OR social interaction [MeSH] OR social interaction [tw]
OR bonding [MeSH] OR bonding [tw]
OR empowerment [MeSH] OR empowerment [tw]
OR self-efficacy [MeSH] OR self-efficacy [tw]

Search strategy for Japanese databases:

Ichushi

(母子健康手帳)・原著 文
(母子手帳)・原著 文

J-STAGE
(母子健康手帳)・ジャーナル・査 あり
(母子手帳)・ジャーナル・査 あり

Date of article retrieval: March 26, 2022
No date restrictions applied

Database	Initial search	After removing duplicates
PubMed/MEDLINE	106	71
Web of Science	1,245	1,160
CINAHL	136	60
Academic Search Complete	1,020	528
PsycArticles	64	29
PsycINFO	40	28
SocINDEX	196	35
CENTRAL	538	538
ICHUUSHI	845	822
J-STAGE	9	8
TOTAL	**4,199**	**3,279**

PUBMED/MEDLINE: 106 articles

((Mothers [MeSH] OR mothers [tw] OR pregnant women [MeSH] OR pregnant women [tw]) AND (maternal and child health handbook [MeSH] OR maternal and child health handbook [tw] OR MCH Handbook [MeSH] OR MCH handbook [tw] OR home-based record [MeSH] OR home-based record [tw] OR paper-based record [MeSH] OR paper-based record [tw] OR personal health record [MeSH] OR personal health record [tw] OR child health record [MeSH] OR child health record [tw] OR child health book [MeSH] OR child health book [tw] OR maternal health record [MeSH] OR maternal health record [tw] OR maternal health book [MeSH] OR maternal health book [tw] OR maternal and child health book [MeSH] OR maternal and child health book [tw] OR vaccination record [MeSH] OR vaccination record [tw] OR vaccination book [MeSH] OR vaccination book [tw] OR immunization record [MeSH] OR immunization record [tw] OR immunization book [MeSH] OR immunization book [tw])) AND (Non-health outcomes [tw] OR nonhealth outcomes [tw] OR satisfaction [MeSH] OR satisfaction [tw] OR communication [MeSH] OR communication [tw] OR social interaction [MeSH] OR social interaction [tw] OR bonding [MeSH] OR bonding [tw] OR empowerment [MeSH] OR empowerment [tw] OR self-efficacy [MeSH] OR self-efficacy [tw]) Filters: English

Web of Science: 1,245 articles

Mothers OR pregnant women (Topic) and maternal and child health handbook OR MCH Handbook OR home-based record OR paper-based record OR personal health record OR child health record OR child health book OR maternal health record OR maternal health book OR maternal and child health book OR vaccination record OR vaccination book OR immunization record OR immunization book (Topic) and Non-health outcomes OR satisfaction OR communication OR social interaction OR bonding OR empowerment OR self-efficacy (Topic) and Articles (Document Types) and English (Languages)

CINAHL: 136 articles

"TX (Mothers OR pregnant women) AND TX (maternal and child health handbook OR MCH Handbook OR home-based record OR paper-based record OR personal health record OR child health record OR child health book OR maternal health record OR maternal health book OR maternal and child health book OR vaccination record OR vaccination book OR immunization record OR immunization book) AND TX (Non-health outcomes OR satisfaction OR communication OR social interaction OR bonding OR empowerment OR self-efficacy) Full Text; Abstract Available; English Language; Peer Reviewed; Research Article; Journal Subset: Peer Reviewed; Publication Type: Journal Article; Language: English AND Apply equivalent subjects on 2022-03-26 10:09 PM"

Academic Search Complete: 1,020 articles

"TX (Mothers OR pregnant women) AND TX (maternal and child health handbook OR MCH Handbook OR home-based record OR paper-based record OR personal health record OR child health record OR child health book OR maternal health record OR maternal health book OR maternal and child health book OR vaccination record OR vaccination book OR immunization record OR immunization book) AND TX (Non-health outcomes OR satisfaction OR communication OR social interaction OR bonding OR empowerment OR self-efficacy) Full Text; Peer Reviewed; Document Type: Article; Language: English AND Apply equivalent subjects on 2022-03-26 09:43 PM"

PsycArticles: 64 articles

"TX (Mothers OR pregnant women) AND TX (maternal and child health handbook OR MCH Handbook OR home-based record OR paper-based record OR personal health record OR child health record OR child health book OR maternal health record OR maternal health book OR maternal and child health book OR vaccination record OR vaccination book OR immunization record OR immunization book) AND TX (Non-health outcomes OR satisfaction OR communication OR social interaction OR bonding OR empowerment OR self-efficacy) Full Text; Scholarly (Peer Reviewed) Journals; Document Type: Journal Article AND Apply equivalent subjects on 2022-03-26 09:48 PM"

PsycINFO: 40 articles

"TX (Mothers OR pregnant women) AND TX (maternal and child health handbook OR MCH Handbook OR home-based record OR paper-based record OR personal health record OR child health record OR child health book OR maternal health record OR maternal health book OR maternal and child health book OR vaccination record OR vaccination book OR immunization record OR immunization book) AND TX (Non-health outcomes OR satisfaction OR communication OR social interaction OR bonding OR empowerment OR self-efficacy) Linked Full Text; Peer Reviewed; Publication Type: Peer Reviewed Journal; English; Language: English AND Apply equivalent subjects on 2022-03-26 09:52 PM"

SocINDEX: 196 articles

"TX (Mothers OR pregnant women) AND TX (maternal and child health handbook OR MCH Handbook OR home-based record OR paper-based record OR personal health record OR child health record OR child health book OR maternal health record OR maternal health book OR maternal and child health book OR vaccination record OR vaccination book OR immunization record OR immunization book) AND TX (Non-health outcomes OR satisfaction OR communication OR social interaction OR bonding OR empowerment OR self-efficacy) Full Text; Peer Reviewed; Document Type: Article; Language: English AND Apply equivalent subjects on 2022-03-26 09:57 PM"

CENTRAL: 538 articles

Mothers OR pregnant women in All Text AND maternal and child health handbook OR MCH Handbook OR home-based record OR paper-based record OR personal health record OR child health record OR child health book OR maternal health record OR maternal health book OR maternal and child health book OR vaccination record OR vaccination book OR immunization record OR immunization book in All Text AND Non-health outcomes OR satisfaction OR communication OR social interaction OR bonding OR empowerment OR self-efficacy in All Text - (Word variations have been searched)

Search strategy for Japanese databases

Ichushi: 845 articles

(母子健康手帳)・原著論文

(母子手帳)・原著論文

J-STAGE: 9 articles

(母子健康手帳)・ジャーナル・査読あり

(母子手帳)・ジャーナル・査読あり

Supplementary file 3. Table of excluded studies with reasons

No.	Study ID	Reasons for exclusion
1	Abbott 2013	Outcomes not related
2	Abughali 2014	Electronic medical records
3	Adachi 2010	Outcomes not related
4	Adams 2013	Electronic medical records
5	Aiga 2016	Outcomes not related
6	Aiga 2018	Outcomes not related
7	Akashi 2018	Not related to home-based records nor the MCH handbook
8	Akhund 2011	Outcomes not related
9	Albers 1997	Electronic medical records
10	Angier 2014	Electronic medical records
11	Araujo 2017	Outcomes not related
12	Asami 2020	Outcomes not related
13	Asami 2020	Not related to home-based records nor the MCH handbook
14	Balakrishnan 2016	Mobile health intervention
15	Baqui 2019	Not related to home-based records nor the MCH handbook
16	Bartsch 2018	Electronic medical records
17	Belemsaga 2018	Not related to home-based records nor the MCH handbook
18	Bellows 2013	Not related to home-based records nor the MCH handbook
19	Bilenko 2017	Not related to home-based records nor the MCH handbook
20	Boothroyd 2011	Not related to home-based records nor the MCH handbook
21	Bose 2015	Electronic medical records
22	Braeye 2019	Electronic medical records
23	Bremberg 2000	Not related to home-based records nor the MCH handbook
24	Brodgribb 2016	Not related to home-based records nor the MCH handbook
25	Brown 2018	Outcomes not related
26	Bryanton 2013	Not related to home-based records nor the MCH handbook
27	Bundy 2013	Electronic medical records
28	Carsley 2018	Electronic medical records
29	Chung 2018	Electronic medical records
30	Chutiyami 2020	Outcomes not related
31	Clancy 2013	Electronic medical records
32	Coleman 2017	Mobile health intervention
33	Dagvadorj 2017	Outcomes not related
34	Dale 2019	Outcomes not related
35	de Hoon 2017	Electronic medical records
36	DeVoe 2018	Electronic medical records
37	Enokido 1964	Outcomes not related
38	Ferreccio 2008	Not related to home-based records nor the MCH handbook
39	Fiks 2006	Electronic medical records
40	Fiks 2012	Electronic medical records
41	Fiks 2015	Electronic medical records
42	Franchetti 2014	Not related to home-based records nor the MCH handbook
43	Froen 2016	Electronic medical records
44	Fujii 2019	Outcomes not related
45	Fujii 2020	Outcomes not related
46	Fukuda 2019	Not related to home-based records nor the MCH handbook

