

Relationship Between MCH Handbook Utilization and Pregnant Women's Knowledge of Daily Care at Tanah Kalikedinding Health Center

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ARTICLE INFORMATION

Article history

Received (11 January 2025)

Revised (24 January 2025)

Accepted (25 January 2025)

Keywords

MCH Handbook,

Daily care,

Knowledge

ABSTRACT

Introduction: Indonesia is positioned among the Southeast Asian countries with the highest maternal mortality rates (MMR) with a rate of 189 per 100,000 live births based on the 2020 Long-Form Population Census. Achieving a reduction in maternal mortality to fewer than 70 deaths per 100,000 live births by 2030 is critical for fulfilling the Sustainable Development Goals (SDGs). Proper antenatal care, including the utilization of the MCH handbook, plays a crucial role in reducing maternal mortality. Pregnancy care is vital to ensure fetal development, prevent pregnancy complications, and lower the risk of infant mortality during childbirth. **Objectives:** This study aims to conduct a scientific investigation to examine the relationship in the utilization of the MCH handbook with the level of maternal knowledge among pregnant women at the Tanah Kalikedinding Health Center. **Methods:** This observational analytic study used a cross-sectional design. A total of 106 participants were chosen through purposive sampling methods. The data underwent analysis employing the Spearman rho statistical test. **Results:** Among the respondents, 51 (48.11%) demonstrated adequate utilization of the MCH handbook and 89 (83.96%) exhibited a high level of knowledge regarding daily care for pregnant women. The Spearman rho test indicated a significant correlation between the use of MCH handbook and knowledge of daily care ($p = 0.042$). **Conclusion:** There is a significant relationship between the use of the MCH handbook and pregnant women's knowledge of daily care at Tanah Kalikedinding Health Center.

Introduction

An important measure of a nation's societal well-being is the Maternal Mortality Ratio (MMR) and the Infant and Under-Five Mortality Rates (IMR and U5MR) (Kementerian Kesehatan RI, 2018). Indonesia is positioned among the Southeast Asian countries with the highest MMR (United Nations Population Fund, 2022). The 2020 Long Form Population Census (SP2020) reported Indonesia's MMR as 189 maternal deaths per 100,000 live births, encompassing fatalities during pregnancy, labor, or the postnatal period. This figure demonstrates a significant reduction compared to the 2010 Census and the 2015 Inter-Census Population Survey (SUPAS). East Java Province reported a total of 499 maternal deaths in 2022, with the most common causes being hypertensive disorders of pregnancy (24.45%) and hemorrhage (21.24%) (Dinkes Jatim, 2023). However, this figure must continue to decrease to achieve the objectives outlined by the Sustainable Development Goals (SDGs). The aim specified in SDGs target 3.1 is to decrease the MMR to under 70 per 100,000 live births by the year 2030 (Badan Pusat Statistik, 2021).

To achieve a reduction in MMR, active collaboration and participation across sectors, professions, academia, communities, families, non-governmental organizations, donor agencies,



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and the private sector are crucial. By utilizing the Maternal and Child Health (MCH) handbook, mothers and families can substantially improve preventive strategies and health promotion efforts, thereby effectively tackling maternal and child health concerns that contribute to MMR. (Kementerian Kesehatan RI, 2016).

The MCH handbook provides as a comprehensive medical history for mothers throughout pregnancy, labor, and the postnatal period, in addition to children, including newborns, infants, and toddlers. Furthermore, it provides essential guidance on maintaining and nurturing the health of both mother and child. The government has been distributing this book since 1997 with support from the Japan International Cooperation Agency (JICA) (Riskasdas, 2013). However, according to the 2018 Riskasdas data, only 66.2% of pregnant women possessed and were able to present the MCH handbook, 9% of mothers were unable to show it, and 24.9% did not have the MCH handbook at all (Riskasdas, 2018). These figures show a decline compared to 2013. Nevertheless, Surabaya city has shown a decrease in maternal mortality between 2017 and 2023, from 79 to 32 per 100,000 live births (Dinkes Suarabaya, 2023). According to (Humaeroh & Hidayani, 2018), the uneven distribution of the MCH handbook reduces its effectiveness and efficiency, ultimately affecting the reduction in MMR.

