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Determination of Indicators in the Information System Development for Monitoring and Evaluating Nutritional Interventions for Stunting Children

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Abstract:
Stunting is a serious problem that requires sustainable management and commitment from the state and all levels of society. Stunting data needs to be collected properly to develop strategies to eliminate the incidence of stunting. the information system for monitoring and evaluating nutritional interventions for stunting children is an information system that can be used for accelerated programs to eliminate the incidence of stunting. This study's aim was to analyze factors related to the use of the information system for monitoring and evaluating nutritional interventions for stunting children. A cross-sectional correlational design was used in this study. The variables were knowledge, data management, infrastructure, and the information system for monitoring and evaluating nutritional interventions for stunting children. One hundred and five stunting cadres were selected using a random sampling technique. Data collection was performed using self-report questionnaires. The Logistic Regression test was used to analyze the data. This study found that data management (p-value: 0.009), knowledge (p-value (0.000), and infrastructure (p-value: 0.018) elements affect the utilization of the information system for monitoring and evaluating stunting child nutrition interventions. In sum, the continuity of the information system for monitoring and evaluating stunting child nutrition interventions is expected to eliminate the incidence of stunting. Information systems for monitoring and evaluating stunting child nutrition interventions can be used as evidence to recommend strategies to eliminate stunting incidence. Therefore, community participation and government commitment are needed.

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INTRODUCTION

Stunting is a serious problem that must be addressed immediately by various parties. Stunting is a serious problem that requires ongoing management and commitment from the government at the national level to all levels of society (Hatimah & Lutfiansyah, 2021; Nurfindarti, 2022). Stunting negatively affects children such as cognitive decline, learning achievement, physical growth, and immunity (Miller et al., 2016; Woldehanna et al., 2017). The nutritional status of children under 5 years is influenced by direct factors such as nutrition and infectious diseases, and indirect factors such as parenting patterns and access to quality health services, and is

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influenced by education level, income, health services, and access to information (Afandi et al., 2023). Various efforts to reduce the incidence of stunting have been carried out by the government and trained communities. An information system related to stunting has also been implemented to obtain accurate data. However, data from the information system cannot be interpreted properly to eliminate stunting because of the limited information input (Giffen & Bryant, 2021; Goodman & Wennberg, 1999).

Indonesia is included in the number of children under five who experience stunting, ranking third at the Southeast Asia Regional (SEAR) level. This data was obtained based on WHO, which explains that the prevalence of stunting in Indonesia was 36.4 percent, in 2005-2019. Data for the last three years shows that stunting has a high prevalence when compared to other nutritional status problems such as malnutrition, weight, and obesity (Laksono et al., 2022). Stunting experienced an increase in prevalence of up to 33.81 percent. In 2019 the prevalence was 26.86 percent, while in 2021 it reached 23.50 percent (Kementerian Kesehatan RI, 2018).

The Indonesian government stated that stunting is a priority problem that must be addressed immediately. East Java is one of the provinces with a high prevalence of stunting (UNICEF, 2013). Pamekasan Health Service data showed that the locus of stunting has increased. In 2019 there were 10 villages with high stunting rates and in 2020 there were 11 villages. The highest stunting prevalence was in Bukek Village, namely 62.02%, while the lowest prevalence was in Pademawu Village, around 18.71% (Dinas Kesehatan Kab. Pamekasan, 2019). One of the factors that contributes to health problems such as stunting is a lack of data (Gille & Brall, 2021; Schmidt et al., 2019). Health-related data must be collected, analyzed, and interpreted in the population, and this data can be used as a baseline for developing strategies or programs (Gille & Brall, 2021). In Indonesia, stunting cadres have the obligation to input stunting data into an application, one of which is an information system application for monitoring and evaluating nutritional interventions for stunted children (Wiliyanarti, 2023; Simatupang et al., 2022).

The monitoring and evaluation information system is a system that cadres and policy makers can access in the context of collecting, verifying, analyzing, presenting, and utilizing information and development data for residents and families at the village level. The monitoring and evaluation information system is a functional community basis for providing valid and up-to-date population data (Fuady, 2020; Wiliyanarti, 2023). An information system for monitoring and evaluating stunting children is needed to overcome the problem of stunting through prevention and providing information from existing data to become input for the stunting acceleration program (Purnomo et al., 2021). However, the application of a monitoring and evaluation information system that focuses on stunting child nutrition interventions has not been carried out in every locus village area in Pamekasan district. This is due to limited resources and lack of knowledge. In general, another factor is government facilities or infrastructure to support health-related databases. Therefore, this study aim was to analyze the factors that influence the information system for monitoring and evaluating nutritional interventions for stunting children.

METHOD

Correlational cross-sectional design was used in this study. Knowledge, data management, infrastructure, and information systems for monitoring and evaluating nutritional interventions for stunting children were the variables of study. This research uses cross sectional and design. The sample for this research was stunting cadres in the Pamekasan district, Madura, East Java, Indonesia. One hundred and five stunting cadres were selected using a simple random sampling technique. This research procedure was granted with ethical clearance from the Faculty of

Dentistry, Airlangga University, ethical clearance commission for health research number 711/HRECC. FODM/IX/2022.

A self-report questionnaire was used to collect data on knowledge, data management, and infrastructure related to information systems for monitoring and evaluating stunting child nutrition interventions. Knowledge consists of seven questions, (2: true, 1: wrong). Data management is categorized into good management and bad management. Infrastructure fulfilment is categorized as good and bad. All questionnaires were tested using content validity and corrected item-total correlation with a result of r > 0.5. Furthermore, the questionnaire was also tested using reliability with Cronbach alpha results > 0.7. The data collection process was carried out by five enumerators for thirty days. The Logistic Regression Test was applied to analyze the factors that influence the information system for monitoring and evaluating nutritional interventions for stunting children.

