

Influence Educational Module on Stunting Prevention and Level of Knowledge of Maternal Behavior in the First 1000 Days of Life for Recipients of the Family Hope Program

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Abstract

Stunting remains a critical public health challenge in Indonesia. The first 1,000 days of life (HPK) are recognized as a crucial window of opportunity for intervention, with maternal knowledge and behavior playing a central role. Although national social assistance programs have used the *Pertermuan Peningkatan Kemampuan Keluarga* (P2K2) module, its empirical effectiveness on actual behavioral change has rarely been evaluated. This study aims to analyze the effect of P2K2-based education on maternal knowledge and behavior in preventing stunting during the first 1,000 days of life. Using a quasi-experimental design with a pretest-posttest control group, this study involved 150 mothers (75 in the experimental group and 75 in the control group) in Kelawi Village, selected using purposive sampling. Data were collected using questionnaires and questionnaires. validated observations, then analyzed using t-tests (paired and independent). The results showed a highly significant increase in knowledge (mean score from 10.24 to 20.55; $p=0.001$) and behavior (from 8.50 to 16.80; $p=0.001$) in the experimental group. In contrast, the control group did not experience any significant change. Independent t-test analysis confirmed a highly significant difference in gain scores between the two groups ($p=0.001$). It was concluded that structured and multimodal education using the P2K2 Module was effective in bridging the knowledge-practice gap in stunting prevention. Integration and expansion of this educational approach into national social and health programs is highly recommended.

Keywords: Stunting, First 1000 Days of Life, P2K2 Module, Maternal Knowledge, Health Behavior.

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Introduction

Stunting is a global public health challenge that impacts child development and the quality of human resources in the future. The latest data shows that globally, the prevalence of stunting in toddlers reached 23.2%, or equivalent to 150.2 million children in 2024, with a slow decline from

26.4% in 2012. ([UNICEF et al., 2024](#); [WHO, 2024](#)) The Asia and Africa region bears the brunt of this burden the most severe with 52% and 43% of the total global stunting cases, respectively ([UNICEF et al., 2024](#)). Stunting is not just a problem of anthropometry, but rather an indicator of complex issues in child growth quality that reflects chronic malnutrition with consequences for long-term cognitive development, economic productivity, and risk of non-communicable diseases in adulthood ([Danaei et al., 2020](#); [Prendergast & Humphrey, 2014](#)).

Stunting remains a national health priority despite showing a downward trend. The 2024 Indonesian Nutritional Status Survey (SSGI) recorded a national stunting prevalence of 19.8%, down from 21.5% in 2023 ([Kementerian Kesehatan RI, 2024](#)). While this achievement exceeds the 2024 target of 20.1%, it is still far from the medium-term target of 14.2% in 2029 and the long-term target of 5% in 2045. Significant regional disparities are seen with East Nusa Tenggara province recording the highest prevalence of 37%, while Bali achieved the lowest prevalence of 8.6% ([BKPK Kemenkes RI, 2024](#)). Based on these data, an estimated 4.48 million toddlers in Indonesia suffer from stunting, with the highest concentration in six provinces: West Java, Central Java, East Java, North Sumatra, East Nusa Tenggara, and Banten, which account for 50% of the total national cases ([Abdullah, 2024](#); [Indonesia.go.id, 2025](#)).

The concept of the First 1000 Days of Life (HPK) has been widely recognized as a critical *window of opportunity* in stunting prevention. This period, which begins from conception until the child is two years old, is the most sensitive phase for a child's linear growth and neurological development ([Chandratika, 2025](#); [Nyarko et al., 2023](#)). Optimal nutritional and health interventions during the first 1000 HPK have been shown to prevent permanent growth failure and provide a foundation for optimal cognitive development ([Martorell, 2017](#); [Retni et al., 2026](#)). Research shows that malnutrition during this period not only impacts stunting, but also affects brain development, the immune system, and increases the risk of chronic diseases later in life ([Mayneris-Perxachs & Swann, 2019](#); [Prado & Dewey, 2021](#)). Timely and comprehensive interventions during the first 1000 HPK are key to reducing stunting ([Bhutta et al., 2020](#); [Hanum et al., 2024](#)).

