

DETERMINANTS OF MATERNAL AND CHILD HEALTH HANDBOOK UTILIZATION IN SURABAYA, INDONESIA

Irwanto¹, Ilham Ikhtiar¹, Indah Lutfiya², Windhu Purnomo³

¹Department of Child Health, Faculty of Medicine, ²Department of Public Health, ³Department of Biostatistics and Demography, Faculty of Public Health, Universitas Airlangga, Surabaya, Indonesia

ABSTRACT

Mothers and child health (MCH) are one of the main issues in family medicine. Related to this practice, Indonesian government issued mother and child health (MCH) handbook for monitoring child development due to various child developmental problems in Indonesia. However, there are reports of improper MCH handbook utilization. This study aimed to analyze factors related to the utilization of MCH handbook by mothers in Indonesia. Cross sectional observational study was conducted from March to May 2018. This study involved mothers with children aged 3 to 72 months old in Surabaya, East Java, Indonesia. Specific population of mothers who had children attending Early Childhood Education and Development (ECED) and Integrated Health Post (IHP) (Indonesia: Pos Pelayanan Terpadu-Posyandu) were included as inclusion criteria. Maternal characteristics, child health status, employment status, and utilization of MCH handbook were recorded through questionnaire. Association between variables then analyzed statistically using Spearman correlation test. As many as 288 participants were enrolled in this study. We found that mothers' participation of Posyandu was positively correlated with MCH handbook utilization ($p < 0.05$). Meanwhile, mother's occupation ($p > 0.05$), mothers' education ($p > 0.05$), and maternal age ($p > 0.05$) were found to be unrelated to the utilization of MCH handbook. Mothers' age, education, and employment were found to be uncorrelated with utilization of MCH handbook. Whereas, mothers' participation in Posyandu was a determinant factor correlated with utilization of MCH handbook.

Keywords: Determinant factors; mother; children; MCH Handbook; Indonesia

ABSTRAK

Kesehatan Ibu dan Anak (KIA) adalah salah satu masalah utama dalam kesehatan keluarga. Pemerintah Indonesia menggunakan buku Kesehatan Ibu dan Anak untuk memantau perkembangan anak karena beragamnya masalah perkembangan anak di Indonesia. Namun, disisi lain, beberapa laporan menunjukkan bahwa terdapat penggunaan buku KIA yang tidak tepat. Studi ini bertujuan untuk menganalisa factor yang berhubungandebfah penggunaan buku KIA oleh ibu-ibu di Indonesia. Studi ini merupakan studi observasi secara cross sectional yang dilakukan selama bulan Maret hingga Mei 2018. Studi ini melibatkan ibu dari anak berusia 3-72 bulan, di Surabaya, Jawa Timur. Kriteria inklusi dalam studi ini adalah ibu yang datang ke Pendidikan Usia Dini (PAUD) dan Pos Pelayanan Terpadu (Posyandu). Karakteristik maternal, status kesehatan anak, status pekerjaan, dan penggunaan buku KIA diteliti menggunakan angket. Hubungan antar variable dianalisis secara statistic menggunakan uji korelasi spearman. Sebanyak 288 subyek penelitian masuk dalam studi ini. Kami menemukan bahwa partisipasi ibu dalam posyandu memiliki hubungan positif terhadap penggunaan buku KIA ($p < 0.05$). Namun, tidak terdapat perbedaan signifikan pada tingkat pendidikan ibu ($p > 0.05$), pekerjaan ibu ($p > 0.05$), dan usia ibu ($p > 0.05$) dengan penggunaan buku KIA. Usia, tingkat pendidikan, dan pekerjaan ibu ditemukan tidak berhubungan dengan penggunaan buku KIA. Sementara itu partisipasi ibu dalam posyandu merupakan faktor yang berkorelasi positif dengan penggunaan buku KIA.

