



Audiovisual atraumatic care and cooperative behavior among hospitalized children: A case study

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ABSTRACT

Background: Hospitalization is a stressful experience for children, often causing fear, anxiety, crying, and uncooperative behavior during nursing procedures. Children may perceive hospitals as threatening, particularly during invasive procedures. Audiovisual distraction is a recognized non-pharmacological atraumatic care approach to reduce distress in hospitalized children.

Purpose: This study aimed to describe audiovisual atraumatic care implementation and its effect on cooperative behavior in hospitalized children.

Method: This descriptive case study was conducted in the pediatric ward of RSUP Fatmawati Hospital, Jakarta, Indonesia, from March 7–12, 2022. Two children aged 3 and 10 years experiencing hospitalization-related stress were selected through purposive sampling. Data were collected via direct observation and interviews. Cooperative behavior was evaluated using an observation sheet adapted from Harsono (2006), assessing crying, refusal, facial expression, eye contact, willingness to follow instructions, and verbal responses. The intervention consisted of watching cartoons for 15 minutes and playing online games for 10 minutes, delivered twice daily for three consecutive days. Data were analyzed descriptively.

Results: Before the intervention, cooperative behavior scores were 2 and 1 for Case 1 and Case 2. After three days, both cases achieved scores of 4. Observations revealed reduced crying, improved eye contact, calmer expressions, and better acceptance of nursing procedures. Given the descriptive, two-case nature of this study, findings should be interpreted cautiously, and larger studies are needed.

Conclusion: Both cases showed improved cooperative behavior following audiovisual atraumatic care. Larger studies are necessary to validate these findings and establish this intervention's benefits in pediatric nursing.

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1. Background

Hospitalization is a critical stressor for children, disrupting their physical and psychological well-being [1]. In Indonesia, the childhood hospitalization rate reaches 15.26%, with 33.2% of hospitalized children experiencing severe psychological impacts, 41.6% moderate, and 25.2% mild [2]. Common reactions include regression,

separation anxiety, fear, sleep disturbances, and non-cooperative behavior during medical procedures [3]. These responses are particularly pronounced in preschool-aged children due to limited coping mechanisms [4]. Atraumatic care is a nursing approach designed to minimize distress by preventing separation,

enhancing parental control, and reducing physical and psychological injury [5]. One effective atraumatic intervention is audiovisual distraction—using videos and games to divert attention from painful or frightening procedures [6]. Studies show that audiovisual techniques reduce anxiety and improve cooperation in children undergoing medical procedures [7]. However, most existing research focuses on pain reduction or general anxiety, with limited evidence specifically addressing cooperative behavior during routine nursing procedures in Indonesian hospital settings. The novelty of this case study lies in its focused examination of audiovisual atraumatic care as a targeted intervention to improve cooperative behavior in hospitalized children, using direct observation over three days. While therapeutic play has been widely studied, the specific application of combined video and game-based distraction to enhance cooperation during procedures such as IV insertion and vital signs measurement remains underexplored [8]. This study provides practical evidence for integrating audiovisual tools into routine pediatric nursing care, potentially reducing psychological trauma, improving treatment adherence, and shortening hospital stays. The benefits include a simple, low-cost, and family-centered intervention that can be implemented with minimal resources. By documenting the behavioral changes in two diverse pediatric cases (ages 3 and 10 years), this study offers preliminary insights for larger-scale investigations and clinical protocol development.

2. Methods

2.1 Research design

This study used a descriptive case study design to describe the implementation of audiovisual atraumatic care and its effect on cooperative behavior in hospitalized children.

2.2 Setting and sample

The study was conducted at the pediatric ward of RSUP Fatmawati Hospital, Jakarta, Indonesia, from 7 to 12 March 2022. Two children were selected using purposive sampling. Inclusion criteria were: (1) age 3–10 years, (2) hospitalized and receiving nursing procedures (IV medication, IV fluid replacement, and vital signs measurement), and (3) conscious and able to interact (Glasgow Coma Scale score of 15). Exclusion criteria were: (1) children in isolation or with complications, (2) children with behavioral disorders (e.g., Down syndrome, autism spectrum disorder, or

hyperactivity), and (3) children with severe cognitive impairment.