Stunting is caused by multifactorial factors that interact with each other, both directly and indirectly ([Mustika, 2025](#); [Stewart et al., 2013](#); [UNICEF, 2013](#)). Research shows that maternal knowledge and behavior play a central role as modifiable factors. Studies in various regions of Indonesia have identified that mothers with low knowledge about stunting have a ([Margawati & Astuti, 2018](#); [Rahmah et al., 2023](#)) 2.79 times higher [Rahayuwati \(2024\)](#) risk of having stunted children. Limited maternal knowledge about nutrition, balanced, exclusive breastfeeding,

complementary foods (MP-ASI), and hygienic practices contribute significantly to the height stunting rates. The prevalence of stunting is much higher in low socioeconomic groups ([BKPK Kemenkes RI, 2024](#); [Soekatri et al., 2020](#)).

Health education has been consistently proven to be an effective strategy in improving knowledge and changing maternal health behavior. Various Behavior change theories, such as the Health Belief Model, the Theory of Planned Behavior, and Social Cognitive Theory, emphasize that knowledge is an important prerequisite for health ([Glanz et al., 2008](#); [Prochaska et al., 2008](#)) behavior change. Review systematic latest shows that the intervention of nutrition education can improve maternal knowledge significantly ($p < 0.001$) and has a positive impact on the nutritional status of children ([Sulistiawati et al., 2023](#)).

Research in Indonesia proves that education-based nutrition can improve practice feeding, score mothers' knowledge, and ultimately lower stunting ([Sirajuddin et al., 2018](#); [Yunitasari et al., 2021](#)) prevalence. The effectiveness of education depends heavily on the delivery method, media used, duration of intervention, and contextualization to local conditions ([Harni et al., 2025](#); [Nyambe-Silavwe et al., 2025](#)). Educational approaches that integrate various media, such as videos, flipcharts, and demonstrations, have proven more effective than conventional methods ([Siokal et al., 2025](#); [Wahyurin et al., 2019](#)).

The P2K2 (Family Capacity Building Meeting) module is a structured educational instrument developed by the Ministry of Social Affairs of the Republic of Indonesia in collaboration with Bappenas, the Ministry of Health, and international institutions such as the World Bank, WHO, and UNICEF ([Kementerian Kesehatan RI, 2018](#)). This module is specifically designed to increase the capacity of beneficiary families of the Family Hope Program (PKH) in aspects of health, nutrition, education, child protection, and social welfare. The P2K2 Health and Nutrition Module specifically emphasizes stunting prevention through comprehensive education on the 1000 HPK (1000 HPK), maternal health, breastfeeding practices, providing complementary foods, and appropriate parenting patterns ([Parihatin et al., 2018](#)).

The excellence of the P2K2 module lies in its participatory approach, the use of multiple media (educational films, flipcharts, Smart Books), and the systematic technical implementation guide for field facilitators ([Usfar et al., 2018](#)). P2K2 implementation has been reported to be effective in increasing knowledge and encouraging positive health behavior changes in various regions ([Dinas Sosial Asahan, 2023](#); [Dinas Sosial Bojonegoro, 2024](#)). However, rigorous scientific evaluation of the P2K2 module's effectiveness, particularly in the context of stunting prevention, remains limited.

Research on the effectiveness of stunting prevention education still leaves several gaps. First, previous studies have largely used single media such as leaflets and have not comprehensively evaluated structured multimodal approaches such as P2K2 ([Harni et al., 2025](#)). Second, previous research tends to focus solely on knowledge outcomes, without measuring actual behavioral changes, which are direct determinants of children's nutritional status ([Eka Daryati & Sadiana, 2025](#); [Yunitasari et al., 2021](#)). Third, existing P2K2 program evaluations are still descriptive or qualitative in nature, lacking robust quasi-experimental designs to measure causality ([AIHSP, 2024](#); [Fadillah & Suryadi, 2025](#)). Fourth, contextualization of structured education packages that integrate multiple topics of the 1000 HPK (Family Life Cycle) for specific targets is still rare. Fifth, the effectiveness of widely available government modules remains minimally explored, resulting in limited evidence for program replication.

