



Factors Related to Utilization of Maternal Child Health Handbook Data by Midwives

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Abstract

Midwives are one of the health workers utilizing the MCH (Maternal Child Health) handbook which records the data used to prevent infant, under-five, and maternal mortality. This study aimed to investigate factors related to utilization of the MCH handbook data, namely individual, organizational, and operational techniques. Quantitative approach was used in a cross-sectional survey with a structured questionnaire. Thirty-one midwives were selected as the sample from Active Alert Village in Temanggung district with rural and urban area representative consideration. Besides, descriptive data were tabulated, and inferential analysis was conducted by Pearson product-moment correlation. Result showed the rate of MCH Handbook data utilization was 78.54%. Also, data requirement perception, data filling skill, motivation, attitudes of midwives and facilities availability ($p < 0.05$) are significantly related. The MCH handbook data utilization was determined by the individual factor, but with no significant relationship to operational and organizational factors except facilities availability. Therefore, efforts are required to improve data utilization by increasing data requirement perception, data filling skills, motivation and midwives attitudes.

INTRODUCTION

All Maternal Child Health (MCH) healthcare data and information for all periods from pregnancy to early childhood are integrated in one handbook that named Maternal Child Health (MCH) Handbook. In general, it is including Antenatal Care (ANC) records, labour and delivery, postpartum care, baby and childcare, immunizations, and family planning. This handbook also provides information about how mothers take care of themselves and their children (Indonesian Health Department, 2009). MCH Handbook is a book containing important information with the aim of promoting and

maintaining maternal and child health as a guide for pregnancy, delivery, and childcare to facilitate care across the lifecycle (Takeuchi et al., 2016; Osaki et al., 2019).

The development of these handbook was motivated by an increase of Japan population in 1937 so the Japanese government arranged Boshi Techo which means the MCH Handbook to increase the quality of pregnant women and children. This book began to be applied en masse in Indonesia in 1998. In 2018, it has been developed in 14 countries in the world, namely Palestine, Afghanistan, Laos, Uganda, Tajikistan, Vietnam, Kenya, Myanmar, East Ti-

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mor, including Indonesia (Nakamura, 2010; Kitabayashi et al., 2017).

Detection early in the direct cause of maternal, infant, and under-five mortality is one of the efforts that can prevent mortalities of them. Therefore, it needs a method to detect the early cause of death by doing surveillance based on society. It has done by the village community with the aim to provide information and description of health problems in the village. Implementation prevention of the incidence of morbidity and death can be done through Maternal and Child Health Management (Indonesian Health Department, 2010). The main data recording source of this surveillance is the MCH Handbook. Data capturing and reporting of MCH Local Area Monitoring (LAM) are using main data as a database (Indonesian Health Department, 2009). Health personnel included midwives record details of the services delivered in the handbook and give guidance during service provision to help clients understand its contents and encourage them to share the information with their families (Osaki et al., 2013; Yanagisawa et al., 2015).

The MCH data recording and reporting system do not work well. Research in Pekalongan Regency reported that just only 40% of the total pregnancies from a research sample were reported in Pregnancy, Delivery, and Infant Register completely (Burke et al., 2011). This condition is the same with the average completeness of the MCH Handbook in Temanggung Regency just only 45.29% (Dharmawan, 2019).

MCH handbook must be carried at every health service attended for pregnancy, delivery, infant, and child health services as health recording for MCH health services management (Indonesian Health Department, 2009). Midwives can use the data in the MCH Handbook as data resources in MCH health program management (Indonesian Health Department, 2010). The midwives have the responsibility to make the data management in the MCH program in order to maintain the MCH program through surveillance systems use MCH Local Area Monitoring (Rani & Hargono, 2014). Research in Bukittinggi City reported that Midwives' performance in the institutionalization of MCH Local Area Monitoring in unfavorable criteria was amount 62,2%, but the Midwives' have good motivation and mild workload (Andriani & Murni, 2020). These results show to us that management data in MCH's program still need improvement even though MCH data is important to manage the MCH program especially for the prevention of maternal and infant mortality. Data in the MCH handbook can be used as surveillance data for the MCH program, also can be used by midwives to give appropriate health ser-

vices for mothers and infants. At this point, the role of midwives is important to make data in the MCH Handbook that can be maximized in MCH services and program.

Theory of PRISM (Performance of Routine Information System Management) is based theory to determine the utilization of data by three factors: behavioral factors, technical factors and organizational factors. Behavioral factors in this theory are data needs, skills, attitude, and motivation. Technical factors include the complexity of the form. While the organizational factors are training, supervision, resource availability, rewards (Aqil et al., 2009). This research's objective was to know the correlation of the individual factor, technical and organizational factor toward data uses in MCH Handbook by Village Midwife.

