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Effect of A Booklet Media on Increasing the Knowledge of Complementary Feeding among Mothers in South Tangerang, Indonesia

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ABSTRACT

Background: Nutritional issues among toddlers remain a serious problem in Indonesia. The age of 6–24 months is a critical period in the growth and development of toddlers. Furthermore, children aged 12–23 months were more likely to meet complementary foods (e.g., minimum dietary diversity and minimum acceptable diet) than those younger, indicating that the older the child is, the greater the possibility of them meeting minimum complementary foods. Therefore, understanding complementary foods among mothers is essential for meeting the nutritional needs of children aged 6–11 months.

Purpose: To compare mothers' knowledge about complementary foods for children aged 6–11 months in the intervention and control groups in South Tangerang.

Methods: This research utilized a quasi-experimental design with a pretest-posttest control group design, carried out between August to September 2022. Participants (n=40) were selected through simple random sampling and then divided into intervention group (n=20) or the control group (n=20). To assess differences in knowledge changes between the two groups, the Wilcoxon signed-rank test was applied in the analysis.

Results: The mean scores in the intervention group before and after receiving the booklet were 50.5 and 75.5, respectively. This implies a significant difference between complementary food knowledge mothers in the pre-test and post-test (p-value ≤0.05). On the other hand, the control group's mean value did not change significantly (pre-test 51.5 and post-test 50.5; p-value >0.05).

Conclusion: The present study suggests that the booklet intervention had an impact on increasing mothers' understanding of complementary foods. Thus, health education through booklets is useful in changing knowledge and might be used in posyandu.

Keywords: booklet, children, complementary feeding, mother's knowledge

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BACKGROUND

Complementary feeding is defined as the process of giving food when breast milk alone is no longer sufficient in meeting nutritional needs. Giving complementary feeding generally begins at the age of 6 months and continues until the age of 23 months, although breastfeeding can be continued after that period (World Health Organization, 2023). Complementary feeding is necessary from the age of 6 months as breast milk is not enough to meet the baby's energy needs or provide sufficient amounts of certain nutrients such as protein, zinc, iron and fat-soluble vitamins (UNICEF., 2020; White et al., 2023).

The infant age and complementary feeding coincide with the peak period of risk of stunted growth and nutritional deficiencies (World Health Organization, 2023). In Indonesia, child nutrition outcomes remain a public health concern. In 2019, among children under five, the prevalence of nutritional status—stunting, wasting, underweight, and overweight—was 27.7%, 7.4%, 16.3%, and 4.5%, respectively. In 2021, the prevalence was reduced to 24.4% (stunting), 7.1% (wasting), 17.0% (underweight), and 3.8% (overweight). According to the 2023 Indonesia Health Survey (SKI) report, the prevalence of stunting was 21.5% (Ministry of Health of the Republic of Indonesia., 2023). Nutritional status prevalence has decreased, although it has not yet reached the 2020–2024 National Medium Term Development Plan (RPJMN) Indonesia goals. Targets for stunting and wasting are 14% and 7%, respectively, according to the Indonesian government. Additionally, in terms of obesity prevalence, at least maintain a constant obesity prevalence (Solikha, Ali, Nadjib, & Hafidz, 2020).

Inadequate information regarding complementary feeding practices among mothers is the one among underlying causes of undernutrition among children (Binamungu, Kimera, & Mkojera, 2023). Various factors have been identified as contributing to the suboptimal rates of appropriate complementary feeding, including maternal education, household income, antenatal care attendance, spouse's employment status, the quality of healthcare services, and women's empowerment in decision-making, among others. Among these, mothers' knowledge and attitudes towards recommended child feeding practices stand out as particularly important. Evidence shows that higher maternal knowledge is associated with improved complementary feeding behaviors. A previous study found that mothers' knowledge and understanding of basic nutritional concepts, including complementary feeding, influence their children's feeding practices (Masilela & Modjadji, 2023). Proper complementary feeding for children includes timely introduction of complementary feeding, diversity of eating patterns, and frequency of feeding (Taha, Garemo, & Nanda, 2020). In Indonesia, previous studies have reported that poor complementary feeding practices consistently contribute to the burden of child undernutrition, with significant gaps in maternal knowledge, particularly regarding feeding frequency, dietary diversity, and the timing of introducing complementary foods (Andriani, Supriyatno, Kekalih, & Rusli Sjarif, 2023; Nurokhmah, Middleton, & Hendarto, 2022). Therefore, enhancing mothers' understanding of complementary feeding is crucial for promoting optimal growth and development in children.