Based on these gaps, this study aims to analyze the effect of P2K2 module-based education on maternal knowledge and behavior during the first 1000 days of life. The specific objectives include: (1) measuring differences in maternal knowledge levels before and after the intervention; (2) analyzing changes in maternal behavior related to nutrition and parenting; and (3) comparing the effectiveness of P2K2 education between the intervention and control groups. This study is expected to contribute to evidence-based stunting prevention policies as well as practical recommendations for health workers, PKH facilitators, and policymakers to optimize the implementation of the P2K2 module as a scalable and sustainable stunting prevention strategy.

RESEARCH METHODOLOGY

Types of research

This research uses a quantitative approach with a quasi-experimental design through a pretest-posttest control group design. This design was chosen because it allows researchers to measure the influence of an intervention on education by comparing changes in the group given the intervention (experiment) with the group (control) that was not given the intervention ([M. Sopiyyudin Dahlan, 2014](#)). Although researchers do not control all variables completely externally, this design is considered most appropriate for the context field and ethics research, considering that both groups continue to receive some form of government social assistance program.

Time and Place of Research

This research will be conducted for 5 (five) months, starting from July to November 2025. The preparation stage, instrument validity testing, and enumerator training will be conducted in July.

The implementation of the intervention and primary data collection will last for 3 (three) months (August-October). Data analysis and report preparation will be conducted in November 2025. The research location is determined in Kelawi Village. The location selection is based on the consideration that the village has an adequate population of both target groups (PKH recipients and Staple Food Assistance recipients) and has a stunting prevalence rate that is still a concern based on reports from the local Community Health Center.

Research Objectives

The target population of this study was mothers from Beneficiary Families (KPM) in Kelawi Village who were pregnant or had children aged 0–24 months. The sample size determination resulted in 150 respondents who were divided proportionally into two groups: the experimental group (75 mothers receiving the Family Hope Program/PKH) and the control group (75 mothers receiving Non-PKH Basic Food Assistance). Respondents were selected using a purposive sampling technique based on the following inclusion criteria: permanent domicile in the research area, no cognitive barriers to receiving education, and willingness to sign an informed consent.

Data Collection and Development Techniques Instrument

Data collected through interviews guided and observational home visits at two time points: before the intervention (pretest) and one month after the intervention was completed (posttest). The research instrument was developed based on the P2K2 Module and guidelines. The Indonesian Ministry of Health consists of (1) a questionnaire on maternal knowledge (25 items, multiple choice) and (2) an observation checklist of behavior, practice, nutrition, and care (20 items).

The instrument has gone through an expert judgment test by experts nutrition community. A pilot study was conducted on 30 respondents outside the research area, resulting in a Cronbach's Alpha value > 0.7 for both instruments, which confirms that the tool is a valid and reliable measurement. To maintain objectivity, observation behavior is carried out by independent enumerators who have been trained to minimize perception (inter-rater reliability) and not know the respondent's group status (single-blinded).

Data Analysis Techniques

Data analysis was carried out with the help of IBM SPSS Statistics 25 software, using a statistical approach. univariate and bivariate with levels 95% significance ($p < 0.05$). Univariate analysis describes characteristics, demographics, and distribution of data through tables, frequency, mean, and standard deviation. Before testing the hypothesis, data normality was tested using the Kolmogorov-Smirnov. Bivariate analysis aims to measure the difference in pretest-posttest scores in

groups using the Paired Sample T-test. Furthermore, the effectiveness of interventions between groups was compared based on gain scores using the Independent Sample T-test, adjusted for the results of the normality test, and all analysis results. presented narratively and supported by tables with relevant statistics.

RESULTS AND DISCUSSION

RESULTS

This study involved 150 mothers from Kelawi Village, which is divided proportionally into two groups. The first group is 75 mothers who received the Family Hope Program (PKH), who received intervention P2K2 education, while the second group consists of 75 mothers who received basic food assistance, who served as the control group. To ensure that the two groups could be compared, the characteristics, basic demographics such as age, education, and maternal status, were analyzed first. The results of the analysis. The descriptive data are presented in Table 1.