47	Fukushima 2016	Not related to home-based records nor the MCH handbook
48	Goto 2020	Outcomes not related
49	Goto 2021	Mobile health intervention
50	Gu 2020	Outcomes not related
51	Gustafsson 2020	Outcomes not related
52	Guyer 2000	Not related to home-based records nor the MCH handbook
53	Haeri Mazanderani 2018	Outcomes not related
54	Hagelin 1998	Not related to home-based records nor the MCH handbook
55	Haider 2017	Not related to home-based records nor the MCH handbook
56	Hasegawa 2015	Not related to home-based records nor the MCH handbook
57	Hawley 2014	Electronic medical records
58	Helle 2019	Electronic medical records
59	Hidechika 2018	Not related to home-based records nor the MCH handbook
60	Hirayama 2011	Outcomes not related
61	Hirota 2021	Outcomes not related
62	Hiura 2002	Not related to home-based records nor the MCH handbook
63	Ichikawa 2016	Outcomes not related
64	Inoue 2015	Outcomes not related
65	Irwanto 2019	Outcomes not related
66	Ishizaki 2020	Outcomes not related
67	Kamiya 2016	Outcomes not related
68	Kaneko 2017	Outcomes not related
69	Kanno 1988	Outcomes not related
70	Kawakatsu 2015	Outcomes not related
71	Kelaher 2009	Not related to home-based records nor the MCH handbook
72	Kelle 2015	Electronic medical records
73	Khresheh 2008	Electronic medical records
74	Kimura 2010	Outcomes not related
75	Kitayama 2014	Electronic medical records
76	Kreuter 2004	Outcomes not related
77	Kubota 2000	Not related to home-based records nor the MCH handbook
78	Kurata 2020	Not related to home-based records nor the MCH handbook
79	Kusumayati 2007	Outcomes not related
80	Lain 2009	Not related to home-based records nor the MCH handbook
81	Lakhani 1984	Outcomes not related
82	Lansdown 1996	Not related to home-based records nor the MCH handbook
83	Leppert 1993	Not related to home-based records nor the MCH handbook
84	Liabsuetrakul 2017	Electronic medical records
85	Liberato 2016	Electronic medical records
86	Little 2013	Mobile health intervention
87	Lovell 1987	Outcomes not related
88	Luman 2009	Outcomes not related
89	Lund 2016	Mobile health intervention
90	Lupton 2017	Mobile health intervention
91	Lwembe 2016	Not related to home-based records nor the MCH handbook
92	Mahadevan 2020	Outcomes not related
93	Mahanta 2016	Not related to home-based records nor the MCH handbook
94	Markellis 1973	Not related to home-based records nor the MCH handbook
95	Matsushita 2011	Outcomes not related

96	Mawarni 2017	Electronic medical records
97	McElligott 2010	Outcomes not related
98	Mengoni 2014	Not related to home-based records nor the MCH handbook
99	Miyake 2018	Outcomes not related
100	Miyata 2020	Outcomes not related
101	Mori 2015	Outcomes not related
102	Mudany 2015	Outcomes not related
103	Mukanga 2006	Outcomes not related
104	Nakazawa 2007	Outcomes not related
105	Naito 2020	Outcomes not related
106	Nasir 2017	Outcomes not related
107	Nasir 2020	Mobile health intervention
108	Nishi 1990	Not related to home-based records nor the MCH handbook
109	Nokubo 2006	Outcomes not related
110	Odai 2014	Not related to home-based records nor the MCH handbook
111	Ochoa 2021	Outcomes not related
112	Oguchi 2014	Outcomes not related
113	Okawa 2019	Not related to home-based records nor the MCH handbook
114	Okereke 2015	Not related to home-based records nor the MCH handbook
115	Ooki 2005	Not related to home-based records nor the MCH handbook
116	Ooki 2020	Outcomes not related
117	Osaka 1995	Not related to home-based records nor the MCH handbook
118	Osaki 2013	Outcomes not related
119	Osaki 2019	Outcomes not related
120	Panagiotou 1998	Electronic medical records
121	Pies 2012	Not related to home-based records nor the MCH handbook
122	Popovich 2008	Not related to home-based records nor the MCH handbook
123	Pratinidhi 2015	Not related to home-based records nor the MCH handbook
124	Rahman 2016	Not related to home-based records nor the MCH handbook
125	Ramraj 2018	Outcomes not related
126	Reddaiah 1985	Outcomes not related
127	Reich 2010	Not related to home-based records nor the MCH handbook
128	Riverin 2015	Electronic medical records
129	Rourke 2009	Electronic medical records
130	Rourke 2010	Electronic medical records
131	Rourke 2013	Electronic medical records
132	Sachs 2011	Outcomes not related
133	Sadiq Sheikh 2014	Outcomes not related
134	Saeedzai 2019	Outcomes not related
135	Shibahara 2010	Outcomes not related
136	Shimada 2017	Not related to home-based records nor the MCH handbook
137	Sobu 2020	Outcomes not related
138	Spencer 2000	Not related to home-based records nor the MCH handbook
139	Stanton 2013	Not related to home-based records nor the MCH handbook
140	Stille 2001	Outcomes not related
141	Takahashi 2007	Outcomes not related
142	Takehara 2016	Not related to home-based records nor the MCH handbook
143	Takeuchi 2014	Not related to home-based records nor the MCH handbook
144	Talbott 2015	Not related to home-based records nor the MCH handbook

145	Tamburlini 2011	Not related to home-based records nor the MCH handbook
146	Tamburlini 2013	Not related to home-based records nor the MCH handbook
147	Tanabe 2011	Outcomes not related
148	Thomas 2011	Not related to home-based records nor the MCH handbook
149	Tobe 2018	Mobile health intervention
150	Tom 2014	Outcomes not related
151	Tomatsuri 2020	Outcomes not related
152	Tsuchida 2022	Outcomes not related
153	Tsuda 2021	Outcomes not related
154	Tunçalp 2013	Not related to home-based records nor the MCH handbook
155	Uneke 2017	Not related to home-based records nor the MCH handbook
156	Uneke 2018	Not related to home-based records nor the MCH handbook
157	Usman 2009	Outcomes not related
158	Usman 2011	Outcomes not related
159	Vanosdoll 2019	Mobile health intervention
160	Vincelet 2003	Outcomes not related
161	Vinceten 2012	Not related to home-based records nor the MCH handbook
162	Waeckerle 2010	Outcomes not related
163	Watanabe 2020	Outcomes not related
164	Wilkinson 2010	Not related to home-based records nor the MCH handbook
165	Wilcox 2019	Mobile health intervention
166	Wilson 2014	Mobile health intervention
167	Yamaguchi 2021	Outcomes not related
168	Yamashita 2020	Outcomes not related
169	Yanagisawa 2015	Outcomes not related
170	Yasui 2020	Outcomes not related
171	Yoshiyama 2020	Not related to home-based records nor the MCH handbook

