8TH International Conference on Interprofessional Health Collaboration and Community Empowerment
ICIHC &CE
Kemenkes Poltekkes Bandung

THE EFFECTIVENESS OF MCH HANDBOOK EDUCATION ON PREGNANT WOMEN'S KNOWLEDGE OF STUNTING PREVENTION IN THE RBC CLINIC

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Abstract **Background**: Stunting, also known as under-five stunting, is a global problem. WHO has set a standard for stunting prevalence to be less than 20%. The Indonesian government itself has targeted that by 2024 the prevalence of stunting will drop to 14%. The negative impact of stunting can lead to growth failure, cognitive and motor development barriers, and susceptibility to disease. In principle, pregnant women have access to an important source of information on stunting prevention, namely the Maternal and Child Health (MCH) Handbook. Based on a preliminary study conducted by the researchers regarding the utilization of the MCH handbook in pregnant women at the Rumah Bersalin Cuma Cuma (RBC) Clinic, it shows that 50% of respondents stated that they rarely read the MCH handbook.

Objectives: The purpose of this study was to determine the effectiveness of MCH handbook education on pregnant women's knowledge about stunting prevention at RBC Clinic.

Method: This study employed an analytic pre-experimental design using a one-group pretest–posttest approach. Sampling was conducted using a consecutive sampling technique as many as 42 samples. The sample in this study consisted of pregnant women who performed pregnancy checks at RBC Clinic.

Results: The results showed a 12-point increase in the knowledge of pregnant women after receiving stunting prevention education using the MCH handbook. The Wilcoxon test indicated a p-value of 0.000, which is less than 0.05, confirming the effectiveness of the education.

Conclusion: It is hoped that with improved maternal knowledge about stunting prevention, mothers will be able to apply this knowledge in their daily lives, thereby reducing the risk of stunting.

Keywords: MCH Handbook, Stunting Prevention, Pregnant Women's Knowledge

BACKGROUND

Stunting, or short stature in toddlers, is a chronic nutritional problem that remains a global concern. The World Health Organization (WHO) sets a standard for stunting prevalence of less than 20%.[1] The Indonesian government is targeting a reduction in stunting prevalence to 14% by 2024.[2] However, based on the 2022 Indonesian Nutritional Status Survey (SSGI), the prevalence of stunting in toddlers in West Java remains at 20.2%.[3] Stunting is caused by growth disorders stemming from poor nutritional and health status during the prenatal and postnatal periods. Direct causal factors include disease and poor nutritional intake, which are closely related to parenting patterns, food access, health services, and sanitation. Other underlying factors exist at the individual and household level, such as education and family income.[4] If left untreated, stunting can cause short- and long-term negative impacts, such as growth failure, impaired cognitive and motor development, and decreased productivity in adulthood.

Stunting prevention can begin during the preconception and pregnancy stages, including nutritional support, routine prenatal checkups, and family empowerment through educational resources such as the Maternal and Child Health Handbook (MCH Handbook). The MCH Handbook contains important information on maternal and child health, including immunization, nutrition, and early detection of health problems. It has been used in Indonesia since 1990 and is continually revised to improve public understanding. Although 70% of pregnant women in Indonesia have a MCH Handbook, many rarely read or understand its contents. A preliminary study at the Rumah Bersalin Cuma Cuma (RBC) showed that 50% of pregnant women rarely use the handbook, even though its use has been shown to improve maternal and child health knowledge.[5]

Previous research has shown that low maternal education and understanding of stunting are major risk factors for stunting in children. Proper use of the MCH Handbook significantly impacts maternal knowledge and the incidence of stunting and underweight in toddlers. The MCH Handbook makes it easier for mothers to access health information that they can take home and study independently. Owning, carrying, reading, and understanding the MCH Handbook are crucial in improving pregnant women's knowledge about stunting prevention.[6]

Based on this, this study aims to determine the effectiveness of MCH handbook education on pregnant women's knowledge about stunting prevention at the RBC Clinic. Specifically, this study will identify the characteristics of pregnant women respondents, measure changes in knowledge before and after the educational intervention using the MCH handbook, and analyze the effectiveness of education in improving knowledge about stunting prevention.[7]