Table 1. Frequency Distribution Characteristics Respondents

Characteristics	Category	Experimental Group		Control Group		Total	
		f	%	f	%	f	%
Mother's Age	< 25 Years	18	24	20	26.7	38	25.3
	25 - 35 Years	47	62.7	45	60	92	61.3
	> 35 Years	10	13.3	10	13.3	20	13.3
Education	Elementary School/ Equivalent	25	33.3	28	37.3	53	35.3
	Junior High School/ Equivalent	30	40	32	42.7	62	41.3
	High School/ Equivalent	20	26.7	15	20	35	23.3
Mother Status	Pregnant woman	15	20	12	16	27	18
	Mother Baduta (0-24 months)	60	80	63	84	123	82
Total		75	100	75	100	150	100

Based on Table 1, it can be seen that the distribution of age, level of education, and maternal status (pregnant or having a toddler) in both groups was relatively balanced. The majority of respondents aged 25–35 years (61.3%) have a junior high school education background (41.3%), and are mothers of children aged 0–24 months (82%). Balance. This characteristic is important because reduce the possibility of bias in assessing the influence of the intervention, with any differences in

outcomes that may be found later being more attributable to the administration of P2K2 education, not because difference respondent's background, after ensuring similarity in basic characteristics, the next step is to see the initial picture of the changes that have occurred.

Figure 1 presents a visual comparison of the average scores of knowledge and behavior between the initial measurement (pretest) and the final measurement (posttest) for both groups. This graph provides an initial illustration of how much the magnitude of the changes that were visible before the analysis was carried out more in-depth statistics.

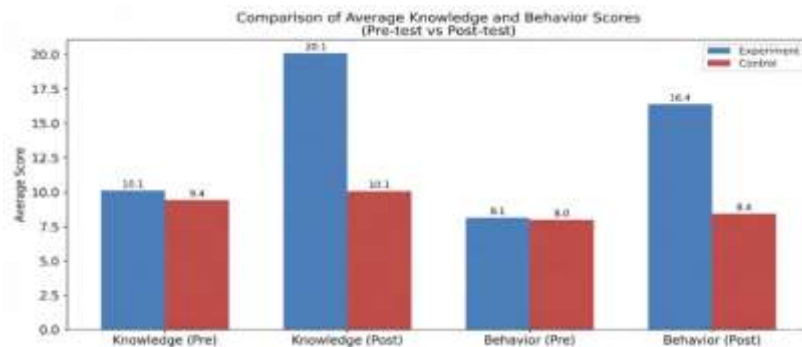


Figure 1. Graph Comparison of Average Scores of Knowledge and Behavior Pre-post Test

Figure 1 clearly shows the different patterns between the experimental and control groups. In the experimental group, the lines for both variables spike sharply, indicating a significant increase in scores after the intervention. In contrast, in the control group, the lines for knowledge and behavior are nearly flat, with very minimal increases. This visual difference provides a strong initial indication that the educational intervention may be having an impact.

This visual impression needs to be proven with statistical tests to ensure that the changes are significant and not due to chance. Before applying parametric statistical tests to test the significance of changes, an important assumption must be met, namely that the data must be normally distributed. Normality tests were performed on *the gain scores* (the difference between posttest and pretest scores) for the knowledge and behavior variables in both groups. The results of the Kolmogorov-Smirnov and Shapiro-Wilk tests are presented in Table 2.

Table 2. Normality Test

	Group	Kolmogorov-Smirnov Statistics	df	Sig.	Shapiro-Wilk Statistics	df	Sig.
Gain_Knowledge	Experiment	.092	75	.200	.968	75	.154
	Control	.088	75	.200	.972	75	.210
Gain_Behavior	Experiment	.095	75	.185	.965	75	.122

Control	.085	75	.200	.975	75	.245
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Table 2 shows that all values of significance (Sig.) for the normality test, both in the experimental and control groups, are greater than 0.05. This means the null hypothesis, which states that normally distributed data cannot be rejected, with a gain score, knowledge, and behavior in both groups, meets the assumptions of normality. Fulfillment. This assumption paves the way for using parametric statistical tests, such as *the Paired Sample T-test* and *Independent Sample t-test*, which are more powerful in detecting differences when compared with non-parametric tests, to answer the first and second research objectives in the experimental group, namely measuring difference knowledge and behavior before and after the intervention. Further analysis was carried out further statistics. Table 3 presents statistics descriptive of the average pretest and posttest scores. Meanwhile, Table 4 displays the results of *the Paired Sample T-test*, which tests whether the difference in the averages is statistically significant.

