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EVALUATION OF MOTHER AND CHILD HEALTH (MCH) HANDBOOK: A SYSTEMATIC REVIEW

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ABSTRACT

Background: *Maternal and Child Health (MCH) handbook is a home-based health record for both mother and child. The handbook can be used to monitor the health of women and her child, to give record in the utilization of health services, promote maternal health education, and provide information when either mother or child is referred. Several countries adopted the MCH handbook as a tool to promote better health knowledge and health service seeking behavior among women, and numerous countries have succeeded in applying it. Therefore a strategy is needed to improve the effectiveness and efficiency of the MCH handbook with strong evidence. This study aims to evaluate the effectiveness and efficiency the implementation of the recording, information and education usefulness of the MCH handbook.*

Methods: *Using systematic review method, the literature review using PICOS was employed 3 articles with PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analyses) approach by taking sources from online database: Proquest, Jstor, Pubmed, EBSCO, Science Direct and Scopus.*

Results: *Previous studies from three (3) countries stated that the contents of the MCH handbook were complete which included the ANC (antenatal care) record, delivery, PNC (post-natal care), child development, notification of birth, an educational message to raise the demand and awareness of healthy behavior of women in pregnancy and motherhood and improve their essential service utilization. For use of the MCH handbook in 3 countries it is known that almost are used to record all health and treatments consultations during pregnancy, delivery, after delivery and during infant care, including immunization and growth monitoring (birth weight is accurate data to monitor stunting in children under 5 years), maternal and neonatal death surveillance and response records. In Burundi, it is also used in birth registration procedures.*

Conclusions: *The MCH handbook is an effective health education tool for women with less education, a reliable source of information for primiparous women, delivery, and childcare; and an effective aid for health communication between women and health providers, and their husbands.*

Keywords: *Maternal and Child Health Book, Usage, Effectiveness, Function*

BACKGROUND

The 3rd Global Goal of SDGs (Sustainable Development Goals) is to reduce the Maternal Mortality Rate (MMR) to 102 per 100,000 live births. Based on IDHS in 2012, MMR in Indonesia is still high at 259 per 100,000 live births. Based on this it will take serious efforts to achieve it [1]. One of the efforts in reducing MMR is by consolidating and increasing the range and quality of MCH services (Mother and Child Health) such as improvement of early detection of risk factors and obstetric and neonatal complications by health worker and community [1]. Antenatal Care frequency increase (ANC) was

assessed through K-1 and K-4 and Antenatal Care (ANC) indicators assessed through the Linakes indicator [3]. Based on Basic Health Research (BHR), 2013 and Indonesia health profile, 2013 it is known that the current K-1 achievement is 81.6%, K-4 is 70.4% and Linakes is 68.6%, while the target of SDG's 2015 namely K-1 of > 92.7%, K-4 of > 61.4% and Linakes of > 81.25%. [2]. This condition requires a strategy to increase the achievement, one of them is through the MCH handbook.

The MCH handbook is a comprehensive and continuous recording of maternal and child health services held by the mother or family. Therefore, all maternal and child health services including immunization, as well as disease records and child development issues must be fully and accurately recorded [1]. The function of the MCH handbook is a tool for recording maternal and child health, educational facilities and information facilities [1]. Based on BHR 2013, it is known that the MCH handbook ownership (can show evidence of the MCH handbook) in Indonesia is only 31.7%. It can be assumed that only 1,679,566 pregnant women are aware of their condition so they can realize the importance of K-1, K-4, and Lakes, while the remaining 3.6 million pregnant women and their families need an extra boost to understand the condition of their pregnancies [1].