To improve mothers' knowledge and understanding of complementary feeding, providing them with health education interventions might be an effective approach. Previous studies found that health education interventions regarding mothers' knowledge and complementary feeding through cooking demonstrations, posters, face-to-face meetings, and role plays enhanced the mothers understanding and complementary feeding practices (Arikpo, ES., Chibuzor, Odey, & Caldwell, 2018).

To promote changes in attitudes and behavior, educational strategies and resources—like booklets and pamphlets—are frequently distributed. These kinds of educational resources are intended to assist mothers in enhancing their understanding, perspectives, and practices

regarding their children's nutritional needs (Linton et al., 2020). The booklet was a printed media with the purpose of sharing written and visual information. One of the many benefits of booklets is that they are full of information and can be examined at any time as they are structured like books. Booklets are very suitable as educational media for mothers (Yuniartika & Nur Hidayati, 2021).

As a conventional health education media in the digital era, booklets have remained relevant since access to information is influenced by a individuals household affluence, education level, and internet availability—particularly for mothers. Therefore, it makes sense to presume that living in a digital era would not be advantageous for all women. Access to traditional media sources, such as booklets, could help mothers become more empowered, even if only passively. Furthermore, booklets have the ability to reach a large audience through health promotion, particularly with regards to complementary feeding, even though maternal education level and social variables play a part in accessing health information particularly the appropriate food for children (Kabir, 2022).

OBJECTIVE

The aims of this study were to compare mothers' understandings of complementary feeding through booklet media in South Tangerang City, Indonesia.

METHODS

Study Design

This study employed a quasi-experimental design with a pretest-posttest control group, conducted from August to September 2022. A total of 40 respondents were selected through simple random sampling and subsequently allocated into an intervention group (n = 20) and a control group (n = 20).

Population and sample

The population in this study were mothers who had children aged 6–11 months who visited one of the *posyandu* (Integrated Service Post) in Rawa Buntu area, South Tangerang City, Banten Province, Indonesia. Based on an 80% power test and an alpha (α) of 5%, a total sample of at least 40 respondents (twenty participants, representing both the intervention and control groups) was achieved with a standard deviation (σ) of 11.2. Simple random sampling was used to establish the intervention group and the control group. The exclusion criteria were 1) unavailable or uncontactable during the study recruitment period; 2) respondents who did not complete the questionnaire in either the pre-test or post-test.

Validity and reliability test

During the pre-survey phase, the knowledge questionnaire's validity and reliability were tested. The reliability test (Cronbach's alpha value of 0.6) was used to examine the validity and reliability test results.

Research procedure

Data collection occurred at two times: prior to and following the intervention. Respondents completed paper-based questionnaires on both before and after intervention. Twenty minutes after distributing the booklets, post-intervention questionnaires were administered. The booklet was media-by-design. The questionnaires utilized closed-ended questions, requiring respondents to select a single response option per question; no open-ended explanations were collected.

Pre-intervention stage

At this stage, the research procedure was explained to all respondents (intervention group and control group). Next, respondents were asked to complete the paper-based

questionnaire. The questionnaire included respondent characteristics and knowledge of complementary feeding.

Intervention stage

At this stage, the intervention group and control group were grouped separately. The control groups were asked to carry out *posyandu* activities (i.e., weighing, filling out the maternal and child health's book, counseling, and immunization). Whereas the intervention group, before carrying out posyandu activities, was required to read a booklet for 20 minutes about complementary feeding. The booklet covers the definition, composition, nutritional adequacy, requirements, schedule, and diversity of complementary feeding. The determination of the booklet intervention duration of a single 20-minute session was informed by previous study on the Single-Session Intervention (SSI) approach (Schleider & Beidas, 2022).

Post-intervention stage

This stage was carried out after the intervention group read the booklet. The same paper-based questionnaire that was delivered during the pre-intervention phase was required to be completed by all respondents, including those in the intervention group and the control group. The same questions were posed throughout the pre-intervention and post-intervention phases of the study.