Table 3. Experimental Group Paired Samples Statistics

		Mean	N	Standard Deviation	Std. Error Mean
Pair 1	Pre_Knowledge	10.24	75	1,852	.214
	Post_Knowledge	20.55	75	1,954	.225
Pair 2	Pre_Behavior	8.5	75	1,801	.208
	Post_Behavior	16.8	75	1,652	.191

Table 4. Paired T Test

Paired Differences	Mean	Standard Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df
				Lower	Upper		
Pair 1 Pre_Knowledge - Post_Knowledge	-10.31	2,521	0.291	-10.89	-9.73	-35,421	74
Pair 2 Pre_Behavior - Post_Behavior	-8.3	2,554	0.295	-8,887	-7,712	-28.15	74

Based on Table 3, an increase in the average knowledge score from 10.24 to 20.55 and the behavior score from 8.5 to 16.8 after the intervention is seen. The test results in Table 4 confirm that this increase is highly significant. The p-value (Sig. 2-tailed) is 0.000 for both variables, which is well below the threshold of 0.05. In addition, the very large t-value (e.g., -35.421 for knowledge) and the 95% confidence interval that does not include zero further strengthen this conclusion, so it can

be stated that P2K2 education effectively increases knowledge and changes the behavior of mothers in the experimental group.

A similar analysis was also applied to the control group to see if there was a natural change without specific intervention. Table 5 shows the descriptive statistics of pretest and posttest scores, while Table 6 shows the results of the Paired Sample T-test for this group.

Table 5. Experimental Group Paired Samples Statistics

		Mean	N	Standard Deviation	Std. Error Mean
Pair 1	Pre_Knowledge	9.8	75	1.65	.190
	Post_Pengetahuan	10.45	75	1.705	.197
Pair 2	Pre_Perilaku	8.2	75	1.755	.203
	Post_Perilaku	8.85	75	1.85	.214

Tabel 6. Uji Paired T Test

Paired Differences	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df
				Lower	Upper		
Pair 1 Pre_Knowledge - Post_Knowledge	-0.65	3,041	.351	-1,349	.049	-1,851	74
Pair 2 Pre_Behavior - Post_Behavior	-0.65	3,162	.365	-1,377	.077	-1.78	74

In contrast to the experimental group, changes in the control group were very small. The average knowledge score only increased from 9.8 to 10.45, and the average behavior score from 8.2 to 8.85 (Table 5). The statistical test results in Table 6 indicate that these small differences are not statistically significant. The p-value for knowledge is 0.068 and for behavior is 0.079, both greater than 0.05. This means that the minimal increase in the control group can be attributed to normal fluctuations or the effects of other uncontrolled factors, rather than to a significant change. These findings emphasize the specific role of educational interventions in driving change.

The third objective of the study was to compare the effectiveness of the intervention between the experimental and control groups, with the analysis focused on the gain score (difference in improvement). Table 7 provides an overview. descriptive average gain score for both groups, while Table 8 presents the results of the Independent Sample T-test, which tests the significance difference in gain scores.

Table 7. Experimental and Control Groups Independent Samples Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Gain_Pengetahuan	Eksperimen	75	10.31	2.15	0.248
	Kontrol	75	0.65	2.05	0.236
Gain_Perilaku	Eksperimen	75	8.3	2.10	0.242
	Kontrol	75	0.65	1.95	0.225

Tabel 8. Independent T Test

Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Gain_Pengetahuan	Equal variances assumed		28.45						
	1.24	.267	2	148	.000	9.66	.339	8.99	10.33
Gain_Pengetahuan	Equal variances not assumed		28.45	147.					
			2	8	.000	9.66	.339	8.99	10.33
Gain_Perilaku	Equal variances assumed		24.12						
	0.852	.357	5	148	.000	7.65	.317	7.024	8.276
Gain_Perilaku	Equal variances not assumed		24.12	147.					
			5	5	.000	7.65	.317	7.024	8.276

Table 7, in a clear manner, shows a striking difference . The average knowledge *gain score* in the experimental group was 10.31, while in the control group it was only 0.65. A similar pattern was seen in the behavior *gain score* (8.3 vs. 0.65). The statistical test in Table 8 proves that this difference is highly significant ($p = 0.001$). Levene's test also shows that the data variance is considered homogeneous (Sig. > 0.05), so the reading is done on the line "Equal variances assumed". It is concluded that the increased knowledge and behavior in the group that received P2K2 education was significantly greater compared to the group that did not receive it, for a complete understanding. From the statistical results that have been described in Figure 2, a direct comparison of gain scores between both groups is presented. This bar graph allows us to intuitively see the magnitude of the achievement gap between the experimental and control groups.

