

ORIGINAL ARTICLE

Effect of Nurturing Care Video Education on Mother's Knowledge and Attitude in Toddler Parenting: A Quasi-experimental Study

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ABSTRACT

Introduction: Children under five in low- and middle-income countries are at risk for negative developmental outcomes. Prioritizing brain development during this crucial early phase is vital. Innovations, like video-based interventions, hold promise for enhancing nurturing care practices. **Objective:** This study aim was to determine the effect of video nurturing care education on mother's knowledge and attitudes in parenting children aged 0-3 years. **Materials and methods:** A non-equivalent quasi-experimental design involving pre-test and post-test control groups was utilized. Data analysis involved 40 participants in the intervention group and 49 participants in the control group. The study employed a nurturing care questionnaire to assess knowledge and attitudes. Descriptive statistics, paired Wilcoxon tests, independent t-tests, and Spearman rank tests were applied. A significance level of $p < 0.05$ was set. **Results:** Maternal understanding and viewpoints were assessed by contrasting pre- and post-intervention scores in both groups. A p -value > 0.05 indicates no notable differences between video and leaflet education. Both approaches similarly enhance parenting knowledge and attitudes, with a slightly greater rise observed in the intervention group. **Conclusion:** Health education emerged as the primary driver of improved knowledge levels. This study highlighted a significant divergence, demonstrating the varying effects of video education on knowledge enhancement compared to the absence of a noticeable impact from health education on mothers' attitudes towards parenting children aged 0-3 years.

Malaysian Journal of Medicine and Health Sciences (2025) 21(1): 83-90. doi:10.47836/mjmhs.21.1.12

Keywords: Attitude, Health education, Knowledge, Nurturing care, Parenting, Video

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INTRODUCTION

Approximately 250 million children under the age of five in low- and middle-income (LMIC) countries are exposed to heightened risks of unfavorable developmental outcomes (1). According to a prior investigation, in Indonesia, nearly 37% of children under 5 years old experience subpar developmental results, with about 18% suffering from severe stunting. Notably, Indonesia ranks fifth among nations with the highest prevalence of stunted children (2). Evidence suggests that inadequate childhood development can exacerbate disparities and poverty, as it leads to reduced educational achievements and decreased adult effectiveness and

earnings, thus perpetuating poverty across generations (3,4). The influence of early childhood experiences on development holds substantial importance. Insights from various domains of health and social sciences demonstrate that the roots of adult health and well-being can be linked back to the processes that unfold during early childhood (5–7). To enable children to reach their full potential for growth and development, the establishment of a comprehensive and multi-faceted system of services and opportunities is imperative (8).

Emphasizing early childhood development, especially during the 'golden period' before age 5, is crucial for building a strong foundation, known as 'Nurturing Care,' to maximize a child's potential (9). Mothers' knowledge and beliefs about the elements of Nurturing Care have been lacking and despite efforts to address this through various interventions, the outcomes remain unsatisfactory. Current interventions mainly target

children's health and nutrition, often neglecting the five essential components of Nurturing Care (10,11). Based on United Nations Children's Fund (UNICEF) data, the application of Nurturing Care in Indonesia still focuses on the components of safety and comfort, nutrition, and child health. Meanwhile, responsive care and early stimulation are still very minimal (12). Approaches involving nurturing care, which combine health, nutrition, and nurturing elements for children with actions to empower, support, and enable caregivers in providing such care, are widely recognized as essential for enhancing optimal child development and growth in their early years (9). Nurturing care encompasses both the environments provided by parents or caregivers and public policies, programs, and services that ensure children's health, nutrition, safety, and early learning opportunities under attentive caregivers.

The World Health Organization (WHO) member states adopted the nurturing care framework (NCF) in May 2018 as a blueprint for comprehensive child growth through collaborative efforts across different sectors, with a focus on the foundational period from pregnancy to age three (13). However, challenges to nurturing care implementation involve socio-economic pressures affecting work-life balance and caregivers' ability to invest time and resources in child development. Inadequate community engagement, low awareness, and underutilized contact points result in missed opportunities. The lack of community understanding of ECD benefits hampers demand for these services at local levels (14).

