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The Application of Jump-Rope Play Therapy in a School-Aged Child with Excessive Gadget Use: A Case Study

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ABSTRACT

Introduction: Excessive gadget use among school-aged children may interfere with opportunities for physical activity, social interaction, and participation in age-appropriate recreational activities. Structured traditional play, such as jump-rope activities, may provide an alternative to screen-based entertainment while encouraging physical movement and peer interaction.
Objective: This study aimed to describe the application of jump-rope play therapy as a nursing intervention for a school-aged child with excessive gadget use.
Method: A descriptive case study design was employed using a nursing care approach over three days. The nursing process included assessment, nursing diagnosis, intervention planning, implementation, and evaluation. Jump-rope play therapy was introduced as a structured recreational activity to encourage physical activity and social engagement. Data were collected through interviews with the child and family, behavioral observations, and nursing care evaluations, focusing on gadget-use patterns, physical activity, and social interaction.
Result: Following the three-day intervention, positive behavioral changes were reported and observed, including greater participation in physical play, increased interaction with peers, improved cooperation during activities, and reduced gadget use. Family involvement in establishing appropriate screen-use boundaries and encouraging alternative recreational activities was also identified as an important component of the nursing intervention. However, these findings were based on observations from a single case and were not supported by standardized quantitative measurements.
Conclusion: Jump-rope play therapy may serve as a supportive nursing activity to encourage physical movement and social interaction among school-aged children with excessive gadget use. Nevertheless, the findings should be interpreted cautiously because of the single-case design and short intervention period. Further studies using systematic outcome measurements, longer intervention periods, and larger samples are needed to evaluate its potential benefits.

Keywords: Jump-rope play therapy; excessive gadget use; school-aged children; physical activity; social interaction.

Introduction

Advances in digital technology have increased the availability and use of electronic devices among school-aged children. Gadgets can support learning, communication, and entertainment; however, the implications of their use depend on screen duration, content, purpose, and the context in which digital media is accessed. A systematic review of screen time among children aged 6–14 years highlighted the widespread use of screens in this population and the importance of understanding children's screen-use patterns (Qi et al., 2023). More recent evidence also indicates that associations between digital media use and child development vary according to the type and context of media exposure (Mallawaarachchi et al., 2024; Teague et al., 2026). Therefore, excessive recreational gadget use warrants attention when it interferes with physical activity, social engagement, sleep, or other age-appropriate daily activities.

Excessive screen time may displace opportunities for active play and physical activity. A systematic review and meta-analysis of children aged 5–10 years examined associations between smartphone and tablet exposure, physical activity, and sleep, emphasizing the importance of considering digital media use alongside children's daily movement and rest patterns (Bacil et al., 2024). In addition, a systematic review and meta-analysis of school-based interventions found that interventions targeting screen time produced modest reductions in screen exposure and small increases in physical activity, although the certainty of evidence was limited by methodological concerns and substantial variation between studies (Lai et al., 2025). These findings support the need for practical strategies that encourage children to participate in active, age-appropriate activities rather than relying exclusively on screen-based entertainment.

Excessive gadget use should be distinguished from clinically defined behavioral addiction because frequent use alone does not establish an addiction diagnosis. Problematic smartphone use has been examined in relation to academic achievement, with a systematic review and meta-analysis identifying an association between problematic use and academic outcomes (Paterna et al., 2024). However, the effects of digital media are not uniform, and their interpretation should consider individual characteristics and patterns of use. For nursing practice, assessment should therefore focus on observable behaviors, daily functioning, physical activity, and social interaction rather than assigning an addiction label without appropriate assessment criteria.

Jump-rope play is a traditional physical activity that may provide an accessible alternative to screen-based recreation. It involves repeated movement, balance, coordination, rhythm, and attention, and can be performed individually or with peers. A quasi-experimental study involving children aged 7–9 years reported improvements in motor coordination and attention concentration following a 10-week fancy rope-skipping intervention, although the effects on other aspects of selective attention were less clear (Deng et al., 2024). This evidence supports the potential value of rope-skipping activities for selected motor and attentional outcomes. Nevertheless, these findings do not directly establish that jump-rope play therapy

reduces gadget use or improves social interaction among children who use gadgets excessively.

Based on the client's nursing assessment, the child used electronic devices for more than six hours per day, demonstrated limited social interaction, showed reduced interest in playing with peers, and exhibited angry behavior when device use was restricted. These findings indicated a need for individualized nursing care that encouraged active play and social engagement. Jump-rope play therapy was selected as a structured activity to provide an alternative to gadget use and create opportunities for physical activity and interaction with the surrounding environment.

