

Original Article

The influence of education through audiovisual media on mother's knowledge in prevention and management of choking in children in Banjar Dalem, Songan B Village

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Abstract

Background: Choking occurs due to a blockage in the airway, either totally or partially. Choking on children can be dangerous condition and life threatening if it is not prevented and treated immediately. Parents' ability to handle choking is determined by their knowledge. To determine the effect of audio-visual method toward mothers' knowledge in preventing and managing choking at Banjar Dalem, Songan B Village.

Aims: This study aimed to determine the effect of audio-visual education on mothers' knowledge of preventing and managing choking in children in Banjar Dalem, Songan B Village.

Methods: This study employed pre-experimental design with the one group pretest posttest. There were 38 respondents recruited as the samples which were chosen by using purposive sampling technique. The data were collected by using knowledge questionnaire which was given before and after intervention. The data were analyzed by Wilcoxon rank test.

Results: The results showed that there were significant differences between mother's knowledge before and after being given education by using audio-visual ($p\text{-value} \leq 0.05$). Before the intervention, it was found that 33 respondents (86.8%) had poor knowledge. After the intervention was given, 38 respondents (100%) had good knowledge.

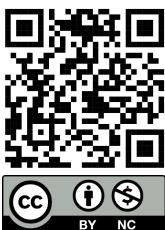
Conclusion: Education through audio-visual media can be considered as a mean to improve mother's knowledge about handling choking on children

Keywords: audio-visual media; choking; health education; mothers; children.

1. Introduction

Early childhood, specifically toddlers aged 1 to 3 years, is a unique and crucial developmental period (Prasma et al., 2021). During this phase, children frequently experience problems such as putting foreign objects into their mouths and attempting to eat them (Harigustian, 2020). Parents often overlook this hazard and allow their children to play, laugh, or talk while being fed to encourage them to eat. However, when a child laughs or talks while food is in their mouth, the larynx opens, allowing food to enter the respiratory tract and causing choking (Rahayu & Anggeriyane, 2022).

Choking is a highly dangerous medical emergency that occurs when foreign objects such as food, toys, or coins enter the upper airway and obstruct the respiratory system. The American Academy of Pediatrics (AAP) states that choking is a leading cause of morbidity and mortality among children. In Indonesia, data indicates that approximately 17,54 choking cases frequently occur in children, predominantly aged 1.5 to 3 years (Fatmawanti et al., 2022). The primary causes of these incidents are food, foreign objects, and unknown causes. If not prevented and treated immediately, choking can cause severe oxygen deprivation (hypoxia), brain damage, or even death within minutes.



Basic first aid for choking children, such as back blows, chest thrusts, and the Heimlich maneuver, can basically be performed by anyone around the child, especially mothers (Meilani & Fitriana, 2023). However, parents' ability to handle choking emergencies is highly determined by their level of knowledge (Siregar & Pasaribu, 2022). Lack of family knowledge and incorrect handling of choking can result in severe injuries or even death, whereas proper understanding can save a child's life. Based on a preliminary study conducted through interviews with 10 mothers of toddlers in Banjar Dalem, Songan B Village, 8 mothers did not know the proper way to handle choking, 1 mother stated she would only pat the back of the child's neck, and 1 mother stated she would give the choking person water to drink. This highlights a significant lack of knowledge regarding proper choking management in the community.

To address this issue, health education interventions are urgently needed. Audiovisual media is an effective educational tool as it consists of a series of electronic images accompanied by sound, making it universally appealing and easy to understand (Firman & Bancong, 2024). Previous studies have shown that learning first aid through video demonstrations is easily comprehensible because it can be replayed and viewed in detail (Rasman et al., 2022). Furthermore, audiovisual education has been proven to be significantly more effective in increasing knowledge compared to visual media like leaflets (Mulyani & Fitriana, 2020). Therefore, this study aims to determine the influence of audiovisual education on mothers' knowledge regarding the prevention and management of choking in children in Banjar Dalem, Songan B Village.

2. Materials and Methods

2.1 Study Design

This study employed a pre-experimental design using a one-group pretest–posttest approach. Mothers' knowledge regarding the prevention and management of choking in children was assessed before and after the audiovisual education intervention. No control or comparison group was included.

2.2 Study Setting

The study was conducted in Banjar Dalem, Songan B Village, Kintamani, Bangli, Indonesia, from February to March 2023. The study involved mothers of toddlers aged 1–3 years residing in the community.