Within this context, educational media tools could serve as an effective method for delivering patient education. When thoughtfully chosen, such tools have the potential to boost learner motivation, facilitate in-depth learning, and offer time-saving advantages (15). Previous study has indicated that combining education with audio-visual elements is more successful in enhancing patient knowledge compared to using leaflets or manuals alone (16). Audio-visual materials disrupt the monotony of written text, enabling learners to swiftly attain their learning goals, reducing the time required for learning, and allowing for the easy updating of teaching materials. Consequently, it offers increased freedom and flexibility in the educational process (17–20).

The benefits of audio-visual methods are particularly advantageous for individuals with visual and auditory learning preferences. Visual and auditory stimuli can improve focus during the learning process, simplifying the comprehension of complex subjects (21,22). Apart from traditional health education materials like leaflets and manuals, integrating audio-visual health education into regular education models should be considered to enhance the absorption of knowledge (23–25). In the

context of Indonesia, where innovative approaches could greatly enhance nurturing care practices, the utilization of video-based interventions presents a promising avenue. Therefore, this study aim was to determine the effect of video nurturing care education on mother's knowledge and attitudes in parenting children aged 0-3 years.

MATERIALS AND METHODS

Design

The study was a nonequivalent quasi-experiment with a pre-test and post-test control group design. By employing this design, researchers can establish a sequential order between the pre-test and post-test measurements, enabling them to draw causal conclusions. Assessing the outcome variable prior to and following the intervention enhances the certainty of attributing observed alterations primarily to the intervention rather than external influences.

Sample and Settings

This research focused on mothers residing in the XXX area with children aged 0-3 years. The necessary sample size was determined using the formula proposed by Lemeshow (26), leading to a minimum requirement of 80 participants, equally divided into two groups with 40 respondents each. However, considering dropout 10%, therefore, the study ultimately involved 89 participants (27). The data analysis phase encompassed 40 participants in the intervention group and 49 participants in the control group. The intervention group received educational Nurturing Care videos, while the control group received Nurturing Care information through leaflets.

The selection of participants was based on specific inclusion criteria, encompassing the following factors: 1) mothers with children aged 0-3 years, and 2) participants who were willing to actively engage in the study. Any participants meeting the exclusion criteria, such as failure to complete the follow-up period, patient mortality, or withdrawal due to a lack of willingness to continue participating in the intervention, were excluded from the study. It is noteworthy, however, that none of the participants met the specified exclusion criteria in this study, resulting in the inclusion of all initially enrolled participants. In this study, participants were enlisted through a consecutive sampling approach, which entails enrolling individuals as they become accessible and meet the specified inclusion criteria. This method ensured that all eligible participants who satisfied the study's prerequisites were included in the research. The mothers were invited to a specific Public Health Care (PHC) location at a designated time and asked to take part in the study. Participants recruitment flowchart described in Figure 1.