Supplementary file 4. Characteristics of included studies

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Aihara, 2006 Thailand	Cross-sectional study	One district in Kanchanburi province, Thailand	Mothers	224	MCH handbook	No comparison group	There was a low rate of reading (14.3% mother had read all of the contents) and self-recording (0.9% mother had recorded every part). Multiple regression coefficients showed utilization of the MCH handbook was related to both mother's MCH promoting belief (*p*-value=0.001) and action (*p*-value=0.039). This was the strongest predictor variable of mother's MCH promoting belief. Other factors which significantly related to MCH promoting belief were family income, age, and education, and relation to action were marital status, occupation and age.
Akiba, 2016 Japan	Cross-sectional	College of Education, Ibaraki University, Ibaraki, Japan	Female university students between 18-22 years of age whose parents also provided consent to participate in the study	41	MCH handbook	Those who did not receive or record in MCH Handbook	Personal records written in the MCH Handbook could be a predictor of school maladaptation. Children of mothers who wrote at least one record of worrying/anxious behavior in the MCH Handbook were more likely to develop maladaptation in school environment (*p*-value<0.05).
Aoki, 2009 Japan	Cross-sectional	Three nursery schools in Tokyo and one nursery school in Saitama Prefecture	Parents of nursery school students (0-5 years old)	298	MCH handbook	No comparison group	Checking of developmental milestones at various time points was frequent, but recording of growth curves or observations of children was done less often. Information in the MCH handbook was not used frequently. In general, guardians used the handbook passively rather than actively, and only about half regarded the handbook as user-friendly. To improve the quality of the MCH handbook, guardians requested more information on child health, such as first aid, the timing of immunization, or weaning foods. On the basis of categorical data analysis of the results, a "user-friendly MCH handbook" was considered to incorporate the following points: an appropriate size, easy-to-understand expressions, and a higher content of information relevant to guardians.
Bhuiyan, 2006 Bangladesh	Mixed methods	Maternal and Child Health Training Institute in Dhaka, Bangladesh	Pregnant women	600	MCH handbook	Standard cards	Findings from the focus group discussions emphasized the need for including MCH handbook in maternal and child program in Bangladesh. In addition, quantitative data suggests that mothers in study group had higher knowledge on MCH issues, better practices in MCH care, and higher utilization of MCH services than mothers in control groups who used other health cards.
Clendon, 2010 New Zealand	Qualitative	New Zealand Plunket society	Mothers who used the plunket book	35	Plunket book	No comparison group	The book plays an important role in the relationship between mother and nurse. It is used as a point of commonality that supports the efforts of both as they work toward establishing an effective relationship, as a tool of practice, and as a means of building strength within families.
Du Plessis, 2017 South Africa	Cross-sectional	143 PHC facilities across all six health districts in Western Cape Province	Children between the ages of 0 and 36 months	5,193	Road-to-Health-Booklet	No comparison group	All healthcare workers indicated that health promotion messages were important. However, messages were only conveyed in 51% of observed consultations. When it was communicated, health promotion messages were age-appropriate in 97% of cases. Barriers to the implementation of health promotion messages hinged on time and staf constraints, workload and language barriers. Various forms of health promotion material were available in facilities.

Supplementary file 4 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Elbourne, 1987 UK	RCT	Peripheral consultant clinic in Newbury, West Berkshire	Expectant mothers	290	Maternity case notes (full records)	Standard cooperation card (abbreviated version of the full obstetric record)	Women holding their full records were significantly more likely to feel in control of their antenatal care (RR [Rate Ratio] =1.45, 95% CI: 1.08-1.95) and to feel it was easier to talk to doctors and midwives. No other beneficial effects were detected. Women holding their own records were more likely to say that they would prefer the same kind of record again in a subsequent pregnancy than were women holding a cooperation card (RR=1.56, 95% CI= 1.34-1.81). Women holding their case notes did not feel more anxious than cooperation card holders.
Engida, 2013 Ethiopia	Qualitative	Amhara region, Ethiopia	Health extension workers, health development army members, care takers (breast feeding mothers and pregnant women)	112	Speaking books	No comparison group	Speaking Books were perceived well by the health extension workers and health development army members, and it was agreed that it is an effective tool to disseminate information.
Fujii, 2020 Japan	Qualitative	Social club for mothers of twins held in Tokyo	Mothers of twins	5	MCH handbook	No comparison group	Mothers who had given birth to twins regarded the MCH handbook as "evidence of their readiness to become mothers of twins," "hope of becoming a good mother," something that should prevent anxiety related to having a high-risk pregnancy," "a medical record that shows how the child is developing" and "they stopped using the handbook on their own."
Fujimoto, 2001 Japan	Cross-sectional	231 local towns and wards in Niigata, Yokohama, Shizuoka, and Hiroshima	Caregivers who have come with their 18-month old child for 18-month check-up	10,900	MCH handbook	No comparison group	High ratio of caregivers who read and wrote in the MCH handbook. Loss was minimal at 0.9%. The most responses for the most useful page was the "vaccination record". Many expected to see improvements in "child rearing" information. Many caregivers replied in neutral when asked about the usefulness of the handbook. Oral hygiene was the least filled-out and there was only a minimum of people who replied that this page was useful.
Gholipour, 2018 Iran	Cluster RCT	21 health centers and health posts in Tabriz	Pregnant women	185	Maternity books with group support sessions	Standard care and no maternity books	The intervention showed positive effects on the service quality and customer quality of maternity care through increased involvement of mothers in the care process.
Grippo, 2007 Brazil	Mixed methods	Family Health Program in the city of Sao Paolo	Family caregivers responsible for 0–59-month-old children	89	Educational booklet *Toda hora e hora de cuidar* (Anytime is time to care)	No comparison group	Even though mothers had not completed basic education, they reported the booklet contents were understandable and interesting. The concept regarding childcare was related to affective and work activities. The booklet is effective as an instrument to promote skills and potentials of the community, family, and individuals.
Grøvdal, 2006 Norway	RCT	Maternal and child health centers in 10 municipalities in Norway	Parents of 309 children attending the National Preschool Health Surveillance Programme	309	Half of the parents were given a parent-held child health record (PHCHR) and short instructions on how it was expected to be used.	Parents and children who did not use PHCHR, just ordinary national health surveillance program	Some 73% of the intervention group used the PHCHR regularly when visiting the health centers, 79% reported that their own writing in the record was helpful, and 92% favored the PHCHR being permanently adopted. Use of the record did not influence the utilization of healthcare services, parents' knowledge of their child's health, or parents' satisfaction with information or communication with professionals.

Supplementary file 4 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Hagiwara, 2013 Palestine	Quasi-experimental	MCH treatment centers	Mothers who were expose and not exposed to the MCH Handbook	340	MCH handbook	Mothers who did not use the MCH Handbook	Knowledge related to MCH such as the importance of exclusive breastfeeding and how to cope with the risks of rupture of membranes during pregnancy increased among MCH handbook users, especially among less-educated women. The MCH handbook may be an effective tool for communication with health providers and husbands, for both highly educated and less-educated women during their first pregnancy.
Hamilton, 2012 Australia	Mixed methods	New South Wales (NSW)	Parents (mothers) who had at least one child aged between 0-4 years old	126	Child personal health record (CPHR)	No comparison group	CPHR can play an important role in communicating information regarding a child's health and development between parents and professionals, it is perhaps underutilised. Opportunities for use were reduced where there were dual systems in place, such as online records for immunization. Some information in the CPHR had the potential to escalate concerns about infant development. This was particularly the case for the growth charts, and it appeared that further explanation may have supported mothers and reduced their concerns. It was also the case that mothers did not pay attention to developmental indicators that they did not understand, such as head circumference.
Hampshire, 2004 UK	Cross-sectional	Nottingham	Mothers	401	Personal child health record (PCHR)	No comparison group	The PCHR is used by most mothers and is important for providing health promotion material to all families with young children. It may be particularly useful for first-time and teenage mothers.
Harrison, 1998 South Africa	Descriptive prospective study	17 child health clinics	Health personnel, mothers/caregivers	35 health personnel and 150 mothers/ caregivers	Road-to-Health (RTH) card	No comparison group	Most nurses supported the concept of an RTH card, but a large majority recommended that it be replaced with a notebook retained by the mother. A significant proportion of health personnel did not know how to use the weight-for-age chart. Most mothers attending clinics carried the card, but this number dropped for hospital visits and consultations with private doctors. Mother's understanding of the card was limited. For mothers, the weight-for-age chart, immunization schedule, and milestone section are obscure.
Higashiyama 2013 Japan	Qualitative case study	Hospital in the Kansai (Osaka) area	Couple adopting a baby	2	MCH handbook and nursing counseling	No comparison group	A case in which perinatal staff and medical social workers cooperated with a child guidance center to reduce the anxiety of adoptive parents and build good parent-child relationships for adoptive parents of special adoption. Nurses explained how to apply for a MCH handbook before the birth of their adopted child.

Supplementary file 4 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Hokama, 2000, Japan	Cross-sectional	Naha, Okinawa	Mothers of 3-5 month old children who have come for check-up	281	MCH handbook	No comparison group	Over 70% of mothers had read the pages on parenting. More than half of the mothers had filled in the pages of their child's development and growth chart. Reading and filling out the handbook were associated with maternal characteristics, with older mothers and mothers with little childcare experience filling out the handbook more. Over 90% of mothers replied that the information in the handbook was useful. The most highly evaluated pages were those on child health, growth and vaccination.
Ikeda, 2020 Japan	Cross-sectional	Japan	Foster parents	506	MCH handbook	No comparison group	The MCH handbook provided important information about the foster child. Though, inconvenience was noted for those without an MCH handbook and lack some birth information (e.g., birth weight, birthplace, blood type, etc.)
Jeffs, 1994 Australia	Quasi-experimental	New South Wales (NSW), Australia	Households with children aged four years or less and health care providers	1,533	Introduction of personal health records (PHR) since 1988	Five years after the introduction of personal health records	PHR was well retained, with 89% claimed retention at 4 years, and over 78% of parents able to produce the record for inspection at interview. Of the records examined, 91% had at least one immunization recorded while 68% had a complete regimen documented by age 4 years. Overall, 93% of parents expressed satisfaction with the PHR, while 64% of all health care providers also felt that the PHR was 'beneficial to the health care children received', although only 53% of them used it regularly to record their findings. It is concluded that the PHR currently issued in NSW is well retained and valued by parents, and used by and useful to a range of health professionals.
Lee, 2016 USA	Qualitative	Hospital	Spanish-speaking families and minority English-speaking families	40	Patient Passport	Usual care	The most common themes in the qualitative analysis of the interviews were: 1) organization of medical care; 2) emotional expressions about the hospitalization experience; and 3) overall understanding of the process of care. Spanish- and English-speaking families had similar patient satisfaction experiences, but the Passport families reported improved quality of communication with the medical care team.