2.3 Instruments and data collection

2.3.1 Intervention

Audiovisual atraumatic care consisted of two activities: watching age-appropriate cartoons (15 minutes) and playing online games (10 minutes), for a total of 25 minutes per session. The intervention was delivered twice daily (morning and afternoon) for three consecutive days. During each session, the child was seated or lying comfortably in bed, and the audiovisual content was played on a smartphone or tablet held by the parent or researcher. The researcher selected content based on the child's age and preference (e.g., cartoon characters, simple puzzle games). Parents were encouraged to stay with the child throughout the session to minimize separation anxiety. The intervention was provided immediately before scheduled nursing procedures (IV bolus, IV fluid change, vital signs measurement) to maximize its distracting effect.

2.3.2 Instruments

Cooperative behavior was assessed using an observation sheet adapted from Harsono (2006). The sheet included six behavioral indicators: (1) crying when approached by a nurse, (2) verbal refusal (e.g., saying "go away"), (3) facial expression (frowning vs. relaxed), (4) eye contact with the nurse, (5) willingness to follow instructions, and (6) verbal response to questions. Each indicator was scored as 0 (non-cooperative: crying, refusal, no eye contact, frowning) or 1 (cooperative: no crying, willing, eye contact, relaxed face). The total score ranged from 0 to 6, with higher scores indicating greater cooperation. The instrument had been used in previous studies and was reviewed by two pediatric nursing experts for content validity.

2.4 Data Collection Procedure

Data were collected through direct observation and interviews by the researcher. First, an interview was conducted with the parents or child to obtain identity, age, medical history, and informed consent. Observations were performed at two main time points: (1) before the atraumatic care intervention (audiovisual) and (2) after the intervention during each nursing procedure. The observation period lasted three consecutive days (7–9 March 2022) at RSUP Fatmawati Lt. 3 Selatan. Each observation covered the entire nursing procedure, with the researcher recording the child's cooperative behavior using a standardized observation sheet. The sheet assessed two

categories: (a) anger responses (e.g., crying, verbal refusal, frowning, avoiding eye contact, clinging to parents) and (b) enthusiastic responses (e.g., listening attentively, making eye contact, answering questions, showing no anxiety). Each indicator was scored as 0 (non-cooperative) or 1 (cooperative). The researcher also noted qualitative comments, such as facial expressions and verbal reactions. Parental presence was recorded as "present" or "absent" for each procedure. All data were tabulated in tables and presented narratively for analysis.

2.5 Data Analysis

Data were analyzed descriptively. Scores from each observation were tabulated and presented in tables showing changes over three days. The percentage of cooperative behaviors was calculated for each day. Qualitative notes were used to support the interpretation of scores. Because this was a case study with two subjects, no statistical tests were applied.

2.6 Research ethics

Explain the ethical issues in this study, including how informed consent was obtained from respondents or participants. Ethical approval for this study was obtained from the Health Research Ethics Committee of Stikes Bahrul Ulum (Approval No. 50/EC/KEPK-BU/II/2022). This study was conducted in accordance with ethical principles for research involving human participants, including respect for autonomy, confidentiality, beneficence, and non-maleficence.

Written informed consent was obtained from the parents or legal guardians of both pediatric subjects after the researcher provided a clear explanation regarding the study objectives, procedures, potential benefits, and the voluntary nature of participation. Parents were informed that participation in the study would not affect the quality of nursing care received by their children and that they had the right to withdraw from the study at any time without consequences.

To ensure participant privacy and confidentiality, the identities of the children were anonymized using initials (Child S and Child M) instead of full names. All information collected during the study was kept confidential and used solely for research purposes. The research data were securely stored and could only be accessed by the research team.

In addition, the audiovisual intervention used in this study was considered safe, non-invasive, and appropriate for the developmental age of the children. The intervention was

implemented under parental supervision to ensure the comfort and safety of the participants throughout the study process.