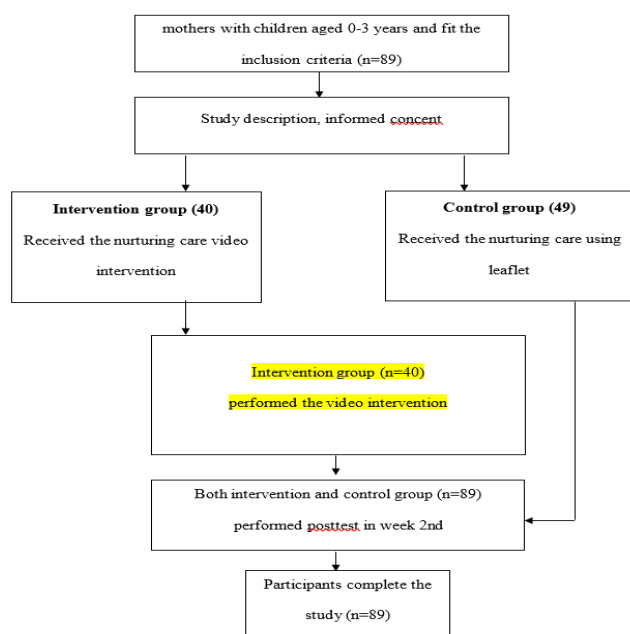


Figure 1: Study participants flow diagram

Instruments

Information from participants was gathered through the utilization of self-reported surveys. The creation of the survey tools was integrated into a Master's thesis and stored in the university's repository as unpublished content. The data collection involved the utilization of two distinct instruments: a demographic form and a questionnaire focused on knowledge and attitudes towards nurturing care.

Demographic data questionnaire

An Indonesian demographic form was developed by the researchers, including age, number of children, education, occupation status, previous nurturing care education, social interaction and gender of child.

Knowledge and Attitude Nurturing Care Questionnaire

The knowledge and attitudes questionnaire utilized in this study underwent modifications based on the Knowledge, Attitude, and Practice (KAP) questionnaire created by UNICEF. This UNICEF questionnaire originally evaluated knowledge, attitudes, and practices related to Early Childhood Development (ECD) among mothers and caregivers at home with children aged 0-60 months. Additionally, another questionnaire employed in this research was derived from previous study conducted by Gaikwad, et., al in 2020 (28), which was an adaptation of UNICEF's KAP questionnaire. Gaikwad's questionnaire was further enhanced with insights from the existing literature on ECD. This modified questionnaire was specifically intended for mothers of children aged 0-3 years, and researchers secured permission for its use. The translation of these two questionnaires into Indonesian was executed by a professional translator. Subsequently, the translated versions were reviewed by

four experts with backgrounds in pediatric nursing to ensure accuracy and appropriateness.

The knowledge assessment component of the questionnaire encompassed five domains within Nurturing Care, featuring a total of 20 closed-ended questions. The scoring for the knowledge questionnaire was based on the Guttman scale: correct answers received a score of 1, while incorrect answers or responses of "don't know" were assigned a score of 0. The interpretation of scores from this questionnaire indicated that higher scores corresponded to greater knowledge levels.

As for the attitude assessment portion, the questionnaire encompassed five domains in Nurturing Care, consisting of 34 closed-ended questions. The attitude questionnaire employed a Likert scale for responses, with answer options including Strongly Agree (worth 4 points), Agree (worth 3 points), Doubtful (worth 2 points), Disagree (worth 1 point), and Strongly Disagree (worth 0 points). Interpreting the scores from this questionnaire revealed that higher scores indicated more positive attitudes. Additionally, The questionnaire was pilot-tested on 120 mothers, and the questionnaire's reliability yielded Cronbach's alpha values of 0.644 and 0.883 (29).

Data Collection

The data collection process occurred between June and August 2022. Initially, the control group underwent the pre-test phase, followed by the other group. Subsequent to the pre-test, both groups received educational materials in the form of videos and leaflets. The post-test evaluations were conducted two weeks after the educational intervention. The educational content involved six videos, each lasting 5 to 7 minutes, and a single leaflet that covered the five facets of Nurturing Care. Subsequently, participants were requested to complete a questionnaire encompassing demographic details, as well as a survey addressing their understanding and attitudes concerning Nurturing Care. On average, participants spent approximately 30 minutes to respond to the provided questionnaires.

Nurturing Care Video Intervention

The intervention was executed all at once through the viewing of a series of six videos, each lasting for approximately 5 to 7 minutes. This approach was chosen to accommodate respondents' characteristics and uphold ethical research principles. The video creation process involved translating concepts and information from the literature review into a collection of captivating and informative videos. These videos were designed to address six crucial subjects, each dedicated to fostering nurturing care within early childhood development. The subjects covered in the videos encompassed: 1) an introduction to nurturing care, 2) promoting good health, 3) ensuring adequate nutrition, 4) practicing responsive caregiving, 5) creating opportunities for early learning,

and 6) establishing security and safety measures.