The results of Sistiarani et al.[4], shows that most respondents (56%) have incomplete the MCH handbook of recording functions [4]. Based on the result of research of Siswiantari [5], found the incompleteness of filling the MCH handbook on some items that are anamnesis sheet item equal to 21,57%, physical examination sheet 31,37% [5]. Based on the results of research Sistiarani [4] states that the MCH handbook of education function is not good at 42% while the MCH handbook of communication function is not good at 38.5% [4]. This is reinforced by the results of Sistiarani [4] study which states that about 40% of mothers in Tanah Datar and 57% in Padang Pariaman have never read or have read any parts of the MCH handbooks or only read a small part [4]. Also, among mothers who had read the MCH handbook at least part of the MCH handbook, covering in Tanah Datar around 22.4% and in Padang Pariaman about 27% said finding difficulties in understanding the MCH handbook [4].

Based on Ristrini and Oktarina's research [6] found the cause of incomplete the MCH handbook of recording function due to lack of motivation of midwives by 50%, heavy midwife's workload of 83% and the absence of the MCH handbook's training in 2 years by Community Health Center or Public Health Office[6]. Based on the above problems it is necessary to evaluate the MCH book which includes the function of recording, information, and education.

METHODS

Search Strategy

The specific research questions were designed, and the literature search was conducted using the PICOS (Participants, Interventions, Comparators, Outcomes, Study Design) model for evidence-based medical research.

The article search result is used *Preferred Reporting Items for Systematic Review and Meta-Analyses* (PRISMA) (Moher D, et al., 2019) instruments and used flowchart based on checklist PRISMA 2009. Systematic Review with PRISMA method by taking from online database Proquest, Jstor, Pubmed, EBSCO, Science Direct and Scopus using the keyword "maternal & child health books" AND "utilization" AND "effectiveness" obtained 14 journal articles that match the research title. Based on the availability of full text, three journal articles were selected based on inclusion and exclusion criteria and assessed for eligibility.

Table 2. PICOS model for evidence-based medical research questions. Maternal and Child Health Handbook

<i>Population</i>	Pregnant women or mothers giving birth or mothers with toddlers, who have a nationally used of the maternal r and child health (MCH) handbook from JICA
<i>Intervention</i>	Research question: how is the effective and efficient functioning of records, information and education of the maternal and child health (MCH) handbooks and how to overcome the obstacles to the implementation of the function?
<i>Comparasion</i>	Pregnant or childbearing mothers or mothers with toddlers who do not have the maternal and child health (MCH) handbook that is used nationally
<i>Outcome</i>	The recording, information and education functions of the maternal and child health handbook do not match expectations
<i>Study design</i>	Randomized controlled trial quasi-experimental design, case control studies, cohort