3. Results

After implementing atraumatic care through audiovisual media on the cooperative level of both subjects, the researcher presents the results of the case study conducted from March 7th to March 12th, 2022. This chapter consists of three sections, namely: the description of the case study findings, the discussion of the findings, and the limitations encountered during the implementation of the case study.

3.1 Description Of Subject

3.1.1 Subject 1

Based on the results of the case study, the patient (Child S) was a 3-year-old female, Muslim, and not yet attending school. The patient lived at Jl. Terogong III Rt 009/10 No. 12, Cilandak District, South Jakarta. The patient was admitted to RSUP Fatmawati on March 8th, 2022, with medical record number 01809xxx. The medical diagnosis was tonsillitis (inflammation of the tonsils).

3.1.2 Subject 2.

Based on the results of the case study, the patient (Child M) was a 10-year-old female, Muslim, and currently attending elementary school. The patient lived at Jl. Bangka V Rt 09/003 No. 10, Bangka Village, Mampang Prapatan District, South Jakarta. The patient was admitted to RSUP Fatmawati on February 28th, 2022, with medical record number 018086xx. The medical diagnosis was osteosarcoma.

3.2 Focus of the Study

3.2.1 Nursing Assessment

Nursing assessment is the initial stage of the nursing process that systematically collects, organizes, validates, and records data regarding the patient's health status to establish baseline data.

3.2.1.1 Subject 1

The assessment was conducted on March 8th, 2022, at 03.00 PM. Child.S was admitted to RSUP Fatmawati through the pediatric outpatient clinic on March 7th, 2022, with complaints of frequent irritability and pain when swallowing food or drinks. These symptoms had been experienced for almost one week. The patient's mother stated that the child had experienced a high fever for almost two days and complained of throat pain. The child's appetite had decreased, and during illness the patient only consumed half of the usual meal portion. The complaints were not accompanied by

nausea or vomiting. Previously, the patient had received treatment with pain and fever medication in the form of paracetamol, which temporarily reduced the symptoms. However, three days before hospitalization, the child again became irritable and complained of throat pain, leading the family to bring the patient to the hospital.

The mother also stated that the patient had previously been hospitalized on November 16th, 2021, due to Dengue Hemorrhagic Fever (DHF). The patient experienced difficulty swallowing while eating and drinking and complained of throat pain. When the nurse approached, the child appeared to be crying.

The family stated that during hospitalization the child cried continuously and was afraid to meet nurses because the child associated nurses with injections. Vital signs showed pulse rate 80 beats/minute, respiratory rate 20 breaths/minute, temperature 37.9°C, capillary refill time < 3 seconds, warm extremities, elastic skin turgor, and dry mucous membranes and lips.

From observation and interviews with the family, it was found that the child continued crying and refused nursing care. During the first interaction, child S did not respond to the nurse's questions and only showed an uninterested facial expression while turning away. After establishing a therapeutic relationship (BHSP), the patient gradually became willing to talk and expressed a desire to recover quickly and return home to play with friends and siblings.

3.2.1.2 Subject 2

The assessment was conducted on March 9th, 2022, at 04.00 PM. Child.M was admitted to RSUP Fatmawati through the Emergency Department on February 28th, 2022. The family reported swelling, pus discharge, and foul odor from the child's right leg. In early March, the patient underwent right leg amputation surgery at the hospital. The patient had never previously been hospitalized.

The patient was known to enjoy playing and was hyperactive. When the nurse approached, the patient appeared indifferent, avoided eye contact, and remained focused on a gadget. Vital signs showed pulse rate 110 beats/minute, respiratory rate 20 breaths/minute, temperature 36.5°C, capillary refill time < 3 seconds, warm extremities, elastic skin turgor, and moist mucous membranes. From observation and interviews with the family, it was found that the child sometimes cried, felt bored, and became dependent on gadgets. During the first interaction, Child.M behaved indifferently

toward the nurse, displaying an uninterested expression while playing with a gadget. After establishing a therapeutic relationship (BHSP), the patient began to communicate and stated feelings of boredom and a desire to recover quickly and return home to play with friends.

3.2.2 Nursing Diagnosis

Nursing diagnosis is a critical concept that guides the nursing assessment and intervention process. It represents the nurse's clinical judgment regarding the patient's holistic response (biological, psychological, social, and spiritual) to health problems or illness.