Throughout the study, the author directly provided the video to the mothers at the Public Health Care (PHC) facility. Additionally, following the completion of the study, the video was made accessible on a YouTube channel. It is highlighted that these educational videos in Bahasa Indonesia are readily accessible to the public on the YouTube platform. The objective of these videos is to advocate and facilitate nurturing care practices and enhance early childhood development. Each video systematically addresses specific core elements that are pivotal within the nurturing care framework. Moreover, the videos have acquired Intellectual Property Rights (IPR) from the Directorate General of Human Rights of Indonesia further validates the credibility and acknowledgment of these educational resources.

Data Analysis

The collected data were subjected to analysis using IBM SPSS Statistics version 25.0 (IBM Corp., Armonk, N.Y., USA). To explore the demographic attributes of the participants, descriptive statistical techniques were employed. Changes in knowledge and attitudes before and after the educational intervention were assessed using paired Wilcoxon and independent t-tests. Moreover, the connection between external variables and knowledge and attitudes was examined through Spearman rank test. The level of significance was set at $p < 0.05$.

Ethical Consideration

Written informed consent was procured from all adult participants and the parents or legal guardians, in adherence to ethical principles of autonomy, beneficence, and non-maleficence. Participants were fully informed about the study's objectives, processes, confidentiality, and their right to withdraw before data collection. This comprehensive approach aimed to minimize potential risks, prioritize participant well-being, and respect their autonomy. Ethical approval was granted by the Medical and Health Research Ethics Committee (MHREC) of the XXX with the reference number: KE/FK/0533/EC/2022.

RESULTS

Characteristics Respondent

Table I, the attributes of the participants within this study reveal that there was no significant differences ($p > 0.05$) between the intervention group and the control group, implying that both groups shared similar characteristics. The majority of respondents in both the intervention and control groups fell within the age range of 25 to 29 years, with the prevailing number having two children. Likewise, the highest level of education achieved by most participants in both groups was high school. Almost fifty percent of respondents in the intervention group and an equivalent proportion in the control group

were not employed and identified as homemakers. Approximately half of the individuals in the intervention group, as well as a larger proportion in the control group, had previously received parenting education. Furthermore, a minor percentage of respondents in the intervention group and over half of those in the control group exhibited strong social interactions.

Table I: Respondents Characteristics and homogeneity test (n=89)

Characteristics	Respondent	Group				p
		Intervention (n=40)		Control (n=49)		
		f	%	f	%	
Age	20-24	3	42.9	4	57.1	0.202
	25-29	18	50.0	18	50.0	
	30-34	11	47.8	12	52.2	
	35-39	2	15.4	11	84.6	
	40-44	6	60.0	4	40.0	
Number of children	≤2 children	35	47.9	38	52.1	0.224
	> 2 children	5	31.3	11	68.8	
Education	Elementary	1	50.0	1	50.0	0.464
	Junior	1	16.7	5	83.3	
	Senior	21	43.8	27	56.3	
	College	17	51.5	16	48.5	
Occupation status	Unemployed	32	48.5	34	51.5	0.255
	Employed	8	34.8	15	65.2	
Previous Nurturing Care Education	Ever	30	44.8	37	55.2	0.956
	Never	10	45.5	12	54.5	
Social interaction	Good	40	45.5	48	54.5	0.364
	Poor	0	0	1	10.0	
Gender of child	Male	23	43.4	30	56.6	0.722
	Female	17	47.2	19	52.8	

Mother 's Knowledge and Attitude in Group Control and Intervention

As Table II presents, the median knowledge and attitude score showed a noteworthy rise from the pre-test to the post-test following the intervention ($p < 0.05$), signifying a significant enhancement in knowledge and attitude within both groups. Study's findings clearly illustrates a significant positive change in the scores for knowledge and attitude as a result of the intervention.