Kata kunci: Faktor pembeda; ibu; anak; Buku KIA; Indonesia

Correspondence: Irwanto, Department of Child Health, Faculty of Medicine, Universitas Airlangga, Jalan Mayjen Prof. Dr. Soetomo 47, Surabaya 60132, Indonesia. Phone (+62)816500818. E-mail: irwanto.idris@gmail.com

pISSN:2355-8393 • eISSN: 2599-056x • doi: <http://dx.doi.org/10.20473/fmi.v55i3.15506>
 • Fol Med Indones. 2019;55:223-228 • Received 10 May 2019 • Accepted 24 Aug 2019
 • Open access under CC-BY-NC-SA license • Available at <https://e-journal.unair.ac.id/FMI/>

INTRODUCTION

Mothers and child health (MCH) are one of the main issues in family medicine. In the context of family medicine, physician is encouraged to include a public

health approach in their practices (Sikora & Johnson 2009), as well as encouraging diseases and disorders prevention rather than treatment. One of the preventable disorders in MCH setting is developmental disorders. Report showed that developmental disorders associated

with children aged 0-6 years, such as motoric delay, autism, and hyperactivity was increased to around 8% in Indonesia (Sitaresmi et al 2016).

Ten percent of Indonesian population is children and toddlers (Ministry of Health Republic of Indonesia, 2015, Olusanya et al 2018) which account for more than twenty million individuals of the country at a risk on preventable developmental disorder. Indonesia has a rapid current development of child education system in the form of Early Childhood Education and Development (ECED) (Pradhan et al 2013). Although not well documented in publications, Indonesian ECED, which is purely educational, is often combined with Pos Pelayanan Terpadu (Posyandu, English: Integrated Health Service Post - IHP) in the practice, which made healthcare access easier for mother and children. To supply the needs of self-education of MCH issues outside Posyandu, MCH handbook were made available freely by Indonesian government for parents and caregivers. In many other countries, MCH handbook has been recognized as an effort for increasing MCH service quality and coverage as well as essential feature of the MCH aspect of primary healthcare (Bhuiyan et al 2006, Yanagisawa et al 2015, Bhuiyan et al 2017, Kaneko et al 2017).

However, despite of positive evidences, studies have reported concern on the underuse or even proper possession of MCH handbook by mother and caregivers (Mori et al 2015, Kitabayashi et al 2017, Osaki et al 2018). Because of these evidences, it is important to identify the determinant factors of MCH handbook utilization. Therefore, this study was conducted to identify determinant factors related to the utilization of MCH handbook, which is used by mothers to monitor the development of children.

METHODS

Study design

A cross sectional study was conducted in Surabaya, Indonesia from March to May 2018. Aim of this study is to identify determinants of MCH handbook utilization. Target population of this study were mothers who had children aged 3 months to 6 years old, especially who were attended Early Childhood Education and Development (ECED). This study was approved by The Ethical Committee Faculty of Public Health, Airlangga University with ethics certificate No 145-KEPK.

Sample collection

Multistage cluster random sampling technique was performed with target sample size of 200 participants. Subject inclusion criteria of this study were mothers who had children aged 3 months to 6 years old. Their children must attend ECED and/or Posyandu to ensure the possession and exposure to MCH handbook. Criteria of exclusion in this study were mothers who were not the member of local ECED and Posyandu activities. Informed consent is an obligatory prerequisite for participation in this study.

Data collection

Data were collected using questionnaire. Among information collected, there were possible determinants of MCH handbook utilization, such as mothers' age, level of education, occupation, and frequency of Posyandu visit. Child health status on growth and development were also assessed based on monthly Posyandu data. Data then categorized and ranked from low to high order if appropriate.

Assessment of MCH Handbook utilization

To assess utilization of MCH handbook we first collect the data by interviewing enrolled participants based on MCH handbook contents as well as checking the book itself. Results were divided into four categories: 1) never used the handbook, 2) only complete reading, 3) only complete reading and question fulfillment of MCH handbook, and 4) completely read, filled out the MCH handbook question, and used the handbook as child stimulation guide.

Statistical analysis

Statistical analyses were performed using SPSS version 21. Correlation test was performed by using Spearman correlation strength test. Result were presented as p value and σ coefficient for correlation strength. Significance were measured as a value of $p < 0.05$.