Based on the collected data, the nursing diagnosis for both subjects was: Fear related to the impact of hospitalization. This nursing problem emerged because hospitals are often perceived as frightening environments from a child's perspective. Children frequently experience painful procedures such as injections and medication administration during hospitalization, resulting in feelings of insecurity and fear.

3.2.3 Nursing Care Plan

Nursing interventions are all nursing actions performed on behalf of the client. The nursing care plan implemented included: [1] Preparing the child for hospitalization, [2] Preventing or minimizing the impact of separation, [3] Minimizing feelings of loss of control Preventing or minimizing bodily injury and pain, [4] Maximizing the benefits of hospitalization, [5] Providing support to family members, [6] Encouraging children to play online games appropriate to their age and watch cartoon videos (audiovisual intervention)

These interventions were aimed at reducing trauma during hospitalization. Playing activities are important for both healthy and ill children because play is considered a child's primary activity. Audiovisual media can stimulate cognitive abilities through moving images and sound while influencing children's attitudes and emotions. Audiovisual interventions also provide motivation and positive experiences through enjoyable visual content.

By implementing atraumatic care through audiovisual interventions such as online games and cartoon videos, it was expected that children's stress levels would decrease, thereby improving cooperative behavior during nursing procedures and preventing traumatic hospitalization experiences.

3.2.4 Nursing Implementation

Nursing implementation is the execution of the nursing care plan that has been prepared previously due to stressors within the hospital environment. To reduce these behaviors, the researcher engaged both subjects in audiovisual activities such as online games and cartoon videos. These activities were intended to distract children from pain and stress, reduce fear, and improve cooperative behavior during nursing procedures.

The audiovisual intervention consisted of: [1] Watching cartoon videos for 15 minutes, [2] Playing

online games for 10 minutes. Conducted twice daily, parents were actively involved during the intervention to minimize separation anxiety and provide emotional support. Previous studies showed that before play therapy, approximately 80% of children were uncooperative during treatment, whereas after therapeutic play interventions, about 90% became cooperative. Therapeutic play has been proven effective in improving cooperative behavior during procedural interventions.

Table 1. Observation of Child Behavior Before and After the Implementation of Atraumatic Care: Audiovisual

Respondents	Nursing Procedures	Parents' Presence	Day 1	Day 2	Day 3
Subject 1 (Child S)	IV bolus medication administration	Present	0	0	1
	IV fluid replacement	Present	0	1	1
	Vital signs examination	Present	0	1	1
Subject 2 (Child M)	IV bolus medication administration	Present	0	0	1
	IV fluid replacement	Present	0	1	1
	Vital signs examination	Present	0	1	1

Notes: 0= Child showed uncooperative behavior; 1 = Child showed cooperative behavior

Based on Table 1, on the first day the child S showed uncooperative behavior during IV medication administration, IV fluid replacement, and vital signs examination. The child cried, screamed when meeting nurses, and displayed a frowning facial expression. On the second day, the child remained uncooperative and continued crying and frowning during procedures. On the third day, the child began to show cooperative behavior. The child no longer cried, maintained eye contact with nurses, and displayed a calmer facial expression.

Where as, the first day the child M showed uncooperative behavior during all procedures, including crying, frowning, and avoiding eye contact with nurses. On the second day, the child

remained uncooperative during IV bolus administration but showed cooperative behavior during IV fluid replacement and vital signs examination. The child no longer cried, appeared cheerful, and maintained eye contact with nurses. On the third day, the child demonstrated cooperative behavior during all procedures. The child did not cry and was no longer afraid of meeting nurses.

3.2.5 Nursing Evaluation

Nursing evaluation is a systematic and continuous process used to determine whether nursing interventions are effective and whether the care plan should be continued, revised, or terminated

Table 2 Observation of Children's Cooperative Behavior Before and After Audiovisual Atraumatic Care

Respondents	Before Intervention		After Intervention	
	Cooperative	Uncooperative	Cooperative	Uncooperative
Subject 1		✓	✓	
Subject 2		✓	✓	

Based on the data above, both subjects demonstrated uncooperative behavior before the implementation of audiovisual atraumatic care,

such as crying continuously, refusing procedures, and showing frowning facial expressions.

