ORIGINAL ARTICLE

Effectiveness of Perceiving and Opinion of the Compass Model in Monitoring the Toddlers' Growth

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ABSTRACT

Introduction: In comparison to other countries, Indonesia has higher birth rates. Chronic malnutrition, which results from inadequate dietary intake over a long period of time due to improper feeding practises, causes a condition known as stunting. This research aims to understand the perception and opinion of the compass model through its effectiveness in monitoring toddler growth. **Methods:** In this research, the qualitative method is used. The qualitative data is collected by conducting interview sessions with informants. **Results:** The result was obtained from an interview with experts. With all the benefits and ease of using Compass, mothers could be aware of and care for their children's growth and development. **Conclusion:** The Compass Model is helpful as a new tool for mothers to monitor the growth of their children because it is easy to use and understand for midwives and mothers, who can read the result of the change.
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INTRODUCTION

Compared to other countries, Indonesia has one of the highest birth rates. Indonesia is fourth in the number of births after China, India, and the United States, with a population of up to 270 million people (1). Over time, the government launched a family planning program to advise all families to use contraception. It aims to control the birth rate in each family. In addition, this family planning program also recommends that every family have two children. As time progresses in maximizing family planning programs, deaths from around four to five million annually may decline to two million by 2020 (1).

Unbalanced nutrition and food for children can have a negative impact. Some effects of the lack of nutrition are delays in motor skills, vulnerable immune systems, stunted physical growth, and slow brain growth (2). Malnutrition throughout the first 1000 days of a child's life, from conception in the womb until they are two years old, can result in current and future health concerns. In Indonesia, many cases of malnutrition have been recorded. According to 2013 National Basic Health Research data, 19.6% of Indonesian children under five are malnourished.

According to the 2013 Basic Health Research (Riskesdas) in Indonesia, the prevalence of stunting in Indonesia increased from 35.6%in 2010 and 36.8% in 2007 to 37.2% in 2013. In 2016, the Indonesian Ministry of Health reported a stunting prevalence of 38.9%. The majority of stunting in Central Java Province is 33.9%, with the short category at 17.0% and the concise category at 16.9%. Meanwhile, in Boyolali Regency, the percentage of stunted under-fives decreased in 2014 (32.7%) and 2015 (28%) (Boyolali District Health Office, 2015). WHO in 2010 recommended a stunting incidence of <20%, which means that the prevalence of stunting in Boyolali Regency is still high. There are twenty provinces in Indonesia, from the highest to the lowest prevalence. However, North Sumatra province is in the eighth position. The city of Medan had 21 sub-districts in 2015, totaling 210,958 stunned toddlers. There are 5 Community Health Centers (PUSKESMAS) that are the targets of this research. At the PUSKESMAS, we still find toddlers who do not gain weight after two weights and those below the red line.

The KMS (Kartu Menuju Sehat) is the tool that health workers use to measure the growth of children . But on the other hand, the KMS is not used by the mothers, but the cadres in Posyandu must fill in some data, so the mothers only get an explanation from the cadres about their children's growth.

Besides, health workers have several opinions about the tools used to monitor a child's growth. The image of KMS (Kartu Meunuju Sehat) is complex because mothers are not enthusiastic. Some parents even leave their cards at the health service because they are not interested in reading them. Some parents told health workers that the cards they had used so far were too thick, so it took parents much time to understand them. Health workers also said that the cards they used did not explain detailed fine motor, gross motor, eating, and social skills for toddlers, so they said the cards they had used so far needed to be completed. An explanation of this is considered essential for parents to increase their knowledge. This research aims to understand the perception and opinion of the compass model through its effectiveness in monitoring toddler growth.

In this study, we find out what's new about a tool that can track how much a child grows and changes. At first, in Indonesia, a Kartu Menuju Sehat (KMS) was used to monitor children's growth and development. Now researchers have created a tool that functions the same as KMS but with some updates. One of them is the simplicity of the device. Then, in terms of shape, KMS comes with several sheets of paper that are pretty complicated, so you have to fill in some data first to know the child's growth and development. Rather than that, usually, the existing data must be filled in by cadres or health workers. But sometimes, the cadres or health workers did not explain anything or fill in the data. This makes mothers of toddlers puzzled and lazy to bring the KMS book. Therefore, the mother cannot know the child's growth and development. This has triggered an increase in stunting in Indonesia. The model compass comes with a compass tool that is easy for anyone to use and understand. Only by turning to the intended age can the mother read the provisions for achieving growth and development that should be conducted at that age without having to fill in any data.

MATERIALS AND METHODS

The qualitative data is collected by conducting interview sessions with informants. The participants in this study are selected through purposeful sampling, meaning the researcher purposefully selects the individuals who will serve as the respondents in the survey (3). The respondent in the qualitative data collection are totally 23. The category as the respondent in this research are expert informants 1 paediatric specialist and 4 lecturers (with expertise in neonates, infants, and young children); and primary informants (8 mothers with children aged 0-24 months who used the Compas Model to measure their children's growth and development) and supporting informants (10 health workers in health centres who measure the growth and development of children aged 0-24 months).