RESULTS

Subjects' characteristics

There were 288 participants who were enrolled in this study. Majority of mothers was aged 26-35 years old with mean age of 33.65 ± 5.029 (SD). Most participants are high school graduates (50.29%). Most mothers were unemployed and fulfill the role as housewives. About half of participants regularly visit Posyandu in regular monthly interval (53.13%). Possession of MCH handbook is also evaluated in this study, which showed that although all mothers already received their MCH

handbook on pregnancy, only 78.47% currently possessing their handbook while the remaining lost theirs. Summary of subject characteristics is present on Table 1.

MCH Handbook utilization

Utilization of MCH handbook by mothers with children under six years old in Surabaya was mostly done as complete read, filling out the required information and questions, and doing child development stimulation guide of MCH handbook (37.15%). However, we still found a high number of participants who never utilized the book at all (21.18%). Compared to both aforementioned groups, combined group who utilized MCH handbook partially still made a majority at 41.67%. Summary of MCH handbook utilization were reported in Table 1.

Analysis of possible determinants related to the utilization of MCH Handbook

Several factors unrelated to the utilization of MCH handbook were mothers' occupation ($p=0.084$), mothers' age ($p=0.623$), and mothers' level of education ($p=0.182$). Regularity of Posyandu visit was positively related to the utilization of MCH handbook ($p=0.000$, $\sigma=0.451$). Detailed summary of the statistical analyses is presented on Table 2.

DISCUSSION

This study showed different result that the MCH utilization is not age-dependent. Age is thought to be related with participation into health program. A study on 124 participants about the utilization of MCH handbook in Karawang, Indonesia, showed that mother's age is correlated positively with MCH handbook utilization (Farida, 2016). However, the finding is challenged by study in Mongolia which showed no difference between age on the reading and recording in MCH handbook (Hikita et al., 2018). Study in Japan also showed that more than 98.3% of participants had read the handbook (Fujimoto et al., 2001), which effectively showed that MCH handbook usage is independent to age.

Our study methods, which differentiated MCH handbook utilization between reading, answering provided self-questions, and verifying child stimulation, rather than only classifying utilization as already read or not, might explain our findings on age independencies. Our findings also did not show correlation between education level on MCH handbook utilization. This is surprising, since majority of our study participants were guaranteed to be literate to a book-based information source.

Table 1. Mothers' characteristics

Characteristics	N	%
Age (years old)		
15-25	13	4.51
26-35	170	59.03
36-45	101	35.07
46-55	4	1.39
Education Level		
Elementary school graduate	14	4.86
Middle school graduate	35	12.15
High school graduate	146	50.69
University graduate	93	32.29
Mother Employment		
Housewife	185	64.24
Employed	103	35.76
MCH Handbook status		
Never know if have one	20	6.94
Handbook is currently missing	42	14.58
Handbook is available	226	78.47
Posyandu visit		
Never	55	19.10
Occasionally	80	27.78
Monthly (routine)	153	53.13
MCH Handbook Utilization		
Never utilized	61	21.18
Only read	26	9.03
Read and fulfilled the question	94	32.64
Read, fulfilled, and used as a child stimulation guide	107	37.15

Table 2. Correlation between possible determinants and MCH handbook utilization

Variables	<i>P</i>	Σ	Correlation
Mothers' age	0.623	0.029	No correlation
Mother' education	0.182	0.709	No correlation
Mothers' occupation	0.084	0.102	No correlation
Posyandu visit	0.000*	0.451	Positive correlation

*Spearman correlation test. Correlation is significant under $p < 0.05$

In MCH-settings, mother education level is known to significantly affects the child access and utilization towards available healthcare, as well as better health related advantages on children (Mohammadsalehi et al., 2015; Prickett and Augustine, 2016). Our finding suggest that formal education and reading literacy are not a guarantee for utilization of a book-based information although it is official and nationally standardized. Perhaps related to our findings, the more fitting term that affect the use of MCH handbook is not education, but "health literacy". The term is defined in MeSH (Medical Subject Headings) as a degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decision.