Overall, the maternal mortality rate can be minimized through proper pregnancy care and good pregnancy management, including the use of the MCH handbook (Maryam, 2018). Pregnancy care is essential for ensuring fetal development, preventing pregnancy complications, and reducing the risk of infant death during delivery (Lammarisi, 2020). Daily pregnancy care that can be performed by pregnant women and their spouses includes eating a balanced diet, maintaining personal hygiene, getting sufficient rest, stimulating the fetus, and engaging in healthy sexual activity during pregnancy (Kementerian Kesehatan RI, 2023). These forms of care are documented in the MCH handbook. However, they are still not maximally practiced by pregnant women (Ismail *et al.*, 2022).

The use of the MCH handbook represents a vital resource for accessing health information enables pregnant women to more easily understand and be willing to implement the information contained in the book (Ainiyah *et al.*, 2017). As highlighted in the research undertaken by (Siwi *et al.*, 2023) illustrates the substantial impact of the MCH handbook on enhancing expectant mothers' understanding of pregnancy care. The systematic implementation of the MCH handbook across all healthcare facilities aims to improve awareness and comprehension among expectant mothers. This initiative is critical for facilitating the early detection of potential complications during pregnancy, ensuring that such risks can be identified and addressed promptly. Aligning with the core objectives of antenatal care, the MCH handbook is a valuable resource for preventing obstetric complications and to ensure adequate and timely management of any adverse conditions, ultimately facilitating improved outcomes in maternal and child health. Additional studies indicate that the regular and comprehensive distribution of the MCH handbook can substantially enhance the understanding and behaviors of pregnant women (Yanagisawa *et al.*, 2015).

Kenjeran District in Surabaya City recorded one of the highest MMR rates in 2022 (Disdukcapil, 2023). A preliminary study conducted at the Tanah Kalikedinding Health Center with the coordinator midwife and pregnant women revealed that every pregnant woman attending Antenatal Care (ANC) at the health center received a MCH handbook. However, among 15 pregnant women, only 13.33% always read the book, 6.67% often read it, and 80% rarely read this handbook. A significant proportion of pregnant women rarely read or study the MCH handbook due to reasons such as busy schedules, lack of understanding, and the perception that



the MCH handbook is merely a health record. Building on this background, the researcher aims to conduct a scientific investigation to examine the relationship of MCH handbook utilization and knowledge levels regarding daily maternal care among pregnant women at the Tanah Kalikedinding Health Center in Kenjeran District. Specifically, this study seeks to examine the frequency distribution of MCH handbook utilization, the daily maternal care practices among pregnant women, and the correlation between these two variables.

Methods

This study employed an analytical observational approach utilizing a cross-sectional design. The population included all pregnant women who attended Antenatal Care (ANC) services at the Tanah Kalikedinding Health Center, Surabaya, between August and September 2024, totaling 347 individuals. A total of 106 participants were chosen through purposive sampling methods. The inclusion criteria required participants to provide informed consent, while the exclusion criteria applied to pregnant women without an MCH handbook.

This research identified the utilization of MCH handbook as the predictor variable, while the response variable was the knowledge of daily maternal care. Data collection employed two validated and reliable questionnaires, one containing 10 items designed to assess the use of the MCH handbook and the other comprising 15 items to evaluate maternal care knowledge. These tools underwent rigorous validity and reliability testing to ensure the precision and consistency of the measurements.

The data were analyzed using Spearman's rho statistical test to evaluate the extent and nature of the interconnections among the variables. A 95% confidence interval (CI) was applied to reinforce the reliability of the findings with statistical significance determined at $p < 0.05$. This methodological approach provides valuable evidence on the influence of the MCH handbook in enhancing maternal knowledge, emphasizing its role as an essential resource in maternal health management.

Results

Table 1 Frequency Distribution of Respondent Characteristics

Characteristics	Category	Total	
		Frequency (n)	Percentage (%)
Age	20-35 years	101	95,2
	>35 years	5	4,8
Parity	Primipara	34	31,7
	Multipara	72	68,3
Education	Elementary and Middle School	21	19,6
	Senior High School	72	68,2
	Higher education	13	12,2
Occupation	Not working	80	75,7
	Working	26	24,3

According to Table 1, the largest proportion of respondents, comprising 95.2% were situated within the age bracket of 20 to 35 years. and more than half of the pregnant women being multiparous (68.3%). The respondents were predominantly educated at the senior high school level or its equivalent (68.2%), and a large proportion (75.7%) were housewives or not employed.



