



Digital Transformation of MP-ASI Education for Cadres (DIKADER) at Kramat Jati Community Health Center: Effectiveness Analysis

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ABSTRACT

To reduce the prevalence of stunting, the Kramat Jati Community Health Center initiated and implemented the Digitalization of Education for Cadres (DIKADER) to improve cadres' knowledge of complementary feeding materials. This study aimed to measure the effectiveness of DIKADER as an educational method. Method: The research design was a pre-experimental, one-group, pretest-posttest design. The sample included 24 posyandu cadres selected through purposive sampling. The intervention in this study was the educational method. This method was developed by considering the content of the material, the medium through which the message would be delivered, and how frequently the message would be delivered. cadres' knowledge was assessed using a G-form questionnaire before and after the intervention, while satisfaction was measured at the end. Data were analyzed using the Wilcoxon test. Results showed increased knowledge of complementary feeding after the intervention; although most cadres were pre-elderly. Conclusion: This study recommends the implementation of a blended learning method, in the form of providing material and practice questions during online sessions, and role-playing during offline sessions as an effort to increase the capacity of cadres.

Keywords : Cadre, Digitalization of Education, MP-ASI.

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INTRODUCTION

Stunting not only affects individuals, but also impacts the success of realizing the vision of Indonesia Emas 2045. Physically, stunting is characterized by height that is not commensurate with age, which is a form of chronic malnutrition. Children with stunting have a higher risk of morbidity and mortality, higher health care costs, and lower cognitive development. The long-term impact will reduce learning ability at school as well as potential, capacity, and productivity at work (Gusnedi et al., 2023).

In Jakarta, stunting remains a serious problem with a prevalence of 17.6%, which is still much higher than the average prevalence in developed cities, which is only 5% (Pemerintah Provinsi DKI Jakarta, 2025). The results of the Self-Assessment Survey - Community Deliberation (SMD-MMK) of the Kramat Jati Community Health Center show that stunting remains a priority health issue. The 2024 SMD-MMK report shows that stunting is a priority health issue in 5 of the 7 sub-districts in the Kramat Jati Community Health Center area.

Breastfeeding history, iodine salt consumption, and nutritional intake are associated with stunting (Febriana & Walida, 2021). Parenting patterns are one of the factors that influence the incidence of stunting. As an effort to reduce the prevalence of stunting, the strategy recommended in the RPJMD is to optimize parenting patterns. One parenting pattern that directly influences children's nutritional status is feeding practices. A Systematic Literature Review shows that infant feeding practices affect stunting rates in Asia and Indonesia (Astuti et al., 2024; Munawar et al., 2024). Feeding practices also affect the closing of the mouth (GTM) in children during complementary feeding (Hafiza et al., 2020). In October 2024, the WHO issued a thematic brief on feeding using a responsive feeding approach or responsive feeding practices (World Health Organization, 2024). This approach is used to prevent underfeeding and overfeeding (Black et al., 2022). This approach involves caregivers and children, with the aim of improving children's feeding skills, adopting healthy eating behaviors in the future, and reducing stress in feeding for caregivers (Lauren Foster et al., 2025). Proper feeding practices should support the management of child nutrition issues in Indonesia.

Posyandu cadres play an important role in optimizing parenting patterns, particularly feeding practices, through communication on behavioral change in complementary feeding (Hasanah et al., 2024; Kementerian Kesehatan RI, 2018). However, the results of a survey on the material needs of cadres at the Kramat Jati Community Health Center showed that 31.5% of cadres said that the material that was often asked about by the community but poorly understood by cadres was complementary feeding. Based on Notoadmodjo's theory, factors influencing knowledge include education, exposure to information, environment, experience, and culture (Chusniah Rachmawati, 2019). A systematic review on the effectiveness of health education states that several elements must be considered for health education to be effective, namely the content of the material, the medium of message delivery, and the frequency of message delivery (Aramico et al., 2020).