Supplementary file 4 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Matsumoto, 1996 Japan	Quantitative case study	Teaching hospital in Nagoya	Post-partum women, first-time and second time mothers	210	MCH handbooks of 1st and 2nd generation mothers	No comparison group	Among the intervention group, 151 cases (71.9%) had seen or had received their MCH handbook when they were young, which was used by their mothers during pregnancy. However, the degree of utilization varied depending on the timing of when they had seen or received it. Utilization was high from those who had received the MCH handbook from their mothers. Regardless of the intervention or control, 174 cases (82.9) were considering giving their MCH handbook to their children and 76.4% (133 cases) were thinking that "marriage or pregnancy" was the best time. However, that awareness did not necessarily correlate with the self-filling status of the MCH handbook. To promote the intergenerational utilization of the MCH handbook, support for each period in the life cycle, including school health, is indispensable. The MCH handbook is a health guidance that can be passed on to future generations and used for a lifetime. By promoting the use of the MCH handbook book within the current generation, behaviors such as self-management of health, can be passed down to future generations.
McKinn, 2017 Vietnam	Qualitative	Tuan Giao District, Dien Bien Province	Thai and Hmong ethnic minority women who were currently pregnant or mothers of children under five in October 2015	37	MCH handbook	No comparison group	Ethnic minority women generally reported that health professionals delivered health information in a didactic, one-way style, and there was a reliance on written information (Maternal and Child Health handbook) in place of interpersonal communication. The health information they receive (both verbal and written) was often non-specific, and not context-adjusted for their personal circumstances. Women were therefore required to take a more active role in interpersonal interactions in order to meet their own specific information needs, but they are then faced with other challenges including language and gender differences with health professionals, time constraints, and a reluctance to ask questions.
McMaster, 1996 Bosnia and Herzegovina	Cross-sectional	Near Tuzla	Mothers and children in the collective centers and from the local community	571	Booklets (incorporating health records and health advice) were distributed to displaced and other families	No comparison group	Personal child health record and advice booklets not only provided essential data on immunization, nutrition, and prevalent medical disorders but also appeared to benefit the young population by supplying a permanent health record and health education material.

Supplementary file 4 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Minewaki, 2019 Japan	Qualitative case study	Public hospital in Kawasaki City, Kanagawa Prefecture	Mother who had previously experienced two early term miscarriages and was diagnosed with intrauterine fetal death (IUFD) at the 11th week of pregnancy	1	MCH handbook	No comparison group	Birth plan was realized according to the wishes of the mother and have the medical staff fill out the MCH handbook. The nurse who reflects on the experience tries to understand the grieving process of the mother by using Neimeyer's framework "those who experience the death of a loved one goes back and forth between the three phases of avoidance, assimilation, and adaptation. " and concludes that the mother was going back and forth from the assimilation phase. She thinks of how she could have better communicated but feels relieved when the mothers says, *"Thank you for holding the box as you would hold a sleeping baby when you brought the baby to me. Thank you for treating this child as a human being. By choosing the baby's clothes and hugging it, I was able to do something as it's mother. "*
Moore, 2000 UK	Quasi-experimental	Leicestershire county	Parents of British children who are likely to have special educational needs	99	Designed a record for disabled children as a supplement to the Leicestershire child health record. The intervention phase lasted 6 months. Only families in groups 1 and 3 received the new record.	Families who did not use the new record (Group 2)	Most of the entries were factual, and the principal use of the new document was as an aide-memoire. There was no evidence that the record improved the parent's perception of their child's general healthcare, nor that it contributed to the overall level of communication between parents and professionals.
Naito, 2019 Japan	Retrospective cohort	Community health center in Kurume City, Fukuoka	Pregnant women who submitted a pregnancy notification form in 2014.	2,986	MCH handbook	Those who were not registered and did not receive the MCH handbook	Being 35 years or older (OR[odds ratio]=1.41), height less than 158 cm (OR=1.45), non-pregnant body mass index (BMI) less than 18.5 (OR=1.48), and detection of physical abnormalities by a physician during the pregnancy (OR=2.20) were independent maternal factors that were significantly associated with low birth weight. Being aged 35 years or older (OR=2.05) and smoking (OR=3.42) were independent factors that were significantly associated with miscarriage and stillbirth. Also, the cessation of alcohol use (OR=0.51) significantly reduced this risk.
O'Flaherty, 1987 Australia	Prospective cohort	Maternity unit of Camden hospital	All mothers of babies who were born over one calendar month and health care providers	237	Personal health record	No comparison group	Eight per cent of mothers lost the records and three more said they had not been given a record while in hospital; a total of 10% of mothers had either lost or misplaced the record. There were no particular demographic characteristics which identified the mothers who were more likely to lose the record. Most parents liked personal health records and used them frequently, as did the community health staff. Most private doctors, however, did not find them useful. Before wider distribution of such records is contemplated health workers should be adequately prepared, especially doctors in the private sector.

Supplementary file 4 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Ogasawara, 2016 Japan	Cross-sectional	Great East Japan Earthquake disaster areas	Mothers, health and medical staff working in the disaster area	51	MCH handbook	No comparison group	The "vaccination record", "delivery situation", "1 month check-up" and other useful information were recorded. Iwate Prefecture's perinatal medical information system "Iiha-tobu" and the MCH handbook were useful during the disaster and utilized widely. For the MCH handbook to be able to survive future large disasters, efforts must be made to realize e-MCH handbook and/or data to be kept in the cloud.
Ogawa, 2021 Japan	Cross-sectional	Four maternity facilities with labor and delivery rooms in Maebashi, Gunma	Pregnant women	1,009	MCH handbook	No comparison group	The MCH handbook provided disaster preparedness knowledge, especially among mothers who used the self-reporting sections of the MCH handbook.
Osaki, 2018 Indonesia	Cluster RCT	13 health centers in Garut district of rural Java, Indonesia	Pregnant women attending one of the selected health centers between 2007 and 2009	454	MCH handbook	Usual care	Respondents in the intervention area received consecutive MCH services including two doses of tetanus toxoid injections and antenatal care four times or more during pregnancy, professional assistance during child delivery and vitamin A supplements administration to their children, after adjustment for confounding variables and cluster effects (OR=2.03, 95% CI: 1.19–3.47). In the intervention area, home care (continued breastfeeding; introducing complementary feeding; proper feeding order; varied foods feeding; self-feeding training; and care for cough), perceived support by husbands, and lower underweight rates and stunting rates among children were observed.
Phipps, 2001 Australia	Qualitative	Home or antenatal appointment in hospital	Pregnant women	21	Woman-held maternity records	No comparison group	Maternal record holding had the potential to improve the level of communication between the health care worker and the pregnant woman and provided a greater sense of sharing and communication within the family. Woman's partner become better informed and more involved in the pregnancy.
Polnay, 1989 United Kingdom	Prospective cohort	Two largely working-class areas of Nottingham with large council estates	Mothers of all the children who were born from January to December 1983	67	Nottingham baby book	Non-user of Nottingham baby book	The book was well used by the majority of parents with 80% of parents having read all the booklet by the time their babies were three months old. Among the parents, 70% of them had retained the booklet when their children had reached the age of one year.