Table 2 Frequency Distribution of MCH Handbook Utilization

Variable	Category	Total	
		Frequency (n)	Percentage (%)
MCH Handbook Utilization	Good	49	46,22
	Adequate	51	48,11
	Poor	6	5,66

According to the findings in Table 2, nearly half of the respondents 51 (48.11%) demonstrated a moderate level of utilization of the MCH handbook.

Table 3 Frequency Distribution of Knowledge on Daily Maternal Care

Variable	Category	Total	
		Frequency (n)	Percentage (%)
Knowledge of Daily Maternal Care	High	89	83,96
	Moderate	12	11,32
	Low	5	4,71

According to the findings in Table 2, the results revealed that a significant proportion of the pregnant respondents 89 (83.96%) had a high level of knowledge regarding daily maternal care.

Table 4 Tabulation of the Relationship Between MCH Handbook Utilization and Knowledge of Daily Maternal Care

Variable	Category	Knowledge of Daily Maternal Care						Total	p-value	r-value
		High		Moderate		Low				
		(n)	(%)	(n)	(%)	(n)	(%)			
MCH Handbook Utilization	Good	45	88,23	6	11,76	0	0	100	0,001	0,310
	Adequate	39	79,6	8	16,32	2	4,08	100		
	Poor	3	50	0	0	3	50	100		
Total		87	82,07	14	13,2	5	4,71	100		

According to the data presented in Table 4, it was demonstrated that pregnant women with good utilization of the MCH handbook exhibited higher levels of knowledge (88.23%) compared to those with moderate or low levels of knowledge. Bivariate analysis using the Spearman's rho correlation test revealed a p-value 0.001, which is less than $\alpha = 0.05$, and a correlation coefficient (r) of 0.310. This finding suggests a statistically significant association regarding the use of the MCH handbook and maternal knowledge of daily care, albeit with a weak level of correlation.

Discussion



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MCH Handbook Utilization

The study's outcomes underscore that almost half of the total respondents comprising expectant mother totaling 51 individuals (48.11%) exhibit a moderate level of utilization of the MCH handbook. The engagement of medical professionals, expectant mothers, and their families in reading the health information presented in the MCH handbook is essential for its effective utilization. The health information that pregnant women should read includes balanced nutrition, rest patterns, daily hygiene, physical activity during pregnancy, childbirth preparation, warning signs during pregnancy, other maternal health concerns, and early signs of labor (Maharani *et al.*, 2019). The practice of maintaining maternal and child health care, as well as the quality of MCH services can be improved by utilizing the MCH handbook as a comprehensive record book for families (Kurniasari, 2018). The effective application of the MCH handbook is achieved when the mother, her spouse, family, and caregivers in social welfare settings actively review, learn, and steadily internalize the information, applying it in their everyday lives. Proper use of the MCH handbook will lead to an increase in maternal and family knowledge about health, encourage communities to adopt healthier lifestyles, and improve access to quality healthcare services (Mappaware *et al.*, 2022).

Knowledge of Daily Maternal Care

The study's results imply that a significant proportion of pregnant women, totaling 89 individuals (83.96%) possess an extensive knowledge of daily care practices during pregnancy. Pregnancy represents a period of profound physical and psychological changes for a woman. Pregnancy care holds critical significance, not only for safeguarding the health and well-being of the mother but also for facilitating the optimal progress and well-being of the unborn child (Kementerian Kesehatan RI, 2014). Proper prenatal care is essential for ensuring the healthy progression and maturation of the fetus. Pregnancy care helps prevent complications such as low birth weight, premature births, and delivery difficulties. It also plays a critical role in reducing maternal morbidity, which can result from poor health, malnutrition, and lack of medical facilities. Proper care during pregnancy is fundamental in preserving the health of both the mother and child (Yadav *et al.*, 2020).

The daily pregnancy care guidelines outlined in the MCH handbook include five main points that can be practiced by pregnant women and their husbands, including consuming a balanced and varied diet, maintaining personal hygiene, ensuring adequate rest, stimulating the fetus together with the husband, and engaging in sexual activity during a healthy pregnancy as permitted (Kementerian Kesehatan RI, 2014). The guidelines align with (Mudasir *et al.*, 2019), emphasizing that nutrition is essential during pregnancy to maintain maternal health. A proper diet should provide sufficient energy and nutrients, including proteins, fats, carbohydrates, vitamins, and minerals, to support fetal growth without depleting maternal reserves. Similarly, (Shanti and Shamshankar, 2018) stress that poor hygiene can cause infections and diseases transmissible to the baby, highlighting personal hygiene as crucial for a healthy pregnancy. Additionally, paternal stimulation, such as speaking to the fetus, can soothe the baby and strengthen the emotional bond through voice and touch, positively influencing language development (Aprilia, 2020).