The Jakarta Health Office plays a role in addressing community nutrition issues by recommending digital-based nutrition education as one of its strategies (Dinas Kesehatan DKI Jakarta, 2025). A systematic review shows that digital education can improve understanding of nutrition and complementary feeding practices in accordance with guidelines (Nurati et al., 2024). Therefore, the Kramat Jati Community Health Center, as a technical implementation unit under the Health Office, has innovated Digital Education for Cadres (DIKADER) related to complementary feeding materials. The purpose of this study is to measure the effectiveness of DIKADER as an educational method in increasing the capacity of cadres regarding complementary feeding materials.

This research has novelty by examining the effectiveness of digitalization of education for community health center cadres, the majority of whom are pre-elderly.

METHODS

This study has obtained ethical approval from the Health Research Ethics Committee of Faculty of Medicine And Health Sciences University Muhammadiyah Sumatera Utara with ethical clearance number: 126KEPK/FKUMSU/2026. The research design used in this study was a pre-experimental one-group pretest-posttest design, which is an experimental design in which the sample is assessed before and after being given treatment. The sample size in this study was 24 infant and child feeding cadres in Kramat Jati Sub-District. Kramat Jati sub-district has 17 integrated health posts (posyandu), each posyandu sends a representative cadre to participate in this program. The sampling technique used was purposive sampling. The intervention provided took into account several elements of educational effectiveness, namely content, message delivery media, and message delivery frequency. The intervention in this study consisted of providing MP-ASI videos, interactive webinars through WhatsApp groups, and providing independent learning media.

Data collection was conducted using a Google Form. Knowledge levels were assessed using 25 questions about complementary feeding, which were evaluated before and after the intervention. The questionnaire was compiled based on the Ministry of Health's guidelines for providing complementary feeding for cadres (Kementerian Kesehatan RI, 2021). Each question had a yes or no answer. Each correct answer earned 4 points. The knowledge data collected was not normally distributed, so it was analyzed using the Wilcoxon test. Cadre satisfaction was assessed using six closed-ended questions, which were analyzed univariately.

RESULTS AND DISCUSSION

In accordance with the objectives of this study, the characteristics of the respondents, an overview of the test scores before and after education, the effectiveness, and the satisfaction of cadres with the DIKADER education method are presented. The characteristics of the respondents can be seen in Table 1.

Table 1. Characteristics of Respondents

Variable	Number (%)
Age	
Adult (19-44 years)	7 (29.2%)
Pre-elderly (45-59 years old)	17 (70.8%)
Highest level of education	
Elementary	1 (4.2%)

High school	20 (83.3%)
Higher Education	3 (12.5%)
<hr/>	
Length of time as a cadre	
< 5 years	16 (66.7%)
>5 years	8 (33.3%)

Table 1 shows that the majority of respondents were pre-elderly (aged 45-59 years), had a high school education, and had been cadres for less than 5 years. These results are in line with other studies analyzing digital education among cadres, with the majority being over 35 years old, having a high school education, and having been cadres for less than 5 years (Fitriani et al., 2022; Kurniasari et al., 2023).

The results show that the majority of cadres are in the pre-elderly group. Young cadres do tend to adapt more quickly to digital media, but they have less experience, fewer networks, and lower social credibility than older cadres. Older cadres have greater social credibility and experience (Anstey Watkins et al., 2021; Heponiemi et al., 2022). Therefore, it is important to encourage gradual digitalization, even among cadres in the pre-elderly group. In encouraging this digitalization, it is necessary to involve cadres to identify trends in easy-to-use digital methods.

Research shows that as the global population ages, there is an urgent need to meet the learning needs of older adults in the context of online learning. Research related to online learning methods for older adults shows that older adults prefer a practical and convenient visual learning approach when delivered through applications that are used on a daily basis (Anstey Watkins et al., 2021). In line with this research, the media provided was educational videos delivered through an application that cadres use on a daily basis, namely WhatsApp groups.

Table 2. Overview of test scores before and after education

Score Category	Number at pretest (%)	Number at posttest (%)
Less than 90	8 (33.3%)	3 (12.5%)
Above 90	16 (66.7%)	21 (87.5%)

Table 2 shows a 20.8% increase in cadres with scores above 90 after the intervention. In addition, the average score for knowledge of complementary feeding principles before the intervention was 88 and after the intervention was 96.