Ethical Clearance

This article has passed the ethical test from the Health Research Ethics Committee, Faculty of Medicine, University of Muhammadiyah North Sumatra, with "Ethical Approval" No. 408/KEPK/FKUMSU/2020 dated 8th March 2020.

RESULTS

The results of mothers' opinions about the Compass model diagram were obtained by interviewing mothers from various academic backgrounds, occupations, and income levels who were chosen to represent the sampling. The researcher also used the demographic data to get information and better understand the specific background characteristics of the respondent (Age, Level of Education, Occupation, and Income). The demographic data used to supporting analysis on interview table. The interview was done for about 10 – 15 minutes at two separate locations. The following table displays the outcome of the interview:

Based on the table above, the researcher said that 62.5% of the mothers thought KMS was confusing or hard to understand when they read the report (KMS).). 25% or two mothers stated that KMS was easy to tear and damage. 12.5% of mothers said that KMS made the progress of children's reports easy to read. Besides that, the eight mothers revealed plenty of weaknesses in KMS. Those were the efficiency and the misunderstanding of using KMS. Hence, 100% of eight mothers prefer implementing Compass as the children's report. Instead of KMS, the mothers' opinion of Compass was positively acceptable due to being more efficient, understandable, and complete.

From the interview result, the researcher found that mothers tend to implement the Compass model as children's reports. It was supported by some factors that were more potent than using KMS. Some of the elements were efficiency, coherence, and simplicity.

DISCUSSION

Kartu Menuju Sehat (KMS) is a card with the standard growth curve for a child based on the anthropometric index of weight for age. As the KMS (Kartu Menuju Sehat) shows, it is possible to find early signs of growth problems or the risk of being overfed. So that quicker and more accurate preventive measures can be

Table I : The Development of the Discussion with Mothers

Numb.	Mothers' name	KMS (Kartu Menuju Sehat)		Which do you think is better or easier to understand?	Compass Model
		Mothers' opinion	Weakness		Mothers' opinion
1.	RR	Puzzled	Quite difficult to understand	Compass Model	Complete and easy to see the growth and development of our children
2.	TR	Confused about understanding curve accuracy	Health workers must carefully write down and observe the growth and development of children.	Compass Model	More efficiency
3.	UM	Not strong, easy to tear and wrinkle	Likes to be scattered and lost	Compass Model	Thicker and lighter paper
4.	WD	Easy to see an increase or decrease in the weight	Not accompanied by child development	Compass Model	Accompanied by the development
5.	GH	Have to look at the growth curve carefully	Less practical	Compass Model	More simple
6.	KD	Most mothers do not understand the results of the curve, plus officers are less communicative about children's growth & development.	It's clear and complete enough, but mothers should have the time to read each detailed description.	Compass Model	Easier to understand
7.	TU	Not understand	The cadres or health workers never explained, so I can not understand my children's growth.	Compass Model	More complete and faster to understand
8.	MP	Complicated and time-consuming to understand	Sometimes confused with the rising or stagnant curve of the child's growth is okay, or something needs to be done.	Compass Model	Faster to conclude the result

Source: Research results, 2022

Table II : Mothers' Opinion of KMS Weaknesses

Variables	Mothers' Opinion of KMS			Frequency
	Puzzled and Understandable	Accessible to Tear and Damage	Easy to Read the Progress	
Informants	62.5%	25%	12.5%	100%

Source: Research results, 2022

Table III : Selecting Content of Compass Interval Quarter Range

No.	Children's growth report	Agree	Neutral	Disagree	Frequency
1.	KMS	-	-	-	0%
2.	Compass	8	-	-	100%

Source: Research results, 2022

done before the problem gets acute. Besides, Kartu Menuju Sehat (KMS) also helps mothers discover the developments that their toddlers must achieve, ranging from gross movements, delicate movements, observations, and active speech to socialization according to their age development. Through KMS, mothers may also track their children's physical development, particularly their weight. The toddler's body mass index is related to their health status. With KMS, mothers may determine the optimal weight gain for their toddlers based on their age development.

According to Permenkes (2010), the Kartu Menuju Sehat (KMS) for toddlers is a card with a growth curve based on an anthropometric weight index divided by age and gender. As the KMS (Kartu Menuju Sehat) shows, it is possible to find early signs of growth problems or the risk of being overfed.So that quicker and more accurate preventive measures can be taken before the problem gets acute. (4)

The utilization of KMS as a tool to monitor the health and nutrition of toddlers will have great benefits if it is carried out on all toddlers in an area, but being able to implement this is not an easy thing because many factors affect the use of KMS for toddlers themselves (5). Knowledge of parents, especially mothers, about the use of Cards Towards Health (KMS) is one of the critical factors in the growth and development of children. On the other hand, good knowledge can allow the parents to receive all information from outside, especially about how to use and interpret a good KMS, how the child grows and develops well based on the stage of development, and how to maintain his health (6).