METHODS

Data collection techniques used a survey method with a structured questionnaire instrument to describe individual factors, technical factors, organizational factors, and utilization of MCH Handbook data. Individual factors variable is consists i.e. perceptions of data needs, skills of MCH handbook data filling, motivation, and attitude. These variables measured the personal capability of the midwives included perception, skill, motivation, and the attitude of the midwives. The complexity of the MCH Handbook form was used to measure the technical factor. The organizational factors consist i.e. the availability of facilities perceptions, training, awards, and supervision. These variables measured the perception of midwives in facilities, training, awards, and supervision that was managed by management who supervised the midwives. All of the variables were measured by scoring in each question with the Likert Scale measurement with the lowest score 0 and the highest 4. The population of this study is Village Midwives who work at Active Alert Village in Temanggung Regency is amount 289 midwives. The sample was taken with 31 village midwives in Active Alert Village in the working area of 3 health centers representing the urban area and rural area in Temanggung Regency. One health center with 9 midwives was representing of an urban area and two health center with 22 midwives was representing a rural area. The selection of Health Centre according to information from MCH's program manager and Active Alert Village's program manager in the District Health Office of Temanggung Regency. Active Alert Village criteria as expected midwives have taken the MCH Handbooks for surveillance in MCH Local Area Monitoring. This research used a quantitative method approach thus tabulation is used to analyze the descriptive data while genera-

lizing analysis using the Pearson Product Moment correlation test. The percentage of index mean score against the expected total score was used to measure the variables. The percentage of an index is above 50 % is means a good level. This study has received Ethical Clearance from the ethics committee Faculty of Public Health Diponegoro University number 265/EC/FKM/2016

RESULTS AND DISCUSSION

The mean of age's village midwives are 40.12 years old with age youngest 31 years old and oldest 50 years old, median value 41 and standard deviation of 5.13. Most of village midwife's education is Midwifery Academic (87,1%). Most of the working status of the village midwife is civil servants (87.1%), is greater than the percentage of contract working status. The tenure of the village midwife was over 10 years (87,1%), greater than the percentage under 10-year group.

Individual Factors

Individual factors are perceptions of data needs, skills of MCH handbook data filling, motivation, and attitude. The percentage index mean score against the expected total score above 70%. This indicates that the perception of data needs, skills of these handbook data filling, motivation, and attitude of midwives is good due to the percentage of index is above of 50%. The mean score index ranges from 75.1% for Skills of MCH Handbook data filling variable up to 87.46% for the perceptions of needs data variable. This indicates midwives' perception of data needs is very high due to the percentage of index is

close to 100%.

The mean score index of them that we can see at Table 1 which describe score each variable and percentage of mean score against score standard for each variable. To know correlation between independent variable and dependent variable, we can see at the Table 2.

Based on the test results above indicate a significant relationship on all individual factors. There is relation of perception of data needs, data filling skills, motivation and attitudes of midwives toward the utilization of MCH Handbook data. The strength of the relationship is sufficient. is indicates that individual variables strongly contribute to the willingness to utilize data on this handbook. A study conducted at Kalibagor Health Center, also showed that the mother's knowledge of MCH Handbook was significantly related to the quality of its use (Sistiarani et al., 2014a). Other research in Semarang district also shows the Midwife's Motivation and Working Period also related to data recording quality in MCH LAM (Dharmawan et al., 2015). In line with the function of the Midwife to improve the health of pregnant women, the MCH Handbook is a tool for making maternal health education that can improve the health behaviors of pregnant women (Hagiwara et al., 2013; Ainiyah et al., 2018; Downer et al., 2020). Midwife's knowledge, attitude and skill also relate with completeness of MCH Handbook in Jepara Regency (Sarasati et al., 2016). Midwife's knowledge and attitude also significant relate with integrated management of neonatal and childhood illness (IMNCI) algorithm at neonatal services (Ira-

Table 1. Description of variable score

Variable	Min Score	Max Score	Mean Score	SD	Score Standard	Index of mean score against score standard (%)
Individual Factor						
Data needs	37	52	45.48	4.61	52	87.46
Skills of MCH Book data recording	4	10	7.51	1.63	10	75.1
Motivation	26	38	31.87	2.9	40	79.67
Attitude	22	32	27.03	2.66	32	84.46
Operational Factor						
The complexity of forms	27	38	31.09	2.75	40	78.22
Organizational Factor						
Training	26	36	30.54	2.86	48	63.62
Supervision	21	34	28.16	2.86	40	70.4
Appreciation	22	36	28.83	1.29	36	66.19
Availability of facilities	3	8	7.25	1.29	8	90.6
Dependent Variable						
Utilization of MCH Handbook data	5	11	8.64	1.74	11	78.54

Table 2. Summarize of Pearson Product Moment test result

Independent Variable	Dependent Variable	r	P-value	Interpretation
Individual Factor				
Data needs		0.406	0.024	Significantly, there was related
Skills of MCH Book data recording		0.487	0.005	Significantly, there was related
Motivation		0.391	0.030	Significantly, there was related
Attitude		0.506	0.004	Significantly, there was related
Operational Factor				
The complexity of forms	Utilization of MCH Handbook data	0.312	0.087	Not Significant
Organizational Factor				
Training		0.14	0.943	Not Significant
Supervision		0.193	0.298	Not Significant
Appreciation		0.154	0.409	Not Significant
Availability of facilities		0.420	0.019	Significantly, there was related

ningsih & Azinar, 2017).