Supplementary file 4 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Seto, 2006 Japan	Qualitative case study	Public hospital in Iwamizawa City, Hokkaido Prefecture	Teenage mother and father	2	MCH handbook and kangaroo care	No comparison group	An 18-year-old woman underwent maternity checkup from the beginning of her pregnancy without any abnormalities. Around the 22nd week and 4 days of pregnancy, she was diagnosed with imminent preterm birth due to abdominal tension and vaginal bleeding, and was hospitalized. She delivered a boy, but doctors were not able to save his life. Even after active treatment was discontinued, there was a heartbeat and some breathing movement, therefore, the family spent time with the baby boy. After confirming the death, kangaroo care was continued for about an hour. After that, the baby was dressed in clothes that the family had prepared and a foot print and a handprint was taken as a token. When the mother discharged, the baby's name was written in the MCH handbook and words of gratitude for the birth of the child were written.
Shah, 1993 Multi-countries	Quasi-experimental	13 centers in eight countries (Egypt, India, Pakistan, Philippines, Senegal, Sri Lanka, Democratic Yemen, and Zambia)	The participating centers tested the HBMR in a variety of circumstances, such as literate and illiterate populations, different geographical and cultural conditions, and communities with easy or poor access to health services in rural and urban populations.	14,000 to 250,000	Home-based maternal record (HBMR)	Non-user of HBMR	The used of the HBMR had a favorable impact on utilization of health care services and continuity of the health care of women during their reproductive period. When adapted to local risk conditions, the HBMR succeeded in promoting self-care by mothers and their families. The introduction of the HBMR increased the diagnosis and referral of at-risk pregnant women and newborn infants, improved family planning and health education, led to an increase in tetanus toxoid immunization, and provided a means of collecting health information in the community. The HBMR was liked by mothers, community health workers and other health care personnel. Mothers became more involved in looking after their own health and that of their babies. The training and involvement of health personnel from the start of the HBMR scheme influenced its success in promoting maternal and child health care. It also improved the collection of community-based data and the linking of referral networks.
Shimizu, 2007 Dominican Republic	Cross-sectional	Dajabón	Mothers who received the MCH Handbook and children under the age of 5 using the handbook	6,633	MCH handbook	No comparison group	The evaluation and regular monitoring visits revealed positive results: as for pregnant women, the handbooks were well accepted for their friendliness, simplicity, durability and mobility, and the rate of their receiving antenatal and postpartum cares at designated clinics or hospitals increased; as for newborns and children, the immunization coverage improved while common problems such as diarrhea decreased; and as for health personnel, the handbook helped clarify the division of work and enhanced their sense of responsibility, communication, and continuity and integration of service.

Supplementary file 4 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Sugi, 1985 Japan	Cross-sectional	Health check-up stations	Caregivers of 18-month-old children	111	MCH handbook	No comparison group	Interest in the MCH handbook was higher at check-up time compared to consultation time, for both the medical health care workers and the caregivers. The section which was of least interest was child and maternal oral hygiene. The page which was read the most was nutrition during pregnancy. However, the page on financial support and subsidies for maternal and child medical care was the least read. About 63.2% of mothers made notes (recorded) with those who were pregnant with their first child and was not working more likely to record the process. Item-wise, names of the parents, birth certificate record, due date and other items to be filled out by the pregnant woman, as well as the first month. Extra notes, dental records up until 18 months, timing of restart of menstruation and other post-natal maternal records were less likely to have been filled out.
Takeda, 2002 Japan	Cross-sectional	A city in Okinawa Prefecture	Caregivers of 18-month-old children	230	MCH handbook	No comparison group	Most mothers read the vaccination page (85.8%), information on childcare (77.1%), and accident prevention (76.2%). However, only 33.4% out of those who replied that they read the handbook and read the Children's Charter. About 90% of those who replied that the handbook was useful, replied that the information on the vaccination page helped eliminate worries, 88.8% said the information on childcare was useful, 87.1% said that the information helped eliminate worries on her child's health and growth. No significant association was identified between those who read the handbook, those who accepted the utility of vaccination and the mother's age, schooling, maternal employment and child rank.
Tanabe, 2011 Japan	Multi-facility cohort study	Four out of five delivery facilities within Sendai City, Miyagi Prefecture	First generation and current generation mothers	724	MCH handbooks of current generation mothers	MCH handbooks of first-generation mothers	Using the MCH handbook, the associations of anthropometric factors and course of pregnancy and delivery comparisons between the two generations were evaluated. The study found some associations between a mother's course of pregnancy and delivery and her daughter's. The data showed a significant and positive association in: height, weight, and body mass index (BMI) before pregnancy, weight gain during pregnancy, systolic and diastolic blood pressure in both second and third trimester, baby's weight and head circumference. Birth weight of offspring was more associated with mother's birth weight than BMI before pregnancy and weight gain during pregnancy. This suggests that the research of a mother's course of pregnancy and delivery could offer some predictions concerning her daughter's pregnancy and delivery.

Supplementary file 4 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Umeda, 2015 Mongolia	Cross-sectional	Zavkhan Prefecture, Mongolia (1100 km west of Ulaanbaatar)	Mothers and medical workers of Zavkhan General Hospital and village health center	42	MCH handbook	No comparison group	Of 42 health providers, 66% used the mother and child handbook as a medical record, 57% used it as a communication tool with mothers, 50% saw the mother handbook as an individual record to record the fetus growth, and a textbook or guidebook on childcare support, 45% saw the handbook as a tool to promote participation in childcare for fathers and 28% saw the handbook as a tool to nurture the next future generation's parents. One respondent wrote that there should be a space for the doctor to write advice instead of just providing information. Another wrote that the handbook should have a space where advice for the father could be written in. What could be done to support his wife and should include information on tobacco and alcohol so that the husband and family could be more attentive to the health of mother-child.
Walton, 2007 UK	Cross-sectional	10 child health clinics located in two primary care trusts; one in central London and the other in Buckinghamshire in July 2004	Parents who arrived at the clinic with new PCHR	89	New Personal Child Health Record (PCHR)	No comparison group	Nearly all parents (98%) reported that they used the PCHR as a record of their child's health and development and 92% reported that they 'always' took it with them when seeing healthcare staff about their child. Some parents (22%) indicated that they had not been given a satisfactory explanation as to how to use the PCHR, at the time it was issued to them. Parents reported that health visitors were more likely than other health professionals to use the PCHR both to obtain information about their child and to record information. The majority of respondents (78%) were happy for the level of maternal education to be documented in their child's PCHR.
Whitford, 2014 Scotland	Qualitative	Two National Health Service Board regions in northeast Scotland	Pregnant women (after 34 weeks) and if they agreed, at about eight weeks postnatally.	42	Birth plan within woman-held maternity records	No comparison group	Staff and women were generally positive about the provision of the birth plan section within the record. Perceived benefits included the opportunity to highlight preferences, enhance communication, stimulate discussions, and address anxieties. However, not all women experienced these benefits or understood the birth plan's purpose. Some were unaware of the opportunity to complete it, could not access the support they needed from staff to discuss or be confident about their options. Some were reluctant to plan too much. Staff recognized the need to support women with birth plan completion but noted practical challenges to this.

Supplementary file 4 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Wright, 2005 UK	Prospective cohort	One district in England (Gateshead)	Mothers of all babies born between June 1, 1999 to August 31, 2000	1,369	Personal Child Health Record (new and old)	No comparison group	Parents rated both record types highly and the majority used them regularly to take to baby clinics and for information. Health visitors wrote frequently in the record, compared with only half of parents and less than a quarter of family doctors. Old format records were significantly more likely to be taken to and written in by the family doctor. Parents used new format records less as a source of information, but were no more likely to use other recommended information sources. Parents with new format records showed better recall of information found only, or more prominently in the new records, but the actual differences were small.
Yahata, 2005 Japan	Qualitative	Akita prefecture	Parents of non-measles vaccinated children	9	MCH handbook	No comparison group	Caregivers were not against measles vaccination (positive attitude) The main reasons why they had not vaccinated their child against measles were "My child caught a cold, and it was difficult to find time afterwards", "I also intend to go vaccinate my child but can not seem to get there", "I don't have time to go for vaccination". In order to raise vaccination coverage rate, caregivers proposed clearer messaging on "measles vaccination safety in the MCH handbook" and information that "Vaccination can be done even outside your local burrough", or other information such as "If measles vaccination dates were fixed, I would do everything to get my child vaccinated then".Others also said that the health administrators should play a more active role such as "Getting health workers to flag that measles vaccination has not been done at child health days".
Young, 1990 USA	Qualitative	Federally funded clinic open year round	Infants and preschool-age children who received well-child services at Tri-County Community Health Center	560	Growth chart	No comparison group	Professional staff consistently reported that the record was a useful aid in teaching migrant parents about their children's growth. Parents receiving the records appeared more attentive and receptive to nutrition counseling. They also asked more questions and volunteered more pertinent information about their children. Including a photo of the child also distinguishes these from other versions of family-carried records.