2.3 Participant and Sampling

The target population comprised 110 mothers who had toddlers aged 1–3 years. A sample of 38 respondents was determined using G*Power software, based on a two-tailed test, an effect size of 0.5, an alpha level of 0.05, and statistical power of 0.85. Participants were recruited using purposive sampling.

The inclusion criteria were mothers of toddlers residing in the study area, able to read and write, having a smartphone with WhatsApp, having a maximum educational level of junior or senior high school, and willing to participate. Mothers who worked as health professionals or health cadres, or who had previously received formal education or information regarding choking, were excluded. A total of 38 eligible mothers participated in the study and were included in the analysis.

2.4 Data Collection

Data were collected using a self-developed 10-item knowledge questionnaire consisting of positive and negative statements measured using a Guttman scale. Prior to data collection, the questionnaire underwent face validity assessment by experts and reliability testing using Cronbach's alpha.

Data collection consisted of three sequential stages: administration of the pretest, delivery of the audiovisual education intervention, and administration of the posttest. The questionnaire was used to assess mothers' knowledge regarding the prevention and management of choking before and after the intervention.

2.5 Data Collection

Data were analyzed using IBM SPSS Statistics version 26. Descriptive analysis was used to summarize respondents' characteristics and knowledge scores, including frequency, percentage, mean, median, mode, standard deviation, variance, minimum, maximum, and total scores. The Wilcoxon signed-rank test was used to examine differences in knowledge scores between the pretest and posttest. Statistical significance was set at $p < 0.05$.

2.5 Ethical Considerations

The study protocol was reviewed and approved by the Research Ethics Committee of the Institute of Technology and Health (ITEKES) Bali under ethical clearance registration number 03.0244/KEPITEKES-BALI/IV/2023.

3. Results

3.1 Respondent Characteristics

The demographic characteristics of the 38 respondents are presented in Table 1. The majority of the mothers were between 21 and 30 years old (21 respondents, 55.3%), while only 1 respondent (2.6%) was aged over 40 years. Regarding educational attainment, the largest proportion of respondents had completed primary school (12 respondents, 31.6%). Furthermore, all 38 respondents (100%) were farmers.

Table 1. Respondent Characteristics

Characteristic	n	%
Age		
21-30 years	21	55,3
31-40 years	16	42,1
>40 years	1	2,6
Education level		
None	11	28,9
Primary School	12	31,6
Junior High School	7	18,4
Senior High School	8	21,1
Work		
Farmer	38	100

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3.2 Description of Knowledge about Choking

The categorization of the respondents' knowledge scores before and after the intervention demonstrated a marked improvement (Table 2). Prior to the audiovisual education, most of the mothers (33 respondents, 86.8%) were categorized as having fair knowledge, while 5 respondents (13.2%) had poor knowledge. None of the respondents had good knowledge. After the intervention, all respondents (38, 100%) were categorized as having good knowledge. Descriptive statistics further supported this improvement, with the median knowledge score increasing from 4.00 at pretest to 9.50 at posttest, representing an increase of 5.50 points.

Table 2. Respondents' Knowledge Levels Before and After the Intervention

Knowledge Category	Pretest, n (%)	Posttest, n (%)
Good	0 (0.0)	38 (100.0)
Fair	5 (13.2)	0 (0.0)
Poor	33 (86.8)	0 (0.0)
Total	38 (100.0)	38 (100.0)

3.3 Descriptive Analysis of Knowledge Scores

The descriptive statistics of mothers' knowledge scores before and after the audiovisual education are presented in Table 3. The mean knowledge score increased from 4.55 at pretest to 9.42 at posttest, while the median increased from 4.00 to 9.50. The posttest scores also showed lower variability than the pretest scores, with standard deviations of 0.642 and 0.978, respectively. The observed scores ranged from 3 to 7 at pretest and from 8 to 10 at posttest.

Table 3. Respondents' Knowledge Levels Before and After the Intervention

Statistic	Pretest	Posttest
Mean	4.55	9.42
Median	4.00	9.50
Mode	4	10
Standard deviation	0.978	0.642
Variance	0.957	0.413
Minimum	3	8
Maximum	7	10
Sum	173	358

3.3 Effect of Audiovisual Education on Knowledge

The difference in mothers' knowledge scores before and after the audiovisual education was analyzed using the Wilcoxon signed-rank test (Table 4). All 38 respondents showed an increase in their knowledge scores, with no negative ranks or ties. The analysis yielded a Z value of -5.496 and a p-value of <0.001, indicating a statistically significant difference in knowledge scores between the pretest and posttest measurements.