Table 3. Effectiveness of Digital Education for Cadres

Pre-test-Post-test	Negative Ranks	0	Asymp.Sig (2 tailed)
	Positive Ranks	17	0.001
	Ties	7	
	Total	24	

Table 3 shows that 17 (70.8%) respondents increased their scores after the intervention. The Wilcoxon test showed a p-value <0.05 , so it can be concluded that there was a significant difference in knowledge of MP-ASI principles between before and after the intervention.

The results of the study showed that 17 (70.8%) respondents increased their knowledge level after the intervention. In addition, there was a 20.8% increase in cadres with scores above 90 after the intervention. The Wilcoxon test found a significant difference in knowledge scores on MP-ASI principles between before and after the intervention. This is in line with other studies that conducted digital education for posyandu cadres in Indonesia (Fitriani et al., 2022; Kurniasari et al., 2023).

Other studies show that posyandu cadres have higher knowledge scores than non-cadres after undergoing the same educational intervention. In addition, audiovisual media is more effective in educating than leaflets, and the use of WhatsApp for health promotion has been proven to be effective (Afriani et al., 2024; Kurniasari et al., 2023). Posyandu cadres have enormous potential in educating the community, so their coverage is broader than direct education by limited health workers (Rachmah et al., 2022). However, educating the community requires not only knowledge but also skills.

The use of digital platforms and audio-visual media has proven effective in increasing cadres' knowledge about specific health issues. Training via WhatsApp with audio-visual content on antibiotic resistance significantly increased the knowledge of Posyandu and PKK cadres, although the change in attitude was not as strong as the increase in knowledge (Sari A, et al, 2025). This shows that digital channels are easily accessible and practical for updating knowledge, but behavioral change requires a more intensive participatory approach.

Digital education is also used to strengthen the role of cadres as a basic source of information for pregnant women. Structured training with a participatory approach significantly increased cadres' knowledge scores on maternal nutrition, confirming that a combination of face-to-face training and structured materials (which can be packaged digitally) effectively strengthens the function of cadres as the spearhead of basic services (Azza, A, 2025). In the realm of chronic diseases, training cadres on diabetes mellitus that incorporates elements of digital literacy also increased the average knowledge score from 51 to 74, while strengthening the role of cadres in educating the community about non-communicable diseases (Aryzki, S, et al 2025). Analysis of cadres' satisfaction with the education method was conducted, as shown in Figure 1.

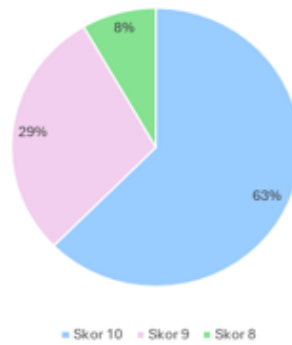


Figure 1. Cadres' satisfaction with the education method

Figure 1 shows the satisfaction level of respondents who gave a score of 10, totaling 15 (63%) people, a score of 9, totaling 7 (29%) respondents, and a score of 8, totaling 2 (8%) respondents. Additionally, all respondents stated that the provided materials were beneficial, the language was easy to understand, and the videos and self-learning media made it easier for cadres to understand and explain the MP-ASI materials to the community.

Literature trends support that sustainable investment in digital education for Posyandu cadres, accompanied by mentoring, structural support, and the development of contextual educational content, has the potential to strengthen the primary health care system and accelerate the digital transformation of community-based health services in Indonesia (Simanullang, P, et al, 2023; Aryzki, S, et al, 2025; Azza, A, 2025; Sari A, et al, 2025). Research shows that knowledge can be improved through online methods, while skills can be improved through face-to-face methods (Balai et al., 2020). Therefore, a blended learning method with material delivery and exercises in online sessions, as well as role-playing in face-to-face/offline sessions, is recommended.

CONCLUSION

There was an increase in knowledge of the principles of complementary feeding after the digital education intervention for cadres. All cadres were satisfied with the education method used. However, the literature indicates the importance of face-to-face training to improve cadres' skills in educating the community. Therefore, the implication of this study is to recommend the implementation of a blended learning method, consisting of providing material and practice questions during online sessions and role-playing during offline/face-to-face sessions. This study also suggests an effectiveness study of the blended learning method as a development.

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