After the implementation of audiovisual atraumatic care, both children became more cooperative, as indicated by the absence of crying, the presence of eye contact with nurses, and calmer facial expressions.

4. Discussion

This discussion presents the findings from two hospitalized children who received audiovisual atraumatic care. The discussion focuses on participant characteristics, the implementation of the intervention, and the observed changes in cooperative behavior and emotional responses during the observation period. Given the descriptive case study design, the findings are presented as observations rather than evidence of causal effects.

The subjects in this case study consisted of Subject 1, a 3-year-old female diagnosed with tonsillitis, and Subject 2, a 10-year-old female diagnosed with osteosarcoma. During hospitalization, both subjects exhibited behaviors commonly associated with hospitalization-related distress, including fear when nurses approached, crying, seeking comfort from their mothers, refusing nursing procedures, and reluctance to interact with healthcare providers.

In Subject 1, these behaviors were observed during repeated hospital admissions. Several factors may contribute to hospitalization-related distress in children, including age, previous hospitalization experiences, separation from family members, and unfamiliar medical procedures. Subject 1 refused to move her hand because of the intravenous line and expressed fear of receiving another injection. These observations are consistent with pediatric nursing literature suggesting that preschool-aged children may perceive invasive procedures as threats to their bodily integrity and sense of safety [4].

In Subject 2, the child appeared hesitant to move the operated leg and was reluctant to change positions independently during the postoperative period following leg amputation surgery. These behaviors were observed alongside signs of hospitalization-related distress. Previous literature suggests that school-aged children may experience anxiety and fear during hospitalization due to

increased awareness of body image changes and physical limitations [3].

Hospitalization refers to the period during which children remain in a hospital setting to receive medical treatment and nursing care. Previous literature suggests that hospitalization may be perceived as a stressful experience for some children because the hospital environment is often unfamiliar and may involve interactions with unfamiliar healthcare providers and medical procedures. During hospitalization, children may exhibit emotional responses such as fear, anxiety, insecurity, or loss of control. Factors such as separation from family members, disruption of daily routines, and restrictions on normal activities have also been reported as potential contributors to emotional distress during hospitalization. These descriptions are consistent with the behaviors observed in the two children included in this case study.

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Before the implementation of audiovisual atraumatic care, Subject 1 exhibited behaviors indicative of uncooperative responses during hospitalization. The child cried continuously, refused nursing procedures, appeared fearful when nurses approached, and declined participation in play activities. In addition, the child was unwilling to answer simple questions, such as stating her name. Similarly, Subject 2 exhibited uncooperative behaviors, including refusing nursing procedures, appearing fearful when nurses approached, and

declining invitations to play, although the child remained willing to answer some questions.

These observations provided the context for the implementation of audiovisual atraumatic care in this study. The intervention consisted of audiovisual distraction activities, including watching cartoon videos and playing online games. Each session involved watching cartoons for approximately 15 minutes and playing online games for 10 minutes, for a total duration of 25 minutes.

Audiovisual distraction has been described in the literature as a non-pharmacological approach that may help engage children's visual and auditory attention during hospitalization [5]. It has been suggested that audiovisual activities, such as watching cartoons or playing games, may provide an alternative focus for children during potentially stressful situations. In the present case study, both children appeared more engaged in the audiovisual activities during the observation period. However, the duration of gadget use should remain limited, as excessive exposure has been reported to potentially contribute to dependency and may adversely affect children's physical and psychosocial development [9].

Atraumatic care is a therapeutic nursing approach aimed at minimizing psychological and physical distress experienced by children and their families during healthcare services. Audiovisual distraction techniques are widely used as non-pharmacological interventions to reduce anxiety, fear, and pain perception among hospitalized children. The main objective of audiovisual distraction is to decrease anxiety levels experienced by both children and parents during hospitalization [5].