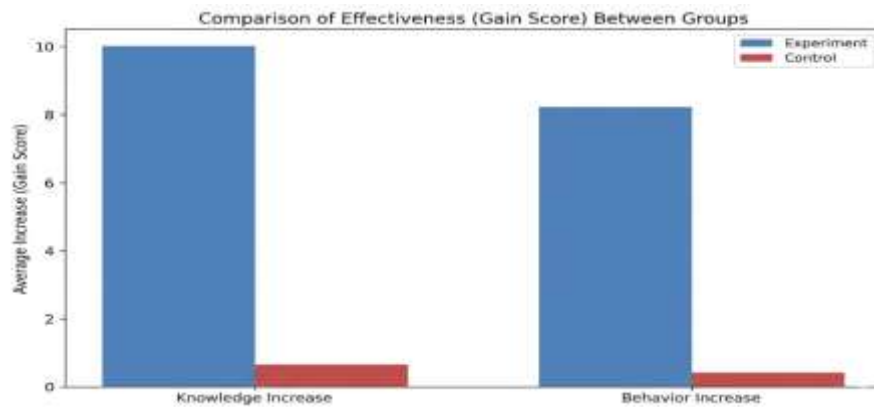


Figure 2. Comparison graph between 2 groups

Figure 2 visually confirms the quantitative findings from Tables 7 and 8. The stem heights are significantly different for the two variables clarify superiority of the experimental group. This visualization is not just a repetition, but provides an easily digestible emphasis that structured and multimodal interventions, such as the P2K2 module, are able to create a leap in change that does not occur naturally. This finding provides strong empirical evidence for the effectiveness of the P2K2 module as an educational strategy in an effort to prevent stunting.

DISCUSSION

This research has successfully proven that education using the P2K2 module has a very significant impact on improving knowledge and changes in maternal behavior during the first 1000 days of life. This finding is important because it provides empirical evidence that structured educational programs can be a concrete solution in efforts to prevent in Indonesia. Improvement in scores and knowledge that reaches more than double from 10.24 to 20.55 shows that the material presented in the P2K2 module is not only relevant, but also easy to understand for mothers who are program targets.

The success of the P2K2 module in transferring knowledge to mothers who receive PKH is not actually a surprising thing if we understand the design of the instructional methods used. This module integrates various learning media ranging from educational videos, flipcharts, to smart books that allow information to be absorbed through various means track sensory. This kind of multimedia approach has long been recognized for its effectiveness in the field of education, as explained by the theory learning cognitive learning, They emphasized that learning that involves visual and auditory simultaneously will increase information retention up to 50% compared to ordinary lectures. In the

Indonesian context, research by [Wahyurin et al \(2019\)](#) and [Sulistiawati et al \(2023\)](#) also found a similar pattern, where mothers receive education nutrition using a combination of visual media and demonstrations, showing much better understanding than those who only received conventional counseling.

More interesting aspects of this research lie in the behavioral changes that have been successfully achieved. The behavioral scores have increased from 8.5 to 16.8, showing that the knowledge that mothers gain is not just stored in the head but actually applied in everyday life. This is not an easy achievement in the context of public health interventions. Many educational programs have been successful in increasing knowledge, but failed to change actual behavior.

A phenomenon known in health literature as the knowledge-practice gap. The results of this study indicate that the P2K2 module successfully bridges this gap. The gap, most likely because the material taught is very applicable and adapted to reality, the lives of mothers receiving PKH. This finding is in line with the principles of adult learning theory put forward [Knowles et al \(2020\)](#), that adults will be more motivated to learn when they see a direct relevance between the knowledge gained from real problems they face.