Relationship Between MCH Handbook Utilization and Knowledge of Daily Maternal Care

According to the findings displayed in Table 4, highlighting a significant correlation between the utilization of the MCH handbook and knowledge concerning daily care during pregnancy. This outcome corresponds with the research carried out by (Ahmad *et al.*, 2022),



which states that a connection exists between the use of the MCH handbook and the understanding of maternal care. Another study titled "The Relationship between the Utilization of the MCH handbook with Knowledge and Anxiety Levels of Pregnant Women at RSUD Banyumas" also shows similar results. According to Wardiyati & Rifiqoch (2023), a significant positive correlation exists in the application of the MCH handbook in relation to the extent of maternal knowledge with greater use of the handbook corresponding to higher levels of understanding among pregnant women regarding maternal health.

The MCH handbook serves as the sole family health record that contains information and health records for both the mother and child. This book is kept by the mother or family and is used as a communication tool between healthcare providers and the mother or family during health services. Every pregnant woman receives one MCH handbook for a single pregnancy and an additional MCH handbook for each subsequent pregnancy or twin pregnancies (Kementerian Kesehatan RI, 2014). This book serves as a comprehensive health record from pregnancy to the child's fifth year. It is anticipated that pregnant women will possess a comprehensive understanding of how to effectively use this book (Tjahjani, 2016).

As indicated by the data in Table 4, a significant number (87.8%) of pregnant women utilized the MCH handbook effectively and had high knowledge of pregnancy care. However, there were also respondents with moderate or low utilization of the MCH handbook who still exhibited high levels of knowledge. Multiple factors may influence knowledge in this context, including education, employment, age, experience, socio-cultural and economic conditions, as well as access to information (Notoatmodjo, 2014). The results are consistent with those reported in prior research carried out by (Dhini *et al.*, 2024), which emphasizes that expectant mother who utilize the internet as an information source generally demonstrate a higher level of knowledge. According to Sarasati, millennial mothers use internet-based health communication media for pregnancy and childbirth, such as Instagram and WhatsApp groups for pregnant women. This allows them to access information without needing to meet healthcare providers in person. They ensure the credibility of the information by selecting sources from trusted medical professionals or fellow experienced millennial mothers who voluntarily share their knowledge (Sarasati, 2020).

The MCH handbook continues to serve as a crucial instrument in advancing knowledge on maternal and child health. In addition to serving as a documentation medium for maternity services, it can be utilized by mothers and families as a valuable information source to enhance their understanding. When used appropriately, the MCH handbook can become an effective educational tool for midwives to help pregnant women comprehend and apply health information. Its utilization is expected to lead to greater knowledge among mothers and families (Khuzaiyah *et al.*, 2018).

Conclusion

A substantial proportion of pregnant women at Tanah Kalikedinding Health Center, amounting to 48.11%, make adequate use of the MCH handbook, while 83.96% exhibit a strong understanding of daily maternal care practices. The findings further indicate a statistically significant correlation regarding the utilization of the MCH handbook and knowledge of daily maternal care, with a correlation coefficient (r) of 0.310 and a p -value 0.001 ($p < 0.05$). The outcomes provide sufficient grounds to invalidate the null hypothesis (H_0) and lend support the alternative hypothesis (H_1), indicating the presence of a positive, though limited, correlation. This suggests that more frequent and effective use of the MCH handbook is correlated with improved knowledge regarding daily maternal care among pregnant women. Consequently, the MCH



handbook serves as an essential resource for enhancing maternal knowledge and promoting better health practices at Tanah Kalikedinding Health Center.

Ethics approval and consent to participate

Approval for this study was obtained from the Health Research Ethics Committee at the Faculty of Medicine, Universitas Airlangga, following the applicable ethical guidelines. The ethical approval was granted under approval number 196/EC/KEPK/FKUA/2024.

Acknowledgments

Gratitude is extended to Tanah Kalikedinding Health Center, Surabaya for granting permission and allowing us the opportunity to carry out this research at their facility. Special appreciation is also expressed to the midwives at the MCH clinic of this health center for their support and cooperation throughout the study. Sincere thanks are also directed to the pregnant women who graciously agreed to participate as respondents, whose contributions were invaluable to the success of this research.

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