Measurement

The respondent characteristics and outcome variable were assessed on the day of the intervention. The characteristics were asked regarding employment status, education level, and information regarding complementary feeding. Employment status was divided into two groups: "employee" or "unemployed." Education level was asked about the last education attained by the mother, to which the respondent answered "no schooling," "did not finish elementary school," "elementary school," "junior high school," "high school," or "college/university," Then we categorized into five groups: "no schooling," "elementary school," "junior high school," "high school," or "college/university". Information regarding complementary feeding was measured with the question, "Where do you get information about complementary feeding for children aged 6–11 months?" The respondent answered "health workers" or "newspaper" or "magazine" or "internet" or "television," then we classified them into two groups: "health workers" or "mass media."

The outcome variable was knowledge of complementary feeding. The variable was measured by ten questions; the correct answer was given a value of 10, thus the total score was 100. After which the mean knowledge of complementary feeding was calculated.

Statistic analysis

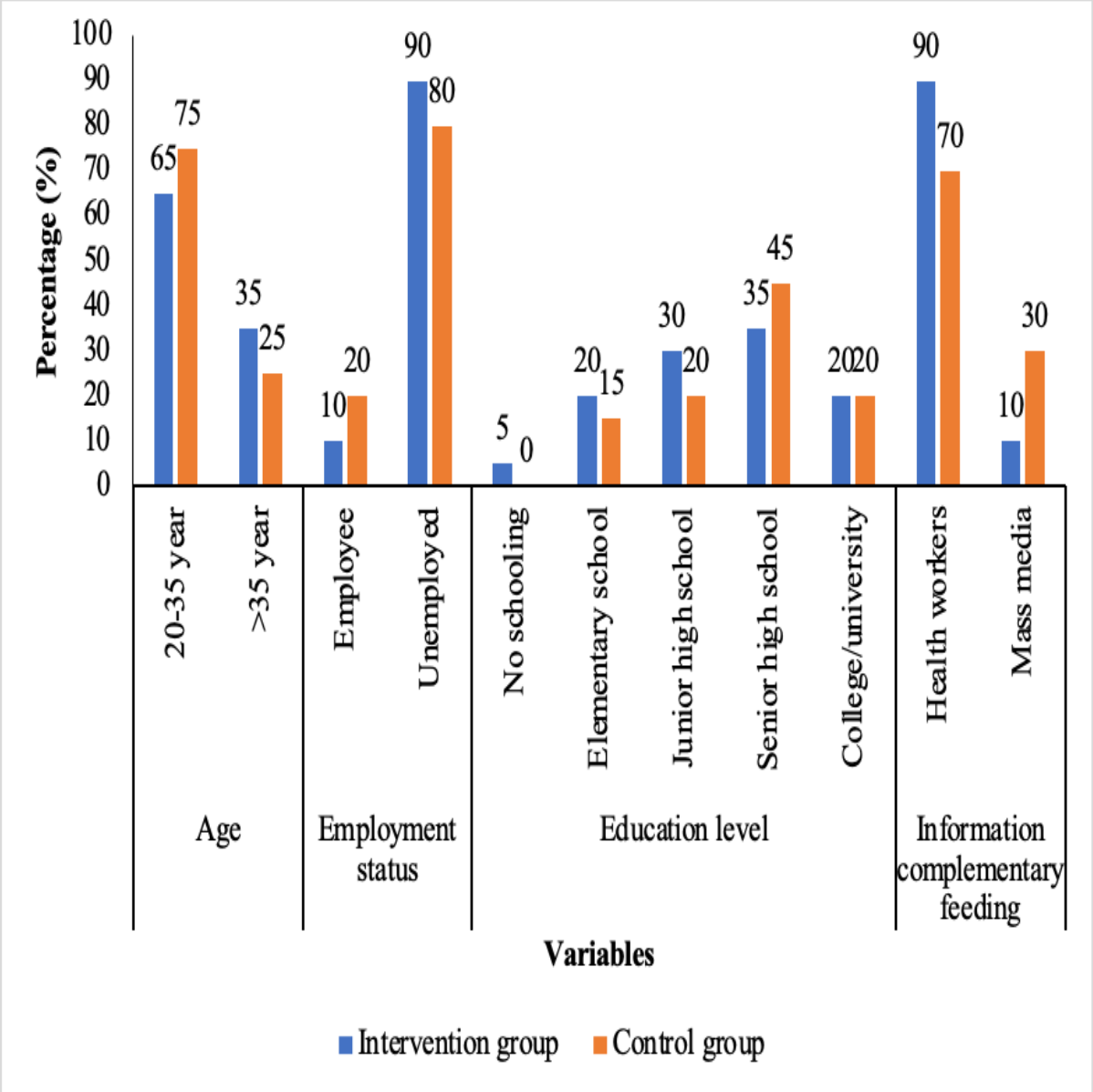
Descriptive statistics, including frequency and percentage, were utilized to analyze categorical variables such as age (20-35 year or >35year), employment status (employee or unemployed), education level (no schooling, or elementary school, or junior high school, or high school, or college/university), and exposure to information on complementary feeding (health workers or mass media). Additionally, measures of central tendency and dispersion, specifically the mean and standard deviation, were employed to summarize numerical data, exemplified by the analysis of knowledge scores. The respondents' knowledge of complimentary through booklet media was compared using the Wilcoxon test. All analyses were conducted using IBM SPSS version 22 software (IBM Corp., Armonk, NY, USA). A two-sided statistical test is employed. One considers a p-value of 0.05 to be statistically significant.