Table II: Knowledge and Attitude of Early Childhood Development Before and After Health Education (n=89)

Variable	Intervention (n=40)		p	Control (n=49)		p
	Pre-test	Post-test		Pre-test	Post-test	
	Median			Median		
Knowledge	15.00	18.00	<0.001*	16.00	18.00	<0.001*
Attitude	96.00	102.00	<0.001*	103.00	108.00	0.010*

Note: Paired Wilcoxon test was performed, *Significant at $p < 0.05$.

Furthermore, Table III displays statistically that knowledge within the intervention and control groups holds a value of $p < 0.05$. Hence, it can be inferred that there is a significant difference of knowledge between the two groups. However, results related to the attitude variable indicate that attitudes within both the intervention and control groups have values of $p > 0.05$.

Consequently, it can be concluded that there is no significant difference between the two groups in terms of attitudes.

Table III: Difference of Knowledge and Attitudes of Early Childhood Development Before and After Health Education (n=89)

Variable	Intervention (n=40)	Control (n=49)	CI 95% for difference	p
	Difference Mean±SD	Difference Mean±SD		
Knowledge	2.50±1.71	1.53±1.64	0.97 (0.260- 1.679)	0.008*
Attitude	6.23±8.98	5.69±14.90	0.54 (-4.804- 5.866)	0.844

Note: Independent t-test was performed, *Significant at $p < 0.05$

Relationship of Characteristics Respondent with Knowledge and Attitude

Table IV presents an exploration of the association between external variables and maternal knowledge, as well as maternal attitudes concerning child care for the age group of 0-3 years. The analysis outcomes indicated a noteworthy link between the child's gender and the mother's knowledge, with a $p=0.031$. The correlation coefficient (r) for the gender variable stands at 0.228, signifying a positive correlation direction with a relatively weak correlation strength. Furthermore, the results demonstrated a significant association between social interaction and maternal attitudes, yielding a $p=0.001$. However, the researcher chose not to incorporate the social interaction variable within this study due to its disproportionate distribution (comprising 88 individuals with good social interaction and only 1 individual with poor interaction). This decision was made following discussions with supervisors and statisticians from the university member. Additionally, overall examinations indicated that maternal age, number of children, educational background, occupation, previous education, and past parenting education exhibited no significant relationship with knowledge and attitudes ($p > 0.05$).

Table IV : Relationship of Participants Characteristics towards Knowledge and Attitude of Early Childhood Development (n=89)

Variable	Knowledge		Attitude	
	r	p	r	p
Age	0.79	0.261	1.17	0.326
Number of children	-0.11	0.307	-0.08	0.406
Education	1.36	0.531	0.51	0.672
Occupation status	-0.00	0.975	0.05	0.611
Previous Nurturing Care Education	-0.11	0.307	0.04	0.676
Social interaction	0.18	0.079	0.50	0.001*
Gender of child	0.22	0.031*	0.20	0.050

Note: Spearman rank test was performed, *Significant at $p < 0.05$.

DISCUSSION

The objective of this study was to assess the impact of video-based education on nurturing care for mothers with children aged 0-3 years. Mothers' knowledge

and attitudes toward Nurturing Care have been insufficient, despite previous intervention attempts that yielded unsatisfactory results. Existing interventions tend to prioritize children's health and nutrition, often overlooking the essential five components of Nurturing Care. The study findings reveal that a significant proportion of mothers in both the intervention and control groups were aged between 25 and 29, and a majority of them had two children. Drawing from Piaget's theory of cognitive development, the cognitive growth of young adults is characterized by their capacity to blend emotions, logic, practicality, and adaptability when making decisions. These individuals exhibit thoughtful, practical, problem-solving, and diverse approaches to tackling various challenges (30,31). It's noteworthy that around half of the participants, constituting 47.9% in the intervention group and 52.1% in the control group, had two children or fewer. This finding aligns with existing research, which suggests that parents with a higher level of knowledge and experience in child-rearing tend to possess a more comprehensive understanding of and increased sensitivity to children's needs (32,33).