A study found that individuals with lower health literacy spent greater total expenditures for maintaining their health (Rasu et al 2015). Because of that, we suggest that further study on MCH handbook evaluation should also be based on health literacy definition. Our finding strongly supports the idea that mother employment does not affect mother's attention towards her child growth and development, specifically in the form of MCH handbook utilization. Mother who work outside the home are often stigmatized to have less control on child health due to less interaction with their children. A report confirmed that of duration of interaction between employed mothers and their children is different compared to them who work at home (Fahey et al 2013). However, a study that stated maternal employment status, even in single mother, is not associated access and utilization towards available health care (Clarke et al 2011). Perhaps, if we look back to a study dated more than four decades ago, the stigmatization issue of employed women towards child health is still existing, although there is clearly no difference on child health outcome in employed mother group compared to unemployed mother group, especially if mother had chosen to be employed (Howell 1973).

In this study, we found a significant correlation between MCH handbook utilization and Posyandu visit. The main concept of Posyandu is the participation of local community with healthcare personnel to help mothers and children gaining easy access for healthcare

(Saepuddin et al 2018). A systematic-review concluded that community-based intervention towards mother and children is an important effort on improving MCH (Portela et al 2017). Study also showed that MCH handbook outcome is improved when communication with healthcare is increased (Hagiwara et al 2013). Because of these evidences, it is clear that both healthcare personnel and community involvement is important towards the utilization of MCH handbook. The findings on correlation of health personnel visit and MCH handbook utilization combined by the fact of the mostly-curative clinical orientation of Indonesian physician practice (Istiono et al 2016) suggest that MCH handbook is not a popular monitoring tool in Indonesian family physician. This may be related to situation where monitoring of MCH is already provided by Indonesian government-established health service. Deduction-wise, we pointed the danger of this practice, because the newly-found MCH problems by family physician will mostly fall into curative rather than preventive sector. Based on this, we suggest the utilization of MCH handbook by family physicians for a more holistic complementary approach for early detection of MCH problems. Although we were able to enroll a huge number of participants and obtained mostly expected results, this study still has limitations. This study did not cover the significant cultural difference of Indonesian that may affect MCH handbook utilization. This might allow contrasting result when same study methods were done in other regions of Indonesia. Moreover, the lack of standardized evaluation of MCH handbook usage strongly limit our data collection method and statistical analyses method to non-parametric test. We also did not control the possible confounding factors that may affect our study result. Hence, further studies that allow better data collection method and more standardized evaluation were required to reconfirm the result of this study.

CONCLUSION

Determinant factor related to the use of MCH handbook among mothers who had children under the age of six years consist of the regularity of their visits and participation to IHP. Contrary to popular beliefs, mothers' age, education, and occupation are not related

to the use of MCH handbook based on findings in this study.

ACKNOWLEDGMENTS

The authors would like to exert gratitude to all research participants for their cooperation and support.