Research ethics

The Banten School Health of Science ethics committee has also approved this research, with ethical approval number 015/KE/STIKBA/VII/2022.

RESULTS

The total sample obtained in this study was 40 respondents (20 respondents in the intervention group and 20 respondents in the control group). Figure 1 shows the demographic characteristics of respondents. Among those aged 20–35 years, 65% and 75% belong to the intervention and control groups, respectively. The unemployment rates were 90% in the intervention group and 80% in the control group. Regarding educational attainment, 35% of respondents in the intervention group and 45% in the control group had completed high school. Additionally, 90% of mothers in the intervention group reported obtaining information about complementary feeding from health workers, compared to 70% in the control group.



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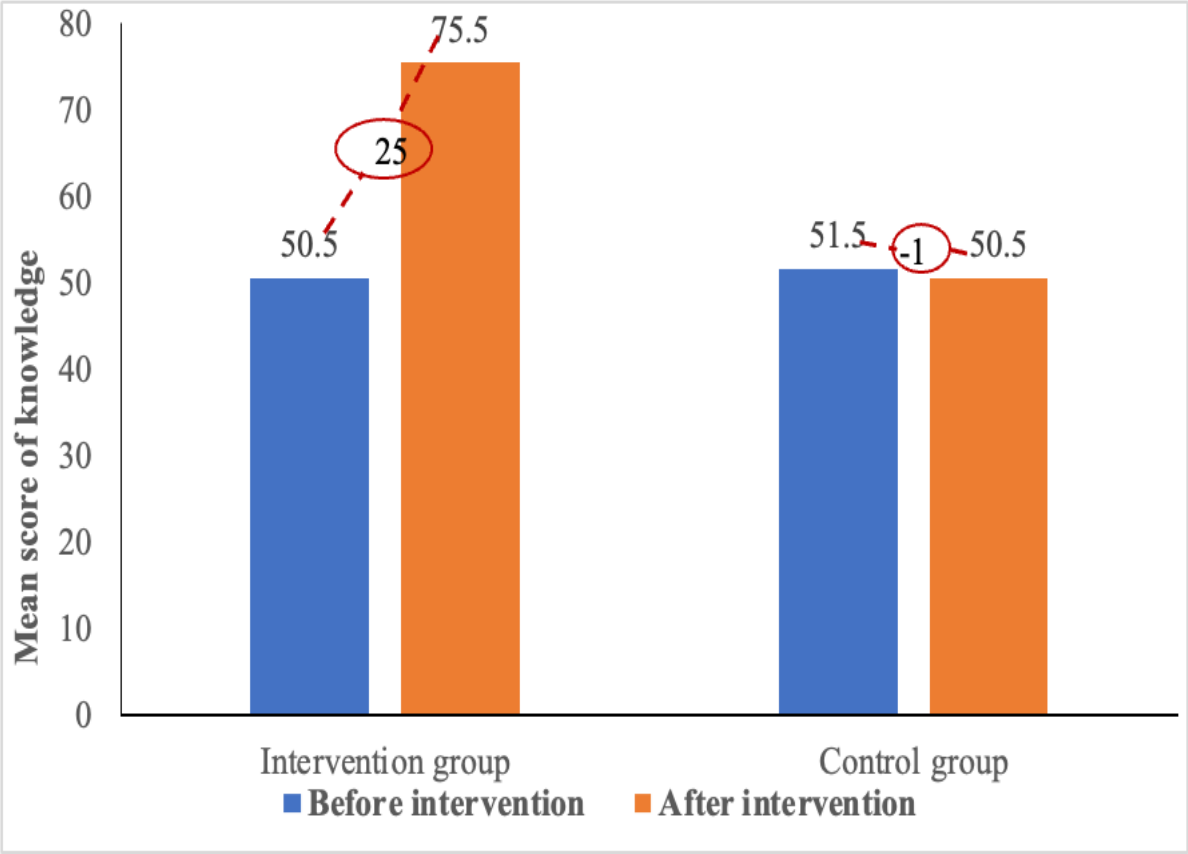