Although recent research has examined screen-time reduction interventions and the physical and cognitive outcomes of rope-skipping activities, these findings do not directly establish the effects of a short, individualized jump-rope play intervention on gadget use and social interaction. Therefore, this case study aimed to describe the application of jump-rope play therapy as a nursing intervention for a school-aged child with excessive gadget use, focusing on observed changes in gadget use, physical activity, and social interaction. The findings may provide practical insights for individualized nursing care; however, the single-case design and three-day intervention period limit conclusions about causality, sustained effects, and generalizability.

Objective

This case study aimed to describe the application of jump-rope play therapy as a nursing intervention to support the reduction of excessive gadget use and promote physical activity and social interaction in a school-aged child.

Method

Design and setting

This study employed a descriptive case study design to describe the application of jump-rope play therapy as a nursing intervention for a school-aged child experiencing excessive gadget use and potential developmental risks. A descriptive case study approach was selected to provide an in-depth understanding of an individual case within its real-life context using multiple sources of evidence (Fàbregues & Fetters, 2019; Heale & Twycross, 2018).

The study was conducted in Kayu Putih Hamlet, Pasirlawang Village, Purwodadi Subdistrict, Ciamis Regency, Indonesia. The case focused on a school-aged child whose gadget-use patterns raised concerns regarding physical activity and social interaction. The nursing intervention was implemented over three days..

Population and sampling

The study population comprised school-aged children who demonstrated excessive gadget use and potential difficulties in social interaction. One child was selected through convenience sampling based on the following inclusion criteria: excessive gadget use, the ability to communicate, parental or legal guardian consent, and willingness to participate throughout the study. The participant was selected to provide an in-depth description of an individual case rather than to achieve statistical representativeness. Clearly defining the case,

participant selection, and boundaries of the investigation is important for transparent case study reporting (Fàbregues & Fetters, 2019).

Instrument and measurement

The materials used in this study included nursing care plans, assessment forms, observation forms for documenting developmental behaviors and social interactions, and a traditional jump rope as the intervention tool. Data were collected through interviews with the child and family, behavioral observations, basic physical examinations, and reviews of relevant documentation. Multiple sources of evidence were used to obtain a comprehensive understanding of the child's condition and responses during the nursing intervention (Fàbregues & Fetters, 2019).

The assessment focused on gadget-use patterns, physical activity, developmental behaviors, and social interaction. Information regarding gadget-use duration was obtained through interviews with the family, while changes in physical activity and social interaction were documented through behavioral observations during the intervention. When standardized or validated measurement instruments were not used, findings were interpreted descriptively based on observed behaviors and caregiver-reported information rather than as objectively measured outcomes.

Data collection and analysis

The intervention was conducted over three consecutive days. On the first day, an initial assessment was performed to identify the child's condition, gadget-use patterns, behavioral responses, and potential developmental concerns. The assessment findings were used to establish nursing diagnoses and determine appropriate nursing interventions.

On the second day, structured jump-rope play therapy was implemented as a nursing intervention. The activity was accompanied by family education regarding strategies to limit excessive gadget use and encourage active play as an alternative recreational activity.

On the third day, a final evaluation was conducted to assess the child's responses to the intervention. The evaluation focused on gadget-use patterns, physical activity, social interaction, and observed behavioral changes. Data collection procedures were documented to provide a clear description of how evidence was obtained and how the findings addressed the study objective (Fàbregues & Fetters, 2019).

The data were analyzed descriptively through data reduction, data presentation, and conclusion drawing. Information obtained from the initial assessment, intervention implementation, and final evaluation was organized and compared to describe changes observed throughout the three-day intervention. The analysis focused on findings related to gadget use, physical activity, social interaction, and behavioral responses.

The nursing care process was guided by relevant nursing concepts and Indonesian nursing standards, including the Indonesian Nursing Diagnosis Standards (Standar Diagnosis Keperawatan Indonesia, SDKI), Indonesian Nursing Outcome Standards (Standar Luaran Keperawatan Indonesia, SLKI), and Indonesian Nursing Intervention Standards (Standar Intervensi Keperawatan Indonesia, SIKI). Given the single-participant design and short

intervention period, the analysis was limited to describing changes observed in this individual case and was not intended to establish causality or generalize the effectiveness of the intervention to other children.

Ethical Considerations

Ethical approval for this study was obtained from the Health Research Ethics Committee (KEPK) of STIKes Muhammadiyah Ciamis, Indonesia (Approval Number: 04/KEPK-MUCIS/III/2026, dated March 20, 2026). Written informed consent was obtained from the child's parent or legal guardian before the study commenced. The child was provided with an age-appropriate explanation of the study procedures, and their willingness to participate was respected. Participation was voluntary, and the parent or legal guardian was informed of the right to withdraw the child from the study at any time without any negative consequences. The participant's identity and personal information were kept confidential throughout the study, and identifiable information was excluded from the manuscript. Appropriate supervision and safety precautions were maintained during the jump-rope play activities to minimize the risk of injury.