Supplementary file 4 (continued)

Study	Study design	Study setting	Study population	Sample size	Intervention	Comparator	Reported outcomes
Yuge, 2010 Japan	Cross-sectional	Health check-up stations	Mothers of four-month-old, 18-month-old and three-year old children who have come for check-up	321	MCH handbook	No comparison group	Utility point average was 3.4-3.5. There was no difference between child age and mother and child health status. Mothers found the pages which medical workers filled out useful. These were "delivery record", "vaccination record" and "neonatal record" pages. There were very few childcare instruction items/pages which were useful. Mothers with previous children found the pages "experience of seeing the MCH handbook during childhood", "discuss the handbook", "received explanations from the pediatrician using the handbook" more useful than first-time mothers. Average points on the whether mothers wanted to show the handbook to their children, on continuity was 4.5-4.8 points, mothers with 4-month old children had a higher continuity awareness than 3 year old children. Mothers who had seen their own handbook when younger had a higher continuity awareness than those who had not. There is a statistically significant association between those who see utility in the handbook and handing over the handbook to their children.

Supplementary file 5. Synthesis Without Meta-analysis (SWiM) reporting items

The citation for the Synthesis Without Meta-analysis explanation and elaboration article is: Campbell M, McKenzie JE, Sowden A, Katikireddi SV, Brennan SE, Ellis S, Hartmann-Boyce J, Ryan R, Shepperd S, Thomas J, Welch V, Thomson H. Synthesis without meta-analysis (SWiM) in systematic reviews: reporting guideline BMJ 2020;368:l6890 http://dx.doi.org/10.1136/bmj.l6890

SWiM is intended to complement and be used as an extension to PRISMA			
SWiM reporting item	**Item description**	**Page in manuscript where item is reported**	**Other***
Methods			
1 Grouping studies for synthesis	1a) Provide a description of, and rationale for, the groups used in the synthesis (e.g., groupings of populations, interventions, outcomes, study design)	5-6	
	1b) Detail and provide rationale for any changes made subsequent to the protocol in the groups used in the synthesis	8-9	
2 Describe the standardised metric and transformation methods used	Describe the standardised metric for each outcome. Explain why the metric(s) was chosen, and describe any methods used to transform the intervention effects, as reported in the study, to the standardised metric, citing any methodological guidance consulted	8-9	
3 Describe the synthesis methods	Describe and justify the methods used to synthesise the effects for each outcome when it was not possible to undertake a meta-analysis of effect estimates	8-9	
4 Criteria used to prioritise results for summary and synthesis	Where applicable, provide the criteria used, with supporting justification, to select the particular studies, or a particular study, for the main synthesis or to draw conclusions from the synthesis (e.g., based on study design, risk of bias assessments, directness in relation to the review question)	9, Supp 7-9	

Synthesis Without Meta-analysis (SWiM) reporting items

SWiM reporting item	Item description	Page in manuscript where item is reported	Other*
5 Investigation of heterogeneity in reported effects	State the method(s) used to examine heterogeneity in reported effects when it was not possible to undertake a meta-analysis of effect estimates and its extensions to investigate heterogeneity	9, Supp 7-8	
6 Certainty of evidence	Describe the methods used to assess certainty of the synthesis findings	8-9, Supp 7-8	
7 Data presentation methods	Describe the graphical and tabular methods used to present the effects (e.g., tables, forest plots, harvest plots). Specify key study characteristics (e.g., study design, risk of bias) used to order the studies, in the text and any tables or graphs, clearly referencing the studies included	8-9, Fig 1 Supp 7-9	
Results			
8 Reporting results	For each comparison and outcome, provide a description of the synthesised findings, and the certainty of the findings. Describe the result in language that is consistent with the question the synthesis addresses, and indicate which studies contribute to the synthesis	9-18, Tables 1-2	
Discussion			
9 Limitations of the synthesis	Report the limitations of the synthesis methods used and/or the groupings used in the synthesis, and how these affect the conclusions that can be drawn in relation to the original review question	21	

PRISMA=Preferred Reporting Items for Systematic Reviews and Meta-Analyses.
*If the information is not provided in the systematic review, give details of where this information is available (e.g., protocol, other published papers (provide citation details), or website (provide the URL)).

Supplementary file 6. PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	3-5
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	5
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	5-6
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	6-7
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Supp 2
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	6-8
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	6-8
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	5-6, Supp 4
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	5-6, Supp 4
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	8
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	8-9, Supp 7
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	8-9, Supp 7-8
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	8-9, Supp 7-8
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	8-9, Supp 7-8
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	8-9, Supp 7-8
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	NA
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	NA

Supplementary file 6. PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	8, Supp 9
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	8, Supp 7-8
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Fig. 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Supp 3
Study characteristics	17	Cite each included study and present its characteristics.	Table 1-2, Supp 4
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Supp 9
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Supp 7
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	16
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	NA
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	8
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	NA
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Supp 9
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Supp 7-8
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	18-21
	23b	Discuss any limitations of the evidence included in the review.	21
	23c	Discuss any limitations of the review processes used.	21
	23d	Discuss implications of the results for practice, policy, and future research.	22
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	1, 5, Supp 1
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	5
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	8
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	23
Competing	26	Declare any competing interests of review authors.	23

Supplementary file 6. PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
interests			
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	23

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71For more information, visit: http://www.prisma-statement.org/

Supplementary file 7. GRADE

Question: Do home-based records (intervention) compared to no use of any home-based records (control) facilitate communication within the household?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95%		
Communication within the household (RCT) (study: Osaki, 2018 (Indonesia))												
1	randomised trials	serious [a]	not serious	serious [b]	serious [c]	none	Saving money for child birth: 109/183 (59.6%) Keeping infant warm: 65/183 (35.5%) Giving infant/child developmental stimulation: 78/183 (42.6%)	Saving money for child birth: 119/271 (43.9%) Keeping infant warm: 72/271 (26.6%) Giving infant/child developmental stimulation: 86/271 (31.7%)	Saving money for child birth: **OR 1.82** (1.20-2.76) Keeping infant warm: **OR 1.58** (1.02-2.46) Giving infant/child developmental stimulation: **OR 1.62** (1.06-2.48)	Not calculated	⨁◯◯◯ VERY LOW	IMPORTANT
Communication within the household related to newborn an childcare (observational study) (study: Hagiwara, 2013 (Palestine))												
1	observational studies	not serious	not serious	serious [b]	serious [d]	none	Number of events not reported	Number of events not reported	not estimable	not estimable	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval

Explanations

a. Bias in measurement of the outcome.
b. Indirect evidence.
c. A low number of events (<300).
d. Unable to assess the number of events as not reported.

Question: Do home-based records (intervention) compared to no use of any home-based records (control) facilitate communication between mothers and healthcare providers?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95% CI)		
Communication between mothers and healthcare providers (study: Grøvdal, 2006 (Norway))												
1	randomised trials	serious [a]	not serious	serious [b]	serious [c]	none	Parents with more difficulty talking to health personnel: Nurse: 8/119 (6.7%) Doctor: 19/118 (16.1%) Other doctors: 16/89 (18%) Other health personnel: 1/24 (4.2%)	Parents with more difficulty talking to health personnel: Nurse: 11/115 (9.6%) Doctor: 17/122 (13.9%) Other doctors: 12/104 (11.5%) Other health personnel: 6/47 (12.8%)	Ordinal outcome measure: Nurse: p = 0.66 Doctor: p = 0.78 Other doctors: p = 0.39 Other health personnel: p = 0.60	Not calculated	⨁◯◯◯ VERY LOW	IMPORTANT
Communication between mothers and healthcare providers (observational study) (studies: Shah, 1993 (multi-countries); Harrison, 1998 (South Africa); Moore, 2000 (UK); Grippo, 2007 (Brazil); Walton, 2007 (UK); Shimizu, 2007 (Dominican Republic); Hamilton, 2012 (Australia); Hagiwara, 2013 (Palestine), Umeda, 2015 (Mongolia); Naito, 2019 (Japan))												
10	observational studies	serious [d]	serious [e]	serious [b]	not serious	none	not estimable	not estimable	not estimable	not estimable	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval

Explanations

a. Bias in measurement of the outcome.
b. Indirect evidence.
c. Unable to assess the number of events as outcome data are ordinal.
d. Some methodological considerations and key potential confounding variables not measured nor adjusted statistically.
e. Mixed results were obtained among included studies.