Similar observations have been reported in previous studies [6], which reported that audiovisual distraction techniques are effective in minimizing distress related to painful procedures because children naturally respond positively to visual, auditory, and tactile stimulation. During the observation period, both children exhibited changes in their responses following the implementation of audiovisual atraumatic care. However, occasional crying and uncooperative behaviors were still observed during some nursing procedures. These observations suggest that

children's responses during hospitalization may vary and may be influenced by multiple factors reported in the literature, including individual coping mechanisms, previous hospitalization experiences, developmental stage, pain perception, family support, and underlying medical conditions.

The implementation of audiovisual atraumatic care in both subjects began with establishing a therapeutic relationship with the children and their parents. Nurses obtained parental permission before involving the children in audiovisual activities, including watching cartoon videos and playing online games for approximately 25 minutes. Following parental consent and the child's agreement to participate, the activities were carried out. Parents were encouraged to remain with the child during the activities and throughout the nursing care process. During the three-day observation period following the implementation of audiovisual atraumatic care, changes in the children's responses were observed.

Both children appeared more willing to participate in play activities, maintained eye contact with nurses more frequently, and showed fewer observable signs of fear during nursing procedures. Crying behavior was observed less frequently than during the initial assessment. In addition, both children reported feeling less bored during hospitalization and expressed enjoyment when interacting and playing with nurses. Because this study involved only two cases and used a descriptive design, these observations should be interpreted as observed changes rather than evidence of causal effects.

Cooperative behavior among hospitalized children has been associated in the literature with smoother nursing procedures, greater participation in care activities, and more positive healthcare experiences. In contrast, uncooperative behaviors may present challenges during nursing procedures and may be associated with increased distress during hospitalization.

Similar findings have been reported in the literature regarding cooperative behavior among hospitalized children [8], who described cooperative behavior as children's willingness to communicate with nurses, smile, follow instructions, and participate during nursing procedures. Previous studies have also suggested

that therapeutic play interventions may help support positive nurse–child interactions, increase children's comfort, and reduce fear during hospitalization. However, because the present study involved only two cases and used a descriptive design, the observed changes should be interpreted with caution and not as evidence of causal effects.

Similarly, Mansur [5] suggested that atraumatic care may play a supportive role in helping children cope with medical procedures. Recommended strategies include establishing trust, providing emotional support, involving children in care activities when appropriate, and using distraction methods such as books, cartoon videos, or games. The literature also suggests that opportunities for play may help children express their emotions during hospitalization.

Changes in the children's responses were observed during the study period. Prior to the implementation of audiovisual atraumatic care, both children exhibited behaviors such as crying when nurses approached, refusing nursing procedures, declining participation in play activities, avoiding eye contact, and showing limited interaction with healthcare providers. During the observation period following the implementation of audiovisual atraumatic care, both children appeared more willing to interact with nurses, maintained eye contact more frequently, participated in play activities, and answered questions appropriately. Crying behavior and observable signs of fear were noted less frequently than during the initial assessment.

The observations from this case study are consistent with previous research reported by Saribu [7], which described differences in children's anxiety levels before and after atraumatic care interventions. Previous studies have suggested that hospitalization may be associated with anxiety and fear related to unfamiliar environments and medical procedures. In the present study, both children appeared to show more positive emotional and behavioral responses during the observation period; however, the descriptive case study design does not allow conclusions regarding causality or effectiveness.

Overall, both cases demonstrated observed improvements in cooperative behavior following

audiovisual atraumatic care. However, because this study involved only two children and used a descriptive case study design, these findings should be interpreted with caution. Larger studies with more rigorous research designs are needed to confirm these observations and further explore the potential role of audiovisual atraumatic care in pediatric nursing practice.

5. Conclusion

Based on the findings of this case study, the two children observed demonstrated improved cooperative behavior following the implementation of audiovisual atraumatic care. During the observation period, both children appeared more willing to interact with nurses, participated in play activities, maintained eye contact more frequently, and showed fewer observable signs of fear during nursing procedures.

Because this study involved only two cases and used a descriptive case study design, conclusions regarding effectiveness or causality cannot be established. Further research using larger samples and more rigorous study designs is needed to evaluate the effectiveness of audiovisual atraumatic care and to confirm the findings observed in this study.

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