The results of more research show that the mother's attitude towards using KMS is related to how well she understands it. This encourages good behaviour when using KMS. This study's results differ from what the researcher did; the KMS confused most of the respondents in reading the KMS (4). In addition, Posyandu cadres often change without being followed by training, so the nutritional and technical capabilities of active cadres are inadequate, especially regarding KMS. This results in monitoring activities for under-five children's growth that cannot be carried out optimally so efforts to prevent malnutrition become less effective and late in referring (8). According to the results, the prevalence of diarrhea and anemia decreased time by time, with no appreciable variations between them. Longitudinal study data are indispensable for evaluating the direct and indirect impacts of interventions such as deworming and comprehending the temporal structure of nutrition and health outcomes in children. (5). HFA, BMI-for-age, and body fat percentage were independently associated with ECD. These results suggest that future studies should consider using these variables to evaluate the occurrence of child underdevelopment; nutritional experiments should investigate the causality of the relationships (6). Older schoolchildren and those with low dietary variety or food restrictions were the most affected (7). Wasting and stunting in childhood are unrelated to insulin sensitivity and insulin clearance in lean, young, and adult SAM survivors (8). These data support the conclusion that the primary cause of glucose intolerance in malnourished survivors is a beta-cell malfunction (8). This study demonstrates that childhood stunting may affect educational opportunities negatively (9).

A cadre is a volunteer recruited from, by, and for the community whose job it is to assist in the smooth running of health services. The cadres are tasked with weighing the baby' determining growth status based on the KMS curve, and providing nutrition counseling (9).

A mother may directly utilise the Compass Model, which was designed by the researcher, to optimise outcomes and lower the incidence of stunting, in order to monitor the growth and development of infants from 0 to 24 months of age. The advantage of the Kompas Model is the simplicity of the form/tool used so that mothers can directly monitor their child's growth and development. In addition, the model compass is also easy to use, which only needs to turn the compass according to the child's age, and the standard of achievement of the child's growth and development can be seen. Then, using the model compass also does not require other things to be filled in by cadres or health workers such as KMS, so this model compass tool can be used directly at home and can even be taken anywhere. Crucial to avoiding childhood stunting are the roles of mothers throughout the golden age (10). Even though there is no fetus during conception, maternal nutrition must be bolstered to prepare the mother's body for the prenatal phase of fetal growth, followed by the baby phase - toddlerhood to adolescence (10). Over the past

ten years, Malaysia's overall mean rate of giardiasis has been relatively encouraging at 13.7% (11). In addition, there was a little increase in the prevalence of underweight, stunting, and wasting among rural children in 2019, despite the fact that this number appears to be declining (11). To ensure that Cambodian children can achieve optimal growth and motor and cognitive development, nutritional programs must be promoted during the first 1000 days of life. (12). Children and adolescents in Pakistan have dramatically different reference values than their counterparts in the reference group. In comparison to a nearby source, the prevalence of stunting was greatly inflated. It is advised, in order to design health policies and interventions for the local population, to quantify the prevalence of stunting among children and adolescents using local height growth standards. (13). Programs focusing on early childhood can effectively combat high child malnutrition rates, especially in vulnerable populations in developing nations such as Sri Lanka. (14). One in two adolescents attending school was malnourished. Despite the significant frequency of malnutrition, overnutrition was also noted frequently. Educating parents and children on growth monitoring and dietary practices could aid in reducing the prevalence of malnutrition. (15). Children with social disadvantages require multilevel, evidence-based intervention programs to prevent childhood wasting and stunting and improve their weight status. (16) A third of the children in the study region were affected by stunting. This significant prevalence of stunting was caused by poor nutrition, filthy living circumstances, intestinal diseases, and EED. Consequently, improving sanitation and hygiene conditions prevents recurrent infectious diseases and stunting while encouraging children to consume various foods. (17). Educating moms and other cares on the importance of exclusive breastfeeding should be considered. Moreover, family planning programs must encourage women to delay childbearing until later. (18). This study gives essential information for improving mothers' knowledge of their children's protein and fat consumption to lower the risk of maternal stunting and prevent overnutrition. (19).

Supporting the Kompas Model study is also important because research on the evaluation of a health tool to improve nutritional assessment in babies younger than six months shows that intervention and control clinics have different results. Most people say that the study results show a direct link between the use of mobile health technology and a rise in the accuracy of growth monitoring by doctors and nurses. Also, compared to sites that didn't get the intervention, the mHealth tool was linked to much bigger drops in malnutrition in 6-month-old babies than sites that didn't get it. (20). We could not discover any accuracy gains connected to the inclusion of the mHealth tool. In a New Zealand study, computerized growth charts at hospitals boosted the rates of recording growth measures and body mass index z-scores, which is a comparable conclusion.

CONCLUSION

From the result above, the researcher can conclude that the Compass Model exists as a new tool for mothers to notice and understand the growth of children's reports. It was clear from the interview with eight mothers and five experts what the results of the research were. The researcher found that the Compass Model helped mothers appreciate their children's growth and development every month to decrease societal malnutrition.

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