Result

Assessment Findings

The nursing assessment was conducted on May 1, 2026, through interviews with the child and family, physical examination, behavioral observation, and review of relevant documentation. The participant, referred to as Child T to maintain confidentiality, was a seven-year-old child attending the first grade of an Islamic elementary school (Madrasah Ibtidaiyah). The child lived with both parents and two older siblings in Pasirlawang Village, Purwodadi Subdistrict, Ciamis Regency, Indonesia. Both parents worked as merchants.

According to the mother's report, the child used electronic devices for more than six hours per day and frequently lost track of time while using them. The mother also reported that the child sometimes had difficulty maintaining attention when following instructions and occasionally forgot assigned tasks. Furthermore, the child had shown reduced interest in studying, raising concerns about the child's engagement in age-appropriate learning and developmental activities.

Regarding the child's developmental and recreational history, the mother reported that the child previously participated more frequently in various recreational activities, including drawing, coloring, playing with dolls, pretend play, and riding a bicycle with friends. These activities provided opportunities for creativity, physical movement, and social engagement. However, the mother perceived a change in the child's daily activity patterns, with greater preference for electronic devices and reduced interest in alternative recreational activities.

In terms of social relationships, the mother described the child as polite, cooperative, and able to distinguish appropriate from inappropriate behavior. The child reportedly maintained good relationships with peers of a similar age. However, the mother observed that the child and peers increasingly preferred using electronic devices when spending time together. No specific evidence of persistent communication difficulties or social withdrawal was identified in the assessment information provided.

The family interview also revealed that the mother was uncertain about how to establish appropriate limits on gadget use and encourage alternative activities. She expressed concern about the child's prolonged screen exposure and changes in learning interest and daily activities. This indicated a need for further family education regarding appropriate gadget-use management and the importance of age-appropriate recreational and physical activities.

Based on the assessment findings, two nursing diagnoses were considered. The first was Risk for Developmental Delay (D.0107), based on the identified developmental concerns and the need to support the child's engagement in age-appropriate activities. The second was Deficient Knowledge (D.0111), related to the mother's limited understanding of strategies for managing the child's gadget use and providing appropriate alternative activities. These nursing diagnoses informed the subsequent care plan, which focused on structured jump-rope play activities and family education to encourage physical activity, support developmental stimulation, and promote healthier gadget-use habits..

Nursing Diagnoses, Expected Outcomes, and Interventions

Based on the nursing assessment findings, two nursing diagnoses were identified: Risk for Developmental Delay (D.0107) and Deficient Knowledge (D.0111). The nursing care plan was developed using the Indonesian Nursing Diagnosis Standards (SDKI), Indonesian Nursing Outcome Standards (SLKI), and Indonesian Nursing Intervention Standards (SIKI).

Table 1. Nursing Diagnoses, Expected Outcomes, and Planned Interventions

No.	Nursing diagnosis	Expected outcomes	Planned interventions
1	Risk for developmental disorder (D.0107), associated with concerns regarding age-appropriate development. This nursing diagnosis was considered based on the identified concerns regarding the child's prolonged gadget use, reduced engagement in learning activities, and changes in participation in age-appropriate recreational activities. These findings indicated the need for developmental stimulation through structured physical and recreational activities	Following the nursing intervention, the child was expected to demonstrate improved participation in age-appropriate activities, including: • Increased participation in physical play activities. • Improved engagement in structured jump-rope activities. • Increased opportunities for direct interaction with peers during play. • Greater involvement in alternative recreational activities rather than relying primarily on electronic devices.	Structured jump-rope play therapy was introduced as a recreational nursing intervention to encourage physical activity and developmental stimulation. The intervention included: • Assessing the child's physical readiness, interest, and ability to participate in jump-rope activities. • Preparing a safe play environment and age-appropriate jump rope. • Demonstrating the basic movements and rules of jump-rope play. • Encouraging the child to participate in structured jump-rope activities according to their physical abilities. • Providing positive reinforcement and encouragement throughout the activity. • Encouraging participation in alternative recreational