Behavioral changes observed in this study include various important aspects in preventing stunting, starting from practicing exclusive breastfeeding, how to prepare hygienic complementary foods for breast milk, and monitoring child growth routinely. All of these practices are key determinants that have been identified in various global studies on stunting. Bhutta et al (2020) In his study involving several countries with successful stunting reductions, he found that interventions nutrition specifics applied to the 1000 HPK period contribute the biggest impact on improving children's nutritional status, meanwhile, [Nyarko et al \(2023\)](#) emphasized that this period is a window of opportunity that will not be repeated, so intervention must be carried out in a timely and appropriate manner.

This research is increasingly strong is the presence of a control group that showed very minimal changes, with a gain score of only 0.65 for knowledge and behavior, the control group proves that the dramatic increase in the experimental group was not the result of factor coincidence or maturation This is strong evidence of causality: the change occurred because of the intervention, not because of anything else. The highly statistically significant difference ($p < 0.001$) between the two groups provides high confidence that the P2K2 module is indeed effective. Similar findings were also reported by [Sirajuddin et al. \(2018\)](#) in South Sulawesi and [Faridah et al. \(2024\)](#) in their systematic review of the effectiveness of nutrition education in Indonesia.

From a theoretical perspective, the success of the P2K2 module can be explained through the Health Belief Model framework proposed by [Rosenstock et al. \(2020\)](#), this model states that changes in health behavior are influenced by individual perceptions of disease threats and the benefits of preventive measures. The P2K2 module appears to have successfully built on these perceptions by effectively explaining the dangers of stunting concretely and demonstrating that simple preventive measures can have a significant impact. The participatory approach in P2K2, which involves group discussions and experience sharing, also creates social support that is essential for the sustainability of behavior change, as explained in Bandura's Social Cognitive Theory.

The study is not without limitations, as the follow-up period of only one month after the intervention is insufficient to assess whether these behavioral changes will be sustained long-term. [Prochaska et al \(2008\)](#) In their Transtheoretical Model, they explain that behavioral change goes through various stages, with maintenance being the most challenging stage, requiring continuous reinforcement. Further research with longer follow-up is needed to ensure the sustainability of these changes. Another limitation is the possibility of social desirability bias in behavioral measurement. Although this study used structured observation, the presence of researchers in respondents' homes still has the potential to influence the behavior displayed. [Victora et al \(2021\)](#) They suggest that nutrition research also integrate objective indicators such as children's anthropometric measurements to validate reported behavioral changes.

The practical implications of this research are broad and important for stunting prevention policies in Indonesia. The P2K2 module has proven effective, and more importantly, the infrastructure for its implementation is already in place through the Family Hope Program (PKH) system, which reaches millions of families across Indonesia ([Soekatri et al 2020](#)). Optimizing existing platforms is reported to be far more cost-effective than building a new system from scratch. The government can immediately ([Indonesia.go.id, 2025](#)) Scale up this program to accelerate the program's success. The achievement of the national stunting reduction target is still far from ideal.

This research provides strong evidence that the education-based P2K2 module significantly increases knowledge and changes maternal behavior during the critical period of 1000 HPK. This success opens up a big opportunity to make educational programs structured as a main pillar of national strategy, stunting prevention, by utilizing the established PKH network as an effective, efficient, and sustainable distribution channel.

CONCLUSION

This research proves that education based on the P2K2 Module (Family Capacity Building Meeting) significantly increases knowledge and changes maternal behavior in the first 1000 days of life (HPK) as an effort to prevent stunting. By using design *quasi-experimental pretest-posttest control group design* on 150 mothers in Kelawi Village, the results showed improvement score knowledge from 10.24 to 20.55 and the score behavior from 8.5 to 16.8 in the experimental group that received the intervention, with a p value of 0.000 indicating significance strong statistics, while the control group experienced only minimal and non- significant improvements, proving that the changes in the experimental group were truly due to the intervention. This success is supported by a multimodal and participatory approach in the P2K2 module, which includes videos, flipcharts, and group discussions, thus bridging the gap. gap between knowledge and practice (*knowledge-practice gap*). This finding confirms the effectiveness of the P2K2 module as an educational strategy, structured, applicable, and easy to adopt by mothers, especially in the context of social assistance programs such as PKH.

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