Table 4. Wilcoxon Signed-Rank Test of Knowledge Scores Before and After the Intervention

Comparison	Positive Ranks	Negative Ranks	Ties	Z	p-value
Pretest- Posttest	38	0	0	-5.496	<0.001

4. Discussion

4.1 Knowledge Before Intervention

The results of this study revealed that prior to the audiovisual education intervention, most mothers (86.8%) had a poor level of knowledge regarding the prevention and management of choking in toddlers, while only a small proportion (13.2%) demonstrated a fair level of knowledge. This condition aligns with the findings of Rasman, Setioputro and Yunanto (2022), who also identified limitations in mothers' basic knowledge related to choking emergencies before receiving any specific intervention. This lack of knowledge is assumed to stem from various factors, such as minimal exposure to relevant health information, low awareness of the problem's urgency, or the absence of structured education in local healthcare facilities (Darsini et al., 2019). Ideally, the productive age range of the mothers should facilitate the absorption of information and the expansion of knowledge when provided through appropriate media.

4.2 Knowledge After Intervention

Following the provision of the audiovisual educational intervention, there was a drastic improvement in understanding, with 100% of the respondents achieving a good level of knowledge. These results reinforce the study by Margareta and Isnaeni (2022), which demonstrated a significant increase in parents' understanding and skills following interactive media-based training. Audiovisual media has proven to be a superior instrument for delivering information because it combines moving images and sound, which can stimulate multiple senses simultaneously (Purwono, 2014). This uniform improvement indicates that the mothers considered this topic highly crucial for their children's safety, thereby triggering high enthusiasm to pay attention to and comprehend the realistically visualized material.

4.3 The Effect of Audiovisual Education

The findings demonstrated a substantial improvement in mothers' knowledge following the audiovisual education intervention. All 38 respondents showed higher posttest scores than pretest scores, with the median knowledge score increasing from 4.00 to 9.50 and the Wilcoxon signed-rank test indicating a statistically significant difference ($Z = -5.496$, $p < 0.001$). This

finding is consistent with previous studies reporting improved parental or maternal knowledge following video-based education on choking management (Meilani and Fitriana, 2023), as well as Rahayu and Anggeriyane (2022) with the improvement may reflect the capacity of audiovisual education to present information through both visual and auditory channels, particularly for practical procedures that require an understanding of sequential actions. In this context, audiovisual demonstrations can make choking-prevention and management procedures more concrete and easier for mothers to understand and recall.

The findings are also consistent with Bentivegna *et al.* (2018), who reported that video-based choking education improved parents' knowledge and retention of information. The use of visual demonstrations, including the sequence of appropriate responses to choking, may help translate abstract health information into observable actions that mothers can recognize and remember. Nevertheless, the present findings should be interpreted cautiously because the one-group pretest–posttest design did not include a control group. Therefore, although the significant increase in knowledge supports the potential value of audiovisual education as a health education strategy, the observed improvement cannot be attributed exclusively to the intervention. Further controlled studies are warranted to determine whether audiovisual education provides a sustained and superior benefit compared with other educational approaches.

4.3 Study Limitations

This study has several limitations. First, data collection was constrained by the operational schedule of the Posyandu (Integrated Healthcare Center), which limited the time available for interaction with participants. Second, the absence of some mothers during scheduled Posyandu sessions extended the data collection period and may have affected the efficiency of participant recruitment. In addition, the one-group pretest–posttest design without a control group limits the ability to establish a causal relationship between the audiovisual education and the observed improvement in knowledge. Therefore, the findings should be interpreted as evidence of a significant pretest–posttest improvement rather than definitive evidence of an independent intervention effect.

5. Conclusion

Audiovisual education was associated with improved mothers' knowledge regarding the prevention and management of choking in children. The findings indicate that audiovisual education can be considered a practical and accessible health education strategy for helping mothers understand appropriate choking-prevention and first-aid procedures. However, given the study design, further research using controlled designs and longer follow-up is needed to strengthen the evidence regarding its effectiveness and sustained impact.

Ethics Approval

This study protocol was reviewed and approved by the Research Ethics Committee of the Institute of Technology and Health (ITEKES) Bali, under the ethical clearance registration number: 03.0244/KEPITEKES-BALI/IV/2023.

Competing interests

The authors declare that there is no significant competing financial, professional, or personal interests that might have affected the performance.

Underlying data

Derived data supporting the findings of this study are available from the corresponding author on request.

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