Furthermore, study findings revealed significant difference between pre- and post-test score of knowledge and attitude in intervention group ($p < 0.05$) and control group ($p < 0.05$). Both methods equally improve parenting knowledge and attitudes, with a slightly higher increase in the intervention group. Following the Dale Pyramid of Learning, videos engage sight and hearing, conveying information more effectively (34). Videos simplify complex concepts, stimulate cognition, sustain attention, and aid comprehension (35). Videos also offer real information and enhance enthusiasm (36,37). Learning videos promote repetition, independent practice, and active learning (38). In contrast, previous study suggested leaflets are more effective in health education compared to videos, as printed material can be revisited at home (39). The use of leaflets reaches a wide audience and allows for repeated information exposure. Leaflet-based health education has demonstrated improved breastfeeding knowledge and diarrhea prevention attitudes (40,41).

However, the study's findings indicated a significant difference between the intervention and control groups, specifically in terms of knowledge ($p < 0.05$), whereas no significant differences was observed for attitude ($p > 0.05$). This finding aligns with the Social Learning Theory, which asserts that knowledge acquired through observation and imitation can impact attitudes and decision-making (42,43). Similarly, in accordance with Bloom's theory, strong knowledge enhances understanding, motivation, and belief, thereby supporting skill application (44). Notably, this study lacks a dominant external variable influencing maternal attitudes toward parenting children aged 0-3 years. This could be attributed to the limited duration of education, conducted only once without ongoing reinforcement, and the absence of a diary to

track how frequently mothers engaged with leaflets or videos.

The researcher posits that respondents in this study might not have fully internalized the attitudes, explaining the absence of statistical significance despite post-test score increases compared to pre-test scores. Internalization necessitates accepting and adhering to influence that aligns with personal beliefs and values. Respondents' knowledge likely remained at an understanding level, signifying the capability to explain concepts accurately but without practical application in daily life (45,46). Based on this study's findings, the majority of mothers had prior parenting education, albeit distant in memory, resulting in material forgetting. Nearly half of both intervention and control groups had positive interactions. Consistent with these results, repeated education is essential for material retention and application in daily life to boost knowledge and supportive attitudes in line with Nurturing Care principles. Effective attitude change involves diverse methods like group discussions, Q&A, role play, and simulation (47). The Health Promotion Model underscores individual nature and experience as factors influencing knowledge and attitudes (42). Previous research further highlights external factors like religion and environment shaping parenting attitudes (48). However, no further investigation was conducted with the respondents regarding the media's usability, interest, and accessibility aspects. However, expert evaluations were conducted for both videos and leaflets. A subsequent study could employ self-reporting, such as daily notes, to assess factors like viewing frequency, duration, and ease of media access.

This study's strengths lie in its focus on nurturing care for mothers of children aged 0-3 years, employing engaging video-based education, and utilizing established cognitive development and learning theories. It also incorporates diverse data sources for assessing educational material effectiveness. However, the study is limited by its brief educational intervention without ongoing reinforcement, undisclosed sample size, lack of follow-up assessment, unexplored external variables, potential bias in expert evaluations, and the absence of self-reporting on media usage, possibly affecting generalizability to different contexts.

CONCLUSION

In conclusion, this study delved into the influence of Nurturing Care video education on mothers' knowledge and attitudes pertaining to children aged 0-3 years. Notably, health education emerged as the primary contributor to enhanced knowledge levels. However, no singular factor stood out as dominantly shaping mothers' attitudes towards parenting within this age group. The research also underscored a noteworthy distinction, revealing the differential impact of video education on knowledge improvement, in contrast to

the lack of discernible effect from health education on mothers' attitudes concerning child-rearing for children aged 0-3 years. Moving forward, these findings suggest the importance of tailored approaches in enhancing parental knowledge and attitudes in light of varying influences and circumstances.

ACKNOWLEDGEMENT

The authors express gratitude to all individuals who took part in this research.

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