Figure 2. Mean score of knowledge before and after the intervention

Figure 2 shows the mean score of knowledge before and after the intervention. In the intervention group, the score increased from 50.5 before intervention to 75.5 after intervention, with a mean difference of 25. Conversely, in the control group, the score decreased from 51.5 before intervention to 50.5 after intervention.

Table 1. Two-Sample Mean Comparison

Knowledge of complementary feeding	Intervention group			p-value	Control group			p-value
	Min	Max	Mean ± SD*		Min	Max	Mean ± SD*	
Before intervention	10	70	50.5 ± 15.0	0.00	20	90	51.5 ± 19.5	0.157
After intervention	50	90	75.5 ± 11.4		20	90	50.5 ± 20.4	

*SD: Standard deviation

Table 1 shows the outcomes from the Wilcoxon signed-rank test comparing mean scores between the intervention and control groups. Within the intervention group, pre-intervention scores ranged from 10 to 70, while post-intervention scores ranged from 50 to 90. Statistical analysis indicated a significant increase in knowledge following the health education intervention delivered through the booklet ($p < 0.05$). In contrast, the control group exhibited no statistically significant change in knowledge.

DISCUSSION

In this study, we clarified the respondents' understandings of complementary feeding before and after health education interventions using the booklet. This study found that, in general, compared to the control group, in the intervention group, the mother's knowledge of complementary feeding was higher after the booklet of educational media intervention; our finding was consistent with previous studies (Arini, Sofianita, & Ilmi, 2017).

Prior to the intervention, respondents in the intervention and control groups demonstrated similar levels of knowledge regarding complementary feeding. This equivalency is important because it provides a baseline to ensure that any subsequent changes in knowledge can be attributed to the intervention. Similar findings have been reported in previous studies, emphasizing the importance of comparable baseline knowledge to validate the effectiveness of educational interventions (Bolzern, Mitchell, & Torgerson, 2019).

After the intervention, in the control group, with no reinforcement of these areas of knowledge, they showed a slight decrease. In contrast, health education interventions through booklets improved knowledge scores in the intervention group. By providing eye-catching visuals, health education through booklets will leave a lasting effect on the reader. The merits of booklets include their ability to be studied alone and kept for a considerable amount of time. However, it has disadvantages as well, such as the requirement that readers be literate (Yuniartika & Nur Hidayati, 2021). Health education using colored booklets can be used as educational tools to increase respondent knowledge, and the booklets could clarify questions regarding complementary feeding, like feeding frequency and variety of eating patterns. Thus, health education through booklets is useful in changing knowledge and might be used in *posyandu*.

There were differences in changes in knowledge in the intervention group compared to the control group. One possible reason might be the differences in the sources of information that respondents received regarding complementary feeding. A previous study found that the information that community health workers gave was effective in increasing maternal knowledge and infant and young child feeding practices (Diamond-Smith et al., 2022). Our characteristic data shows that respondents in the intervention group were more likely to receive complementary feeding information from health workers.

This study had several limitations. First, this study examined changes occurring within a 20-minute timeframe following the intervention; therefore, further analysis is required to verify the consistency of respondents' knowledge over an extended period. Second, this study might be selection biased as it was conducted in urban areas, where it would be easy for the population to access health services and obtain information about health from health workers. However, this study also has strengths. In this study, a control group was used to compare the intervention results between the intervention group and the control group, thus ensuring that the increase in knowledge among the intervention group occurs due to the provision of the booklets.

CONCLUSION

There were differences among respondents' knowledge before and after the health education intervention through the booklet in the intervention group. However, no differences were found in the control group.

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CONFLICTS OF INTEREST

The authors declared no conflict of interest.

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