Question: Are mothers satisfied with the information provided by home-based records (intervention) compared to no use of any home-based records (control)?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95% CI)		
Satisfaction with the information provided by home-based records (RCT) (study: Grøvdal, 2006 (Norway))												
1	randomised trials	serious [a]	not serious	serious [b]	very serious [c]	none	Not reported	Not reported	Not reported	Some 65% of parents were satisfied with the record and 92% were in favor of making its availability permanent. Satisfaction and support were especially high among parents of children with chronic disease.	⨁◯◯◯ VERY LOW	IMPORTANT
Satisfaction with the information provided related to newborn and childcare (observational study) (studies: Shah, 1993 (multi-countries); Jeffs, 1994 (Australia); McMaster, 1996 (Bosnia and Herzegovina); Harrison, 1998 (South Africa); Hokama, 2000 (Japan); Takeda, 2002 (Japan); Hampshire, 2004 (UK); Grippo, 2007 (Brazil); Walton, 2007 (UK); Aoki, 2009 (Japan); Engida, 2013 (Ethiopia); Umeda, 2015 (Mongolia); Du Plessis, 2017 (South Africa); Ikeda, 2020 (Japan); Ogawa, 2021 (Japan))												
15	observational studies	serious [d]	serious [e]	serious [b]	not serious	none	not estimable	not estimable	not estimable	not estimable	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval

Explanations

a. Bias in measurement of the outcome.
b. Indirect evidence.
c. The number of cases not reported.
d. Some methodological considerations and key potential confounding variables not measured nor adjusted statistically.
e. Mixed results were obtained among included studies.

Question: Are mothers satisfied with services/provider performance via home-based records (intervention) compared to no use of any home-based records (control)?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95% CI)		
Satisfaction with the newborn and child health services received via records (studies: Sugi, 1985 (Japan); O'Flaherty, 1987 (Australia); Polnay, 1989 (UK); Fujimoto, 2001 (Japan); Wright, 2005 (UK); Aihara, 2006 (Thailand); Yuge, 2010 (Japan))												
7	observational studies	serious [a]	serious [b]	serious [c]	not serious	none	not estimable	not estimable	not estimable	not estimable	⨁◯◯◯ VERY LOW	IMPORTANT
Satisfaction with the newborn and child health services received via records (studies: Gholipour, 2018 (Iran))												
1	randomized trials	serious [a]	not serious	not serious	not serious	none	92	93	Total mean SQ scores: Control = 7.63 (0.91) Intervention: 8.91 (0.76) Total mean CQ scores: Control = 82.63 (7.21) Intervention = 87.47 (6.75)	not estimable	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval; **SQ:** Service Quality; **CQ:** Customer Quality

Explanations

a. Some methodological considerations and key potential confounding variables not measured nor adjusted statistically.
b. Mixed results were obtained among included studies.
c. Indirect evidence.

Question: Do home-based records (intervention) compared to no use of any home-based records (control) foster mother-child bonding?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95% CI)		
Mother-child bonding (studies: Matsumoto, 1996 (Japan); Yuge, 2010 (Japan); Tanabe, 2011 (Japan); Akiba, 2016 (Japan); Ogasawara, 2016 (Japan)												
5	observational studies	serious [a]	not serious	serious [b]	not serious	none	not estimable	not estimable	not estimable	not estimable	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval

Explanations

a. Some methodological considerations and key potential confounding variables not measured nor adjusted statistically.
b. Indirect evidence.

Question: Does a different type of home-based record (intervention) compare to a standard home-based record (control) facilitate communication within the household?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95% CI)		
Communication within the household (study: Elbourne, 1987 (UK))												
1	randomised trials	serious [a]	not serious	serious [b]	serious [c]	none	Number of events not reported	Number of events not reported	not estimable	No significant difference was observed between mothers in the case note group and cooperation card group with regard to involvement of baby's father	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval

Explanations

a. Bias due to deviations from intended intervention, missing outcome data, and selection of the reported result.
b. Indirect evidence.
c. Unable to assess the number of events as not reported.

Question: Does a different type of home-based record (intervention) compare to a standard home-based record (control) facilitate communication between mothers and healthcare providers?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95% CI)		
Communication between mothers and healthcare providers (study: (study: Elbourne, 1987 (UK))												
1	randomised trials	serious [a]	not serious	serious [b]	serious [c]	none	Number of events not reported	Number of events not reported	not estimable	Expectant mothers felt in control of their antenatal care (RR=1.44; 95% CI: 1.08-1.95) and it was easier to talk to doctors and midwives (RR=1.63; 95% CI: 1.16-2.59)	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval

Explanations

a. Bias due to deviations from intended intervention, missing outcome data, and selection of the reported result.
b. Indirect evidence
c. Unable to assess the number of events as not reported.

Question: Are mothers satisfied with the information provided by a different type of home-based record (intervention) compared to a standard home-based record (control)?

Quality assessment							№ of participants		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Intervention	Control	Relative (95% CI)	Absolute (95% CI)		
Satisfaction with the information provided by home-based records (Bhuiyan, 2006 (Bangladesh))												
1	observational studies	serious [a]	not serious	serious [b]	serious [c]	none	Number of events not reported	Number of events not reported	not estimable	Most of the mothers (78%) perceived the MCH handbook as a useful tool.	⨁◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval

Explanations

a. Some methodological considerations and key potential confounding variables not measured nor adjusted statistically.
b. Indirect evidence.
c. Unable to assess the number of events as not reported.

Supplementary file 8. CERQual qualitative evidence profile

Key finding	Studies contributing to the review finding	Assessment of methodological limitations	Assessment of relevance to the research question	Assessment of coherence	Assessment of adequacy	Overall CERQual assessment of confidence	Explanation of judgement
Home-based records facilitated communication within the household. Illustrative quote: The authors stated that women-held maternity records facilitated husband involvement and women enjoyed sharing the information with their grandparents and friends (Phipps 2001).	Phipps 2001	**Moderate methodological limitations.** Average CASP rating: 8.0 Limited justification of the research design and data analysis was not sufficiently rigorous.	**Minor concerns about relevance.** Findings were related to the research question as to how women carrying their own medical records would benefit them.	**Moderate concerns about coherence.** Illustrative quotes are missing in the text.	**Major concerns about adequacy.** Only one study and offers thin data.	**Very low confidence**	The major concern was with the adequacy because of only one available evidence supporting the key finding.
Home-based records facilitated communication between mothers/caregivers and healthcare providers. Illustrative quote: "I found the book worked really well, that it was like a communication between the both of you… basically the Plunket book was the foundation of that relationship, other than the baby I suppose" (Clendon 2010).	Young 1990, Phipps 2001, Grippo 2007, Clendon 2010, Hamilton 2012, Engida 2013, Whitford 2014, Lee 2016, McKinn 2017	**Moderate methodological limitations.** Average CASP rating: 8.0 Average MMAT rating: 13.0 Limited justification of the research design and analysis process of the studies.	**Moderate concerns about relevance.** Findings on communication with healthcare providers were at times not related to the main research question.	**Moderate concerns about coherence.** Two studies showed mixed results and one study showed no impact on communication.	**Moderate concerns about adequacy** Limited richness and quantity of data and participants.	**Low confidence**	The major concerns were the relevance of the findings and their adequacy because of the limited number of participants in the included studies.
Users of home-based records were generally satisfied with the information received from the records Illustrative quote: The authors stated that the topics "protect and care" standout as the most important in the caregiver's report (Grippo 2007).	Yahata 2005, Bhuiyan 2006, Grippo 2007, Fujii 2020	**Moderate methodological limitations.** Average CASP rating: 6.5 Average MMAT rating: 12.0 Limited justification of the research design and analysis process of the studies.	**Moderate concerns about relevance.** Satisfaction findings related to newborn and childcare information were at times not related to the main research question.	**Moderate concerns about coherence.** Two studies showed mixed results and two studies showed positive impact on satisfaction with the information provided.	**Moderate concerns about adequacy** Limited richness and quantity of data and participants.	**Low confidence**	The major concerns revolved around the relevance of the finding to the research question and the limited number of studies.

CASP — Critical Appraisal Skills Programme, MMAT — Mixed Methods Appraisal Tool

Supplementary file 8. (continued)

Key finding	Studies contributing to the review finding	Assessment of methodological limitations	Assessment of relevance to the research question	Assessment of coherence	Assessment of adequacy	Overall CERQual assessment of confidence	Explanation of judgement
Home-based records upheld satisfaction with services/provider performance Illustrative quote: "What made the care better was I entered the Passport Program and then I could understand everything inside of it" (Lee 2016).	Lee 2016	**Moderate methodological limitations.** Average CASP rating: 8.0 Limited justification of the research design and data analysis was not sufficiently rigorous.	**Minor concerns about relevance.** Findings were related to the research question to measure the improvement in healthcare experience and satisfaction of culturally diverse families of hospitalized children.	**Moderate concerns about coherence.** Some illustrative quotes are missing in the text.	**Major concerns about adequacy.** Only one study and offers thin data.	**Very low confidence**	The major concern was with the adequacy because of only one available evidence supporting the key finding.
Home-based records fostered mother-child bonding. Illustrative quote: The authors stated that when the mother who experienced preterm birth was discharged, the baby's name was written in the MCH handbook, and words of gratitude for the child's birth were written (Seto, 2006).	Seto 2006, Higashiyama 2013, Minewaki 2019	**Moderate methodological limitations.** Average CASP rating: 7.3 Limited justification of the research design and analysis process of the studies.	**Minor concerns about relevance.** Findings were related to the main research question.	**Minor concerns about coherence.** Data reasonably consistent within and across all studies.	**Moderate concerns about adequacy** Limited richness and quantity of data and participants.	**Low confidence**	The major concern was the adequacy because of the limited number of participants and the number of studies available.