METHODS

S*tudy setting and design*

This study used a quantitative method with a pre-experimental design of one group pretest-posttest. The research location was at RBC Clinic, Bandung Kulon District, Bandung City

Study population and sampling procedure

The study population was all pregnant women who underwent examinations at the RBC Clinic, with a sample of 42 pregnant women taken using consecutive sampling techniques

Data Collection and Variable measurement

Measurement of knowledge about stunting prevention used an instrument modified from previous research, consisting of 25 valid items that measure the definition, causes, impacts, and prevention of stunting. Data collection procedures included obtaining ethical and administrative permits, research socialization, obtaining informed consent, distributing pretest questionnaires via Google Form, providing education using MCH handbooks and Microsoft PowerPoint presentation media, and a posttest two weeks after the intervention.

Data analysis was carried out univariately to describe the characteristics of respondents and knowledge scores before and after the intervention, as well as bivariate analysis using the Wilcoxon test.

Ethic Considerations

The research was conducted after obtaining ethical clearance from the health research ethics commission of the Bandung Ministry of Health Polytechnic with approval number 29/KEPK/EC/II/2024, valid from February 19, 2024.

RESULT AND DISCUSSION

Table 1 shows that 88% of respondents were aged between 20-35 years, with the highest level of education at junior high school/equivalent, with an employment status of not working of (98%), with a parity of (74%) being a multigravida pregnancy.

Table 1. Frequency Distribution of Respondent Characteristics

Category	Frequency (people)	Percentage (%)
Age		
<19 years	2	5%
20 - 35 years	37	88%
≥ 36 years	4	7%
Amount	**42**	**100%**
Level of Education		
Elementary school/equivalent	5	12%
Junior high school/ equivalent	20	48%
High school/equivalent	17	40%
College	0	0%
Amount	**42**	**100%**
Employment Status		
Doesn't work	41	98%
Work	1	2%
Amount	**42**	**100%**
Parity		
Primigravida	11	26%
Multigravida	31	74%
Amount	**42**	**100%**

Respondent characteristics

Based on the results of this study, 88% of respondents were aged 20-35 years. Healthy reproductive age ranges from 20 to 35 years, which is related to the maturity of female reproductive organs. Compared to adolescence, early adulthood allows parents to be more concerned with their child's development, so they are more interested and better able to absorb information about stunting. According to Fujiyanto in Rahmawati (2019), a person's memory or recall is influenced by age, where a person's comprehension and thought patterns mature with age, so that the knowledge gained also improves.8 In early adulthood, individuals have begun to think and play an active role in their lives and their families. Early adults will have more time to care for the health of children and other family members. In accordance with research by Widyaningrum et al. in Rahmawati (2019), it shows that adult mothers have better knowledge about feeding toddlers than adolescents.[8]

The highest level of education in this study was junior high school or equivalent.

Education is a learning process or activity to enhance and develop knowledge and skills, and it determines how easily the acquired knowledge is received and absorbed. Higher levels of education make it easier to receive information, but lower levels of education hinder information acquisition.

The results of this study indicate that 98% of the respondents were not employed. However, this condition did not negatively affect the respondents' level of knowledge. This finding is consistent with the study conducted by Rahmawati (2019), which reported that occupation was not significantly associated with knowledge. In the past, being a housewife was often considered a limiting factor for accessing information due to greater time spent at home. Currently, this assumption is less applicable, as the development of information technology enables individuals to access information easily anytime and anywhere. In addition, housewives generally have more flexible time that can be utilized to seek health-related information or to participate in community activities that facilitate the exchange of information. Therefore, in this study, employment status did not appear to result in substantial differences in opportunities to obtain knowledge.[8]

The results of this study showed that the majority (74%) of pregnant women were multigravida. Multigravida is defined as having more than two pregnancies. Research conducted by Elsara et al. (2023) showed that mothers with more than one parity have experience during pregnancy so they are able to apply it in their daily lives compared to mothers who have not had children.[10] Previous pregnancy experiences play an important role as valuable experience. Having been pregnant or given birth before is certainly a real learning medium. However, if someone does not understand the importance of nutrition during pregnancy to prevent stunting, then this will not be a concern. Someone will still behave like a mindset what they understand or their respective perceptions.[10]