Technical Factors

The technical factors were measured by the complexity of MCH Handbook form. The mean score is 31.29 of the expected total score of 40 with SD 2.75, so the mean score index is 78.22%. This shows that midwives' perception of this form complexity is quite complicated. They feel a lot of stuffing and details that must be filled in it.

There is no correlation between the technical factor of form complexity with the used of MCH Handbook data. So, even though the data recorded in this Handbook is many and quite detailed and complex, it does not mean it will decrease or improve the used of data in MCH Handbook. Indicate from the results of this study is the perception of the complexity of the form is quite high, but the skill of officers in the MCH Handbook is also quite high. It means that the data filling skills are more correlate with the used of the MCH Handbook data. Research by Sistiarani et al. (2014), also found that the data recording in that Handbook is closely related to the mother's knowledge of that (Sistiarani, et al., 2014b).

Organizational Factor

The organizational factors consist of the availability of facilities perceptions, training, awards, and supervision. The mean score index against the expected total score indicates that training variables (63.62%) and awards (66.19%) have the lowest score. This shows that two variables are less compared to the supervision and availability of facilities. While the availability of facilities perceived the Midwife is high (90.6%). Midwives perceive the availability of facilities has been very good.

For organizational factors show only the availability of facilities perception associated with the utilization of MCH Handbook data. The better availability of facilities perception is the means the higher the utilization of MCH Handbooks data. While the perception of training, supervision, and awards are given by the organization is not proven relationship.

This results in line with the research in Semarang Regency which found that were related to the management performance of the midwife in the Local Area Monitoring of MCH (Dharmawan et al., 2015). Availability of facilities also have significant association with use integrated management of neonatal and childhood illness (IMNCI) algorithm by midwives (Iraningsih & Azinar, 2017).

Utilization of MCH Handbook

For the index of data utilization scores on MCH Handbooks amounted to 78.54%, indicating that midwives' perceptions of the use of these handbooks have been good. They are good enough to utilize this book for ANC services, counseling, monitoring of regional health status, and delivery planning. MCH Handbook plays a catalytic role in ensuring a continuum of maternal, newborn and child care (Aiga et al., 2015).

MCH Handbook is effective tools to encourage mothers in Ante Natal Care (ANC). Studies in Bangladesh, Indonesia and Mongolia show that this handbook can improve mother's knowledge and mother awareness of the importance of ANC (Osaki et al., 2013; Mori et al., 2015; Hikita et al., 2018). The data contained of it is used by midwives to make decisions about the mothers and baby health care. The

higher data utilization in this book will greatly affect the ANC service.

Study at Sragen Regency for 34 midwives showed data completeness of MCH Handbook just only 38,2 %, also the use of MCH handbook data is 38,2%, and relation both of them is significant (Cahyani et al., 2016). Another study conducted at Kalibagor Health Center shows that the quality of it is mostly good 52% (Sistiarani et al., 2014a). While other studies that describe the quality of MCH LAM data at village midwife level in Semarang Regency showed achievement ranged between 55% to 74% (Dharmawan et al., 2015). MCH LAM data very important to be data base in Public Health Centre. Public Health Center becomes a primary data source from a health information system that plays an important role in regional health information systems (Kristian et al., 2019). Data in MCH Handbook also contribute to data quality in Public Health Centre also District Health Office.

The results of this study generally confirm that the individual factors of the midwife play a more important role in determining the utilization of data in the MCH Handbook. This is in line as stated by Tohidi, that in the Information Management Project, from three aspects of the related factors i.e. Human Resources, Employment and Organization, Human Resources is the main factor that determines its success (Tohidi, 2010). To improve the use of MCH Handbooks in addition to a personal approach that will motivate midwives, it is also necessary to use other methods such as mentoring by universities or academics, including health students as refreshing efforts to improve knowledge, skills, attitudes and midwife staff who impact on the use of it. This is like that done by the Diponegoro University which provides maternal assistance in the area around the campus by health students, and for three years the assistance can increase the ownership of these Handbook. Thus, the use of MCH Handbooks by Pregnant Mothers and Health Officers is also increasing (Dharmawan, 2017) .

CONCLUSION

Individual variable of Midwives become the main factor determining the utilization of data in MCH Handbook, likely perception data requirement, data filling skill, motivation, and attitude becomes the main factor of data utilization of MCH Handbook. Therefore, efforts to improve data utilization in this handbook should be done by increasing perception of data requirement, data filling skills, motivation and midwife attitudes. The effort can be done with a personal approach designed to improve the ability of individual midwives or midwife assistance by health students as a mentor with

the goal of increasing knowledge, attitude, and motivation.

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