RESULT

Table 1. Characteristics of Respondents (n=105)

Characteristics	Frequency	Percentage
Ages (years)		
25-29	25	24
30-34	22	21
35-39	29	28
40-44	12	12
45-49	9	9
50-54	6	6
Occupation		
Government employees	8	8
Housewife	37	35
self-employed	43	41
Farmer	17	16
Utilization of information systems for monitoring and evaluating stunting child nutrition interventions		
Highest	52	49.5
Currently	32	30.5
Low	21	20
Knowledge		
Good	70	66.7
Poor	35	33.5
Data Management		
Good	68	64.8
Poor	37	35.5
Infrastructure		
Good	100	95.2
Poor	5	4.8
Total	105	100.00

This study found that majority of the respondents were aged between 35 to 39 years (28%), self-employed (41%), housewives (35%), good knowledge (66.7%), good data management (64.8%), good infrastructure (95.2%), and highest level of utilization of the information system for monitoring and evaluating nutritional interventions for stunting children.

The result of this study showed that knowledge (p-value 0.000), data management (p-value 0.009), and infrastructure (p-value 0.018) influenced the use of information systems for monitoring and evaluating nutritional interventions for stunted children.

Table 2. Factors That Influence the Use of Information Systems for Monitoring and Evaluating Stunting Child Nutrition Interventions: Data Management, Knowledge, and Selected Infrastructure

Variables	B	Sig	Confidence Interval (95%)	
			Lower border	Upper border
Knowledge	-2.691	0.000	-2.214	-1.523
Data management	-1.265	0.009	-1.877	-0.317
infrastructure	2.930	0.018	-3.860	5.364

DISCUSSION

The information system for monitoring and evaluating nutritional interventions for stunted children is one of the main programs in overcoming the problem of stunting in Pamekasan district, Madura, East Java, Indonesia. This study found that data management, knowledge and infrastructure were selected variables that influenced the use of information systems for monitoring and evaluating nutritional interventions for stunting children. The information system for monitoring and evaluating nutritional interventions for stunting children is a group of community activities to collect, verify, analyze, present, and utilize population, family, and village information data. Users of the stunting child monitoring and evaluation information system are stunting's cadres (Wiliyanarti, 2023). Our study reveals that the utilization of information systems for monitoring and evaluating nutritional interventions for stunted children is high. This means that data management, infrastructure such as books, name tags, data boards, also offices are in accordance with the needs in applying information systems for monitoring and evaluating stunting child nutrition interventions. Such patterns can be used as information to reduce the incidence of stunting (Wiliyanarti, 2023). Data about stunting is needed as evidence to make decisions and reduce the incidence of stunting in children (Balla et al., 2021). Therefore, techniques are needed to collect valid and accurate data.

Stunting cadres have a very important role in utilizing information systems for monitoring and evaluating stunting child nutrition interventions. This research shows that Cadres must have the qualifications to collect data, clean data, and analyze data (Balla et al., 2021). Previous research stated that the number of stunting prevalence, risk factor data, stunting classification for each age group is important data for making stunting elimination programs (Ramli et al., 2009). In addition, other data to eliminate stunting is the recording of food consumed by children such as fruit, vegetables, meat and products, or behavior for culture related to diet, family support and mother's knowledge (Beal et al., 2018; Mengesha et al., 2020; Wiliyanarti et al., 2022). This data must be collected by cadres and inputted into an information system for monitoring and evaluating stunting child nutrition interventions so that it provides sufficient information to make plans to eliminate stunting incidence.

This research also found that good knowledge and infrastructure are very necessary in eliminating the incidence of stunting. This can provide information that can identify stunting problems in certain areas (Alrahbi et al., 2022; Visconti & Morea, 2019). The infrastructure in the information system for monitoring and evaluating nutritional interventions for stunting children is a facility used to strengthen basic population data and record properly. Apart from this data, the number of children in one household, income, pregnant women, and breastfeeding status are also data that need to be had to make appropriate plans to eliminate stunting (Dewey, 2016; Muldiasman et al., 2018; Wilayah et al., 2020). These data are already part of the information system for monitoring and evaluating stunting child nutrition interventions. However, in its implementation the government's role to support infrastructure is needed. Previous studies stated

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that the government's commitment is the basis for eliminating the incidence of stunting (Erlyn et al., 2021). Sustainability is important in the use of information systems for monitoring and evaluating nutritional interventions for stunted children. Government support can realize the sustainability of the use of information systems for monitoring and evaluating nutritional interventions for stunted children. This support can take the form of a program to increase the capacity of stunting cadres as well as financial support for stunting cadre activities. The limitations of this study must be noted, this research is a cross-sectional study, therefore it must be interpreted carefully. Longitudinal studies for further study are recommended and strengthen the factors that influence the use of information systems for monitoring and evaluating nutritional interventions for stunted children to eliminate the incidence of stunting based on data.

CONCLUSION

The study's results discussed that data management, knowledge, and infrastructure influenced the level of utilization of information systems for monitoring and evaluating stunting child nutrition interventions. The continuity of the information system for monitoring and evaluating stunting child nutrition interventions is expected to contribute to eliminating the incidence of stunting through appropriate planning based on accurate data evidence. To make this happen, community participation and government commitment are very necessary.

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CONFLICT OF INTEREST

This study did not involve any conflicts of interest.

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