CASP — Critical Appraisal Skills Programme, MMAT — Mixed Methods Appraisal Tool

Supplementary file 9. Risk of bias assessment in included studies

Risk of bias assessment of randomized controlled trials
(Please indicate whether low, some concerns, and high)

Author	Bias arising from the randomization process	Bias due to deviations from intended intervention	Bias due to missing outcome data	Bias in measurement of the outcome	Bias in selection of the reported result	Overall risk of bias
Elbourne 1987	Low	High	High	Some concerns	High	High
Gholipour 2018	Low	Low	Low	Some concerns	Some concerns	High
Grøvdal, 2006	Low	Some concerns	Low	High	Low	High
Osaki 2018	Some concerns	Some concerns	Low	High	Low	High

Risk of bias assessment of quasi-experimental studies
(Please indicate whether low, moderate, serious, critical, no information)

Author	Selection of participants	Confounding variables	Classification of interventions	Deviations from intended interventions	Missing data	Measurement of the outcome	Selection of the reported result	Overall risk of bias
Hagiwara 2013	Low	Moderate	Low	Moderate	Low	Low	Low	Moderate
Jeffs 1994	Low	Moderate	Low	Moderate	Low	Low	Low	Moderate
Moore 2000	Low	Moderate	Low	Serious	Moderate	Moderate	Moderate	Serious
Shah 1993	Low	Serious	Moderate	Moderate	Serious	Serious	Serious	Serious

Risk of bias assessment of observational cohort and cross-sectional studies
(Please indicate whether yes, no, CD [cannot determine], NA [not applicable], NR [not reported])

Author	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Overall
Aihara 2006	Yes	Yes	CD	Yes	No	Yes	Yes	Yes	Yes	No	Yes	NR	NA	Yes	Good
Akiba 2016	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No	Yes	NR	NA	No	Fair
Aoki 2009	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	Yes	NA	NA	No	Fair
Du Plessis 2017	Yes	Yes	CD	Yes	No	Yes	Yes	Yes	Yes	No	Yes	NR	NA	No	Fair
Fujimoto 2001	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	Yes	No	No	No	Fair
Hampshire 2004	Yes	Yes	CD	Yes	No	Yes	Yes	Yes	Yes	No	Yes	NR	NA	Yes	Good
Harrison 1998	Yes	Yes	CD	Yes	No	Yes	Yes	No	No	No	Yes	NR	NA	NA	Fair
Hokama 2000	Yes	Yes	CD	Yes	No	No	Yes	No	Yes	No	Yes	NA	NA	Yes	Fair
Ikeda 2020	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	No	Yes	NA	NA	NR	Good
Matsumoto 1996	Yes	Yes	Yes	Yes	NR	Yes	Yes	Yes	Yes	No	Yes	NA	NA	No	Good
McMaster 1996	Yes	Yes	CD	No	No	Yes	No	No	Yes	No	Yes	NR	NA	No	Fair
Naito 2019	Yes	Yes	NA	Yes	No	No	Yes	Yes	Yes	No	Yes	NA	NA	Yes	Fair
O'Flaherty 1987	No	Yes	Yes	Yes	NR	Yes	Yes	No	Yes	No	Yes	No	Yes	No	Fair
Ogasawara 2016	Yes	Yes	Yes	Yes	No	No	Yes	No	No	No	Yes	No	NA	No	Fair
Ogawa 2021	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	No	Yes	NA	NA	NR	Good
Polnay 1989	No	Yes	Yes	Yes	NR	Yes	Yes	Yes	Yes	Yes	Yes	NR	NR	No	Good
Shimizu 2007	Yes	CD	CD	Yes	No	No	Yes	No	No	No	Yes	NA	NR	NA	Poor
Sugi 1985	Yes	Yes	CD	Yes	No	No	Yes	Yes	Yes	No	Yes	No	NA	NR	Fair
Takeda 2002	Yes	Yes	NR	Yes	No	No	No	Yes	Yes	No	Yes	NA	NA	Yes	Fair
Tanabe 2011	Yes	Yes	NR	Yes	No	Yes	Yes	Yes	Yes	No	Yes	NA	NA	Yes	Good
Umeda 2015	Yes	Yes	NR	Yes	No	No	No	No	No	No	Yes	NA	NA	No	Poor
Walton 2007	Yes	Yes	CD	No	No	Yes	NR	NA	Yes	No	Yes	No	NA	No	Fair
Wright 2005	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	NA	No	No	Good
Yuge 2010	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	No	Yes	NR	NA	No	Fair

1: Was the research question or objective in this paper clearly stated? **2:** Was the study population clearly specified and defined? **3:** Was the participation rate of eligible persons at least 50%? **4:** Were all the subjects selected or recruited from the same or similar populations (including the same time period)? Were inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants? **5:** Was a sample size justification, power description, or variance and effect estimates provided? **6:** For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured? **7:** Was the timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed? **8:** For exposures that can vary in amount or level, did the study examine different levels of the exposure as related to the outcome (e.g., categories of exposure, or exposure measured as continuous variable)? **9:** Were the exposure measures (independent variables) clearly defined, valid, reliable, and implemented consistently across all study participants? **10:** Was the exposure(s) assessed more than once over time? **11:** Were the outcome measures (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants? **12:** Were the outcome assessors blinded to the exposure status of participants? **13:** Was loss to follow-up after baseline 20% or less? **14:** Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?

Risk of bias assessment of qualitative studies
(Please indicate whether yes, no, or can't tell)

Author	1	2	3	4	5	6	7	8	9	10	Overall
Clendon 2010	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Yes	Yes	Yes	Good
Engida 2013	Yes	Yes	Yes	Yes	Yes	Can't tell	Can't tell	No	Yes	Yes	Good
Fujii 2020	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	Good
Higashiyama 2013	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	Good
Lee 2016	Yes	Yes	Yes	Yes	Yes	Can't tell	No	Yes	Yes	Yes	Good
McKinn 2017	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Minewaki 2019	Yes	Yes	Yes	Can't tell	Can't tell	No	Yes	Yes	Yes	Yes	Good
Phipps 2001	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	No	Yes	Yes	Good
Seto 2006	Yes	Yes	Yes	Can't tell	Can't tell	Can't tell	Yes	Yes	No	Yes	Good
Whitford 2014	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	Good
Yahata 2005	Yes	No	No	No	No	No	Yes	No	Yes	Yes	Fair
Young 1990	Yes	No	Yes	Yes	Yes	Can't tell	Can't tell	No	Yes	Yes	Good

1: Was there a clear statement of the aims of the research? **2:** Is a qualitative methodology appropriate? **3:** Was the research design appropriate to address the aims of the research? **4:** Was the recruitment strategy appropriate to the aims of the research? **5:** Was the data collected in a way that addressed the research issue? **6:** Has the relationship between researcher and participants been adequately considered? **7:** Have ethical issues been taken into consideration? **8:** Was the data analysis sufficiently rigorous? **9:** Is there a clear statement of findings? **10:** Is the research valuable?

Risk of bias assessment of mixed methods studies
(Please indicate whether yes, no, or can't tell)

Author	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Overall
Bhuiyan 2006	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Good
Grippo 2007	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Good
Hamilton 2012	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good

1: Is there an adequate rationale for using a mixed methods design to address the research question? **2:** Are the different components of the study effectively integrated to answer the research question? **3:** Are the outputs of the integration of qualitative and quantitative components adequately interpreted? **4:** Are divergences and inconsistencies between quantitative and qualitative results adequately addressed? **5:** Do the different components of the study adhere to the quality criteria of each tradition of the methods involved? **6:** Is the qualitative approach appropriate to answer the research question? **7:** Are the qualitative data collection methods adequate to address the research question? **8:** Are the findings adequately derived from the data? **9:** Is the interpretation of results sufficiently substantiated by data? **10:** Is there coherence between qualitative data sources, collection, analysis and interpretation? Questions 11-15 depends on whether it involves RCT, non-randomized, or quantitative descriptive studies.