Table 2 shows an increase in the average knowledge score of pregnant women before and after being given educational intervention with the MCH handbook regarding stunting prevention. The median knowledge score of pregnant women before receiving educational intervention was 80.00, and after the intervention it became 92.00. The results of the normality test showed that with 42 respondents, the Shapiro–Wilk test showed a significance value of <0.05, meaning the data was not normally distributed, so the test used was the Wilcoxon test to analyze differences in knowledge

Table 2. Overview of Pregnant Women's Knowledge Values Regarding Stunting Prevention Before and After Educational Intervention with the MCH Handbook

Pregnant women's knowledge about *stunting prevention*	*n*	*Median*	*Standard Deviation*	*Min*	*Max*
before being given education on *stunting* prevention with the MCH handbook	42	80.00	9,377	56	96
after being given education on *stunting* prevention with the MCH handbook	42	92.00	5,790	80	100

Knowledge of Pregnant Women Before and After Providing Stunting Prevention Education with the MCH handbook

Based on the results of research conducted on 42 respondents, it was found that the average knowledge score of pregnant women at the RBC Clinic increased by 12 points after providing education with the MCH handbook on the knowledge of pregnant women at the RBC Clinic. Several studies on prior knowledge, such as those conducted by Sushiro, show that there is a relationship between prior knowledge and respondents' abilities. The higher the respondents' prior knowledge, the higher the respondents' ability to answer the questionnaire. Respondents with a high level of basic knowledge are better able to receive the information provided. This study found that prior knowledge helps

respondents develop thinking skills.[11] This is in accordance with the results of the study, namely that the majority of respondents (48%) had a junior high school education or equivalent and the lowest score of pregnant women's knowledge regarding stunting prevention before being given intervention was 56, this indicates that respondents' prior knowledge affects the pretest score.

Processing theory makes an important contribution to the educational process by providing a foundation for prior knowledge. From this theoretical perspective, prior knowledge influences the formation of new knowledge and skills. Prior knowledge helps respondents understand and master what the midwife conveys. Respondents with insufficient prior knowledge have difficulty understanding the information provided and require more time than respondents with sufficient prior knowledge.[11] In line with the results of this study, the lowest post-test score was 80. The post-test was administered after an educational intervention with a MCH handbook on stunting prevention, resulting in an increase in scores from before and after the intervention.

According to the constructivist view, which shares similarities with information processing theory in the idea of knowledge, learning outcomes are a combination of prior knowledge that individuals already possess with new knowledge that individuals learn. In the constructivist view, learning is where individuals build or construct new and existing knowledge by interpreting their surrounding environment, both the socio-cultural, physical, and intellectual environments in which they live.[11]

In line with the constructivist perspective, this study used a questionnaire as a medium to determine prior knowledge and knowledge after being influenced by new interventions/ knowledge. The questionnaire used in this study consisted of four indicators, including questionnaire statements 1-3 which are indicators of the definition of stunting, to measure respondents' knowledge of stunting and to measure knowledge about abnormal growth or stunting. Statements 4-6 are indicators of the causes of stunting, to measure mothers' knowledge about the factors that cause stunting. Statements 8-10 are indicators of the impact of stunting, to measure knowledge about the potential impacts of stunting. Statements 11-25 are indicators of stunting prevention, to measure knowledge about stunting prevention efforts.

The results of the questionnaire measurements showed an increase in mothers' knowledge about stunting from before being given educational intervention with the MCH handbook on stunting with a median of 80.00 and after the intervention to 92.00, in other words, there was an increase of 12 points. This is in line with the research of Amalia et al. (2022) where the results of data analysis showed an increase in mothers' knowledge about stunting, from the previous correct pre-test answers which previously had an average of only 7.625 correct answers but after being given the material there was an increase in the average correct answers from the post-test questions submitted, namely to 12.5.[12] With the increase in mothers' knowledge about stunting from the material that has been presented, it is hoped that it will be able to increase mothers' awareness of the importance of knowledge about stunting as a form of prevention and reduction of stunting prevalence. The increase in mothers' knowledge before and after being given education with the MCH handbook on stunting shows that the intervention has a positive influence on mothers' knowledge.