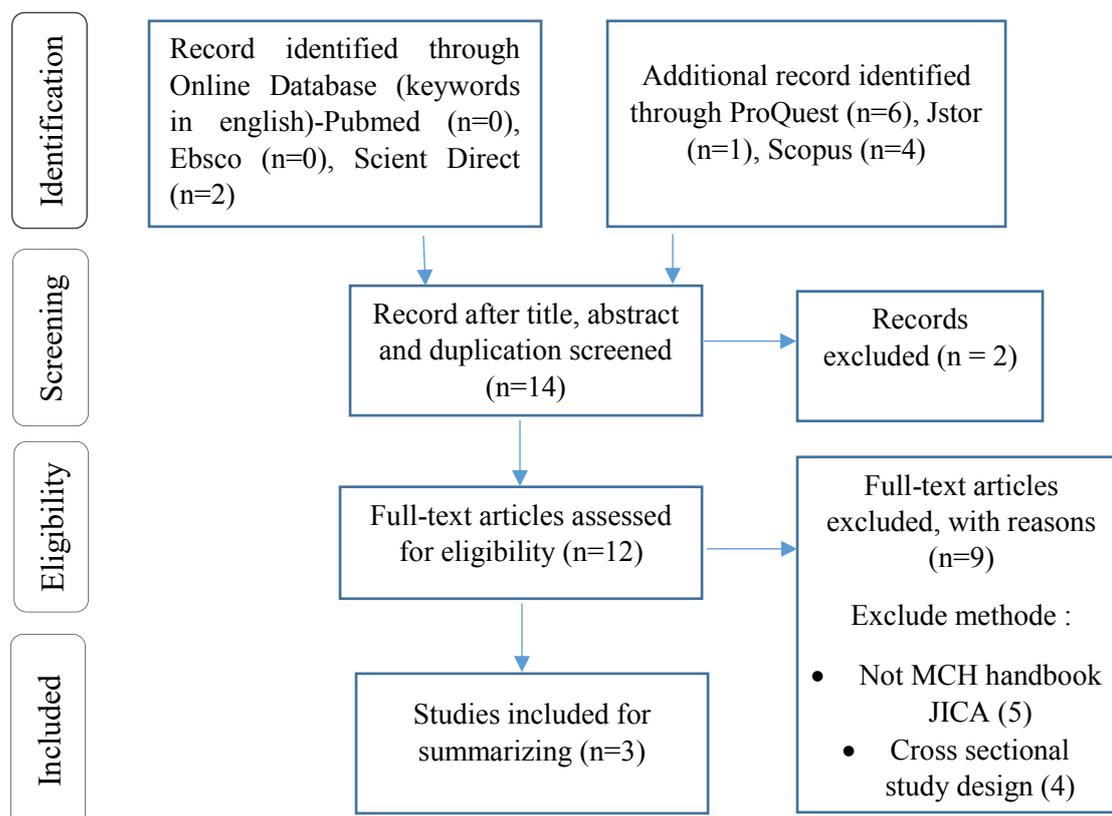
Inclusion Criteria

Full-text journal inclusion criteria, report on maternal and child health handbooks (JICA); experimental study design, cohort, case-control; published from 2008 to 2018.

Exclusion Criteria

Exclusion criteria are as follows: journals with closed access, only abstract, not report maternal dan child health handbook (JICA), study design with cross section. The study selection process is shown in Figure 1.

Figure 1. Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) flow. Maternal and Child Health Handbook



The study was conducted in three phases: (1) searching and collecting literature and data, (2) analyzing and evaluating the literature and data found, and (3) categorizing and summarizing the literature and data.

RESULT

The content of The Maternal and Child Health (MCH) Handbook

Our search identified three papers. Their studies came from Palestina, Burundi (South Africa) and Mongolia. Based on research conducted in Palestine it is known that the mother and child health book used by Palestinian MOH in cooperation with JICA cooperated are guidelines for mothers with small MCH handbook, 56-page booklet (12cm x 17 cm). Health education pages contain colorful illustrations and are in Arabic and the friendly language for mothers. In Burundi (South Africa), the MCH handbook contain is records of the ANC, delivery, PNC, vaccination, child growth monitoring and clinical visits. Moreover, the MCH handbook contains educational messages to raise the demand and awareness of the healthy behavior of women in pregnancy and motherhood, and improve their essential service utilization. The Burundi MOH and JICA collaborated to develop and introduce the MCH handbook, which contains a page for notification of birth. A birth certificate is an important document that proves birth registration and allows mother access to essential services such as free medical care including PNC and school admission. For features dan component the MCH handbook of Burundi will be explained in table 2. The Mongolian edition of the MCH handbook contained along for recording information in maternal health and personal information, course of pregnancy, delivery and postpartum health, weight during and after pregnancy, dental health, parenting classes, child development milestones from the ages of 0-6 years, immunization and illnesses, and height and weight charts for children.