			activities appropriate to the child's developmental stage. • Evaluating the child's participation, physical activity, and behavioral responses during the intervention.
2	Deficient Knowledge (D.0111). This nursing diagnosis was considered based on the mother's reported uncertainty regarding appropriate strategies for limiting the child's gadget use and encouraging alternative recreational activities. The family required additional information and guidance to support healthier screen-use habits.	Following the family education intervention, the mother was expected to demonstrate improved understanding of appropriate gadget-use management, including: • Explaining the potential consequences of excessive gadget use on children's daily activities and development. • Identifying age-appropriate strategies for establishing gadget-use limits. • Describing alternative recreational activities that can replace excessive screen-based entertainment. • Demonstrating willingness to supervise and support the child's participation in physical and recreational activities. • Identifying the importance of parental involvement and consistent supervision in managing gadget use..	Family education regarding gadget-use management was provided through: • Assessing the mother's existing knowledge and concerns regarding the child's gadget use. • Explaining the importance of balanced screen use and age-appropriate recreational activities. • Discussing practical strategies for establishing consistent gadget-use limits at home. • Encouraging parents to provide alternative activities, including traditional games, physical play, drawing, coloring, and other creative activities. • Demonstrating how jump-rope play can be introduced as an alternative recreational activity. • Encouraging parental supervision and involvement during children's play activities. • Evaluating the mother's understanding through discussion and feedback regarding the education provided..

Both nursing interventions were implemented over a three-day period. The first day focused on initial assessment and nursing care planning, the second day involved structured jump-rope play therapy and family education, and the third day focused on evaluating the child's responses and the mother's understanding of gadget-use management

Implementation of Jump-Rope Play Therapy

Jump-rope play therapy was selected as a structured recreational activity to encourage physical movement and provide an alternative to screen-based entertainment. The intervention was designed to support age-appropriate developmental activities, while family education focused on establishing healthier gadget-use habits and encouraging participation in alternative recreational activities.

The nursing intervention was organized into three sessions:

Session 1: Initial Assessment and Preparation

The first session focused on assessing the child's gadget-use patterns, physical activity, recreational preferences, and developmental behaviors. The mother's knowledge and concerns regarding excessive gadget use were also explored. Based on the assessment findings, the nursing care plan was established, and the child and family were introduced to the planned jump-rope play activity.

Session 2: Implementation of Jump-Rope Play Therapy and Family Education

The second session involved the implementation of structured jump-rope play therapy as an alternative recreational activity. The child was encouraged to participate in the activity according to their physical abilities and willingness. Appropriate supervision was provided to maintain safety during the activity. Family education was also delivered to explain the importance of balancing screen-based activities with physical play, learning activities, and social engagement. The mother was encouraged to establish consistent gadget-use limits and provide alternative recreational opportunities at home.

Session 3: Evaluation and Reinforcement

The third session focused on evaluating the child's responses to the intervention and reinforcing the educational messages provided to the family. The evaluation addressed the child's willingness to participate in physical activities, behavioral responses during play, and opportunities for interaction with others. The mother's understanding of gadget-use management and her readiness to support alternative recreational activities were also reviewed.

Throughout the intervention, family involvement was emphasized as an important component of nursing care. The intervention aimed to encourage physical activity, support age-appropriate developmental stimulation, and improve family awareness of appropriate gadget-use management. Changes in gadget-use duration, participation in jump-rope activities, attention to instructions, and social interaction were documented only when supported by assessment, observation, or family reports.

Discussion

This case study illustrates nursing concerns related to prolonged gadget use, reduced engagement in learning activities, and changes in recreational habits in a school-aged child. The child's mother reported that the child spent more than six hours per day using electronic devices, had difficulty maintaining attention when following instructions, and showed reduced interest in studying. These findings reflect caregiver-reported concerns and should not be interpreted as evidence of a confirmed developmental disorder or behavioral addiction without further comprehensive assessment.

Previous studies have examined the relationship between screen exposure and children's physical activity, sleep, and developmental outcomes. Bacil et al. (2024) investigated smartphone and tablet exposure in children aged 5-10 years in relation to physical activity and sleep. Similarly, Mallawaarachchi et al. (2024) reported associations between specific screen-use contexts and cognitive or psychosocial outcomes among children

younger than six years. These findings highlight the importance of assessing not only screen time but also the content, context, and impact of screen use on children's daily activities. Nevertheless, the associations reported in previous studies do not establish that gadget use caused the behavioral concerns identified in this case.

Jump-rope play was selected as a structured physical activity to provide an alternative recreational experience and encourage the child to participate in activities beyond screen-based entertainment. This activity involves repeated body movements, coordination, and sustained attention to the task. Deng et al. (2024) reported improvements in aspects of motor coordination and attention among children aged 7-9 years following a 10-week fancy rope-skipping intervention. However, their intervention duration and research design differed substantially from the present case study, which involved three nursing intervention sessions. Therefore, their findings provide a rationale for considering rope-skipping activities as