Based on table 3, it can be seen that the results of the pretest and posttest questionnaires based on the results of statistical tests using the Wilcoxon non-parametric test obtained a p value of 0.000, so it can be concluded that there is an influence of MCH handbook Education on Pregnant Women's Knowledge About Stunting Prevention.

Table 3. **The Effect of MCH handbook Education on Pregnant Women's Knowledge of *Stunting Prevention***

Knowledge about *Stunting* Prevention	*n*	*Median* *Min-max*	CI 95%	*P*
Before being given education with the MCH handbook	42	80 56-96	75.74 – 81.59	0.000
After being given education with the MCH handbook	42	92 80-100	89.48 – 93.09	

The Impact of Education with MCH Handbooks on Pregnant Women's Knowledge of Stunting Prevention

Lack of maternal nutritional knowledge is a contributing factor to stunting, where maternal nutritional knowledge is found to be more prevalent in the group of stunted toddlers than in the group of normal toddlers. Margawati & Astuti in Nursa'iidah S & Rokhaidah (2022) stated that not being exposed to optimal health knowledge will result in maternal knowledge being lacking, where in the study mothers had wrong opinions about stunting and were unaware of stunting occurrences.[13] Rahmandiani et al. (2019) stated that maternal knowledge about stunting is essential because children will be at risk of experiencing stunting if the mother's knowledge is lacking.[14] This is supported by research by Wulandari et al. in Nursa'iidah S & Rokhaidah (2022) where mothers with poor knowledge are 1,644 times more likely to have stunted toddlers than mothers with good knowledge.[13]

The results of a study conducted by Ni Wayan Dian Ekayanthi, Pudji Suryani, 2019 with the title "Nutrition Education for Pregnant Women to Prevent Stunting in Pregnant Women's Classes" showed that knowledge before the intervention of the pregnant women's class was mostly in the poor category (57.1%), but after the implementation of the pregnant women's class there was an increase in knowledge, namely the majority in the good category (97.1%).[19] One effort that can be made to the community so that the community is willing and able to maintain and improve their own health is by providing health promotion.[15]

According to Crookston BT et al., mothers who receive stunting information from health workers have a more accurate understanding than mothers who get stunting information from friends or neighbors. Therefore, health workers can use the MCH handbook as an educational medium for stunting prevention, where the MCH handbook already provides material on this matter. Thus, health workers can utilize this free, easily accessible, and owned media by every pregnant woman.[16] In another study, it was explained that the MCH handbook is an information medium that can facilitate its use regarding the quality of life of maternal and child health in detail. The MCH handbook is available at Community Health Centers (Puskesmas), Village Health Posts (Poskesdes), midwife practices, maternity hospitals, and hospitals.[17]

The MCH handbook consists of a collection of standard counseling materials, information, and notes on nutrition, maternal and child health, daily care for pregnant women, and information on prenatal check-up visits. The MCH handbook is a family book kept at home and brought every time a mother or child visits a health care facility. It is hoped that after receiving an explanation of the material in the MCH handbook, pregnant women can read it again at home and understand and apply the knowledge in their daily lives.[18] Research conducted by Nishimura et al. (2023) shows that the MCH handbook can increase the utilization of maternal health services, such as ANC (Antenatal Care) visits and early initiation of breastfeeding compared to the control group, and better communication with health care providers and support from family members.[20]

CONCLUSION

Based on this study, most respondents were aged 20–35 years, had junior high school education, were unemployed, and were multigravida. The median knowledge score increased by 12 points after the educational intervention using the MCH handbook. This finding indicates that MCH handbook education was effective in improving pregnant women's knowledge of stunting prevention ($p < 0.05$).

COMPETING INTERESTS

All authors had none to declare

AUTHOR'S CONTRIBUTION

Maryam Salsabila conceived and designed the study, conducted the data analysis, and drafted the manuscript. Riana Pascawati, Diyan Indrayani, and Santi Sofianti supervised the study and contributed to the improvement of the manuscript.

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