REFERENCES

- Bhuiyan S, Nakamura Y, Qureshi N, et al (2006). Study on the development and assessment of maternal and child health (MCH) handbook in Bangladesh. *J Public Heal Dev* 4, 45-60
- Bhuiyan SU, Begum HA, Lee AS, et al (2017). Maternal and child health handbook: Utilization and lessons learned from selected evidence-based studies. *J Public Heal Dev* 15, 87-100
- Clarke TC, Arheart KL, Muennig P, et al (2011). Health care access and utilization among children of single working and nonworking mothers in the United States. *Int J Health Serv* 41, 11-26
- Fahey T, Keilthy P, Polek E (2013). Family relationships and family well-being: A study of the families of nine year-olds in Ireland. Available from: <http://hdl.handle.net/10197/5102>
- Farida N (2016). The Determinants of The MCH Handbook Utilization by Pregnant Women at Wanakerta Health Center of Karawang Regency In 2015](Article in Indonesian). *South East Asian J Midwifery* 2, 33-41
- Fujimoto S, Nakamura Y, Ikeda M, et al (2001). Utilization of Maternal and Child Health handbook in Japan. *Nihon Koshu Eisei Zasshi* 48(6), 486-94.
- Hagiwara A, Ueyama M, Ramlawi A, et al (2013). Is the Maternal and Child Health (MCH) handbook effective in improving health-related behavior? Evidence from Palestine. *J Public Health Policy* 34(1), 31-45
- Hikita N, Haruna M, Matsuzaki M, et al (2018). Utilisation of maternal and child health handbook in Mongolia: A cross-sectional study. *Health Educ J* 77, 458-69
- Howell MC (1973). Effects of maternal employment on the child. II. *Pediatrics* 52(3), 327-43
- Istiono W, Claramita M, Ekawati FM, et al (2016). Physician's self-perceived abilities at primary care settings in Indonesia. *J Fam Med Prim care* 4, 551-8
- Kaneko K, Niyonkuru J, Juma N, et al (2017). Effectiveness of the Maternal and Child Health handbook in Burundi for increasing notification of birth at health facilities and postnatal care uptake. *Glob Health Action* 10, 1297604
- Kitabayashi H, Chiang C, Al-Shoaibi AAA, et al (2017). Association Between Maternal and Child Health Handbook and Quality of Antenatal Care Services in Palestine. *Matern Child Health J* 21, 2161-8
- Ministry of Health Republic of Indonesia (2015) Indonesia Health Profile 2014. Available from: <http://www.depkes.go.id/resources/download/pusdatin/profil-kesehatan-indonesia/Indonesia%20Health%20Profile%202014.pdf>
- Mohammadbeigi A, Arsangjang S, Mohammadsalehi N, et al (2015). Education-related Inequity in Access and Utilization of Oral Health Care in Iran. *J Fam Med Prim care*. 4, 35-8
- Mori R, Yonemoto N, Noma H, et al (2015). The Maternal and Child Health (MCH) handbook in Mongolia: a cluster-randomized, controlled trial. *PLoS One*. 10, e0119772.
- Olusanya BO, Davis AC, Wertlieb D, et al (2018). Developmental disabilities among children younger than 5 years in 195 countries and territories, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet Glob Heal* 6, e1100-21.
- Osaki K, Hattori T, Toda A, et al (2018). Maternal and Child Health Handbook use for maternal and child care: a cluster randomized controlled study in rural Java, Indonesia. *J Public Health (Oxf)* Jan 9
- Portela A, Stevenson J, Hinton R, et al (2017). An evidence map of social, behavioural and community engagement interventions for reproductive, maternal, newborn and child health. 2017. Available from: <https://apps.who.int/iris/bitstream/handle/10665/259399/9789240697263-eng.pdf;jsessionid=35F5B3EF54D-28E48DE9CF5FCA4D0732A?sequence=1>
- Pradhan M, Brinkman SA, Beatty A, et al (2013). Evaluating a community-based early childhood education and development program in Indonesia: study protocol for a pragmatic cluster randomized controlled trial with supplementary matched control group. *Trials* 14, 259
- Prickett KC, Augustine JM (2016). Maternal Education and Investments in Children's Health. *J Marriage Fam* 78, 7-25.
- Rasu RS, Bawa WA, Suminski R, et al (2015). Health Literacy Impact on National Healthcare Utilization and Expenditure. *Int J Heal policy Manag* 4(11), 747-55
- Saepuddin E, Rizal E, Rusmana A (2018). Posyandu Roles as Mothers and Child Health Information Center. *Rec Libr J* 3, 201
- Sikora C, Johnson D (2009). The family physician and the public health perspective: Opportunities for improved health of family practice patient populations. *Can Fam Physician* 55, 1061-3

Sitairesmi MN, Ismail D, Wahab A (2016). Risk factors of developmental delay: a community-based study. *Paediatr Indones* 48, 161

Yanagisawa S, Soyano A, Igarashi H, et al (2015). Effect of a maternal and child health handbook on

maternal knowledge and behaviour: a community-based controlled trial in rural Cambodia. *Health Policy Plan* 30, 1184-92