Table 2. Burundian Maternal and Child Health handbook's components and featuresDomain	Components	Mean features and guiding principles to develop the components
Records of care	Names, identifications numbers, and contacts of the mother, child and father/family	To devise more straightforward and educative recording field for health providers
	Vaccination of mother	The formulation followed old home-based records, and all records fields were widened
	ANC, delivery, PNC and child growth monitoring	The records items were updated according to current national health care norms and national health statistic report components.
	Child vaccination until five years old	
	Clinical visits for mother and child	
	Family planning	
Notification of birth	Birthdate, birth weight, the name of the mother, birthplace/facility.	The items were made to be consistent with the requirements for civil registration procedures Health providers are requested to complete the section only in the case of delivery at the health facility
Educational messages	PNC, birth registration, family planning, IMCI (Integrated Management of Childhood Illness), child nutrition, and child growth	Minimum massages were selected according to the priorities of national health policy Some accompanying illustrations should be included along with massages in the local language, in consideration of the rural literacy rate

Table 2. Burundian Maternal and Child Health handbook's components and featuresDomain	Components	Mean features and guiding principles to develop the components
		The illustrations were taken from community health worker's materials, so that community health workers would be able to explain the contents to mothers with enough confidence

Studies from 3 countries stated that the contents of the MCH handbook were complete which included the ANC record, delivery, PNC, child development, notification of birth, an educational message to raise the demand and awareness of healthy behavior of women in pregnancy and motherhood and improve their essential service utilization. The MCH handbooks have also been adapted to local languages as well as using illustrative drawings of interest.

Utilization of The Maternal and Child Health (MCH) Handbook

For the use of the MCH handbook in 3 countries it is known that almost are used to record all health and treatments consultations during pregnancy, delivery, after delivery and during infant care, including immunization and growth monitoring (birth weight is accurate data to monitor stunting in children under 5 years), maternal and neonatal death surveillance and response records. Statistically with Chi-square test from study in Burundi it was found that there was an increase in the proportion of mothers who had accurate birth weight records, from 50.8% to 73.5% (P value <0.05), increasing the proportion of mothers who received guidance on PNC from healthcare professionals from 43.9% to 64.2% (P value <0.05). In Pakistan, the MCH handbook is also used to give information and education by health care professionals for health promotion in maternal and neonatal care (guidance on health promotion in ANC, delivery and Post Natal Care (PNC), mother's guidance and reference of care during pregnancy, delivery, after delivery and infant care. In Burundi, the MCH handbook is also used in birth registration procedures. In Mongolia, the MCH handbook is used in evaluating antenatal attendance, maternal physical and mental health, neonatal health and healthy behaviors, communication tool between a woman and healthcare professionals.

The outcome of The Maternal and Child Health (MCH) Handbook

For the information function of the MCH handbook, the results of the Palestinian study with quantitative analysis with linear regression analysis show that of the spent hours variable at the MCH center interaction between first delivery and the MCH handbook is significant and positive (P-value = 0,0017, $r = 26,3$) [7]. This suggests that primiparous women (women with their first pregnancy) who received the MCH handbook are more likely to spend a longer time at the center, this suggesting if the MCH handbook is a useful tool to promote robust consultation, care, and communication between health providers and women [7].

For the education functions of the MCH handbook show that the MCH handbook is effective in providing adequate knowledge about breastfeeding among less-educated women who are literate (P=0.009) [result from qualitative analysis health providers expressed the opinion that they could provide more comprehensive health education and counseling, with greater confidence and accuracy, when they used the MCH handbook. They also mentioned that they felt committed and relaxed in providing all the necessary information related to MNCH care with the guidance of MCH handbook. Women feel more comfortable and confident when they understand the common symptoms and risks associated with pregnancy and childbirth, and what they should do when they have signs and symptoms indicated those risks. Women also revealed that their husband's participation in pregnancy care, delivery planning, and childcare improved after receiving the MCH handbook because he had a chance to read it at home. Some women added that health education messages included in the MCH handbook were effective in dealing with rumors and misconceptions about pregnancy care and childcare that they,

their family members, and especially their mother-in-law believed [7]. The pregnant women who used the MCH handbook increased their number of antenatal visits from the national requirement of six visits to a mean of 6.9 visits, compared to a mean of 6.2 visits in the control group.

For the record functions of the MCH handbook show that study in Burundi, after the MCH handbook introduction, The proportion of mothers who received notification of birth at facilities significantly increase from 4.6% to 61.0% (95% CI: 55.9% - 66.2%). Additionally, the proportion of mothers who records about delivery mode significantly increased from 0.0% to 29.7% (95% CI: 24.8% - 34.5%). Furthermore, the proportion of mothers who received accurate birth weight data by recall or records increased from 50.8% to 73.5% (95% CI: 68.9% - 78.2%).

From research in Mongolia show that complications in maternal health were more likely to be identified (multivariate analysis with GEE), with maternal morbidity during pregnancy at 12.3% in the intervention group compared with 5.7% in the control group and this difference was statistically significant ($p=0.01$). For an infant, health results show that a higher rate of early breastfeeding initiation among the intervention group was a significant neonatal health outcome. In the intervention group, 94.1% of infants initiated breastfeeding within one hour of childbirth compared with 87.5% of infants in the control group and this difference was not significant.

DISCUSSION

Education Function of The MCH Handbook

Based on research from 3 countries it is known that the MCH handbook proved successful in improving mother and family education about mother and child health especially about exclusive breastfeeding among less-educated women who are literate, risk during pregnancy (rupture of membrane), family planning. The MCH handbook also succeeds in improving maternal knowledge about complications in pregnancy and healthy life behaviors in pregnant women (women stopped drinking alcohol during pregnancy, reducing smoking among women's family members living in the same household). The MCH handbook can be a tool to increase husbands' knowledge of how to cope with emergencies in pregnancy, childbirth, and childcare. Lawrence Green's theory states that a person's or society's health level is influenced by predisposing factors, enabling factors and reinforcing factors. In this study, it can be concluded that improving maternal and child health can be done through increased predisposing factors. The use of the MCH of effective and efficient handbooks as well as the contents of the MCH handbooks that are attractive and useful (enabling factors) as well as the attitude of good health workers in recording and delivery of health services (reinforcing factors).

Information Function of The MCH Handbook

The MCH handbook can provide information on maternal and child health especially related to pregnancy, childbirth, and infant and child care. According to Rosenstock in the theory of the Health Believe Model, some critical aspects of health behavior are perceptions of vulnerability, perceptions of severity, perceptions of profit, initiators and socio-demographic factors. In this study perceptions of the advantages and perceptions of vulnerability and severity can be established through The MCH handbook through the information provided entirely in the MCH handbook. Other than that the aspect of the action actors can be reinforced with the media that is the MCH handbook that is by the condition of the local community.

Record Function of The MCH Handbook

The MCH handbook is helping to ensure mother received data around their children's birth including notification of birth. The MCH handbook enabled clients to keep their continuum records, which are essential for the useful guidance of care. Both ANC and delivery records inside the handbook could work as guides and references for care afterward, even for use in maternal and neonatal death surveillance and response. In particular, birth weight data kept by mothers in the MCH handbook would be vital to accurate child growth monitoring. The MCH Handbook with complete and efficient contents

will facilitate mother in overcoming her health problems and her family in the future. The completeness of the MCH handbook will make it easier for mothers and health workers to cope with maternal and child health problems, but it needs good commitment and competence in filling the MCH handbook correctly. According to Potter and Perry in Sutomo, the goals of recording and reporting are for communication, education, allocation of funds, evaluation, valid documents, quality assurance, research, analysis and feedback in improving health services. Excellent and correct MCH book recording is expected to be used by the above-mentioned objectives.

The health system may need to be adjusted to introduce the use of the handbook. The policymakers should have a clear vision and objectives of an MCH handbook in strengthening their health-care systems. The MCH handbook ensures that parents possess their child's notification of birth at a health facility to induce the child's birth registration with a simple procedure.

CONCLUSION

Maternal and Child Health Books are a useful tool in the function of information, education and recording for maternal and child health. The health system may need to be adjusted to introduce the use of the handbook. The policymakers should have a clear vision and objectives of an MCH handbook in strengthening their health-care systems. However, to increase the effectiveness of the handbook, health providers should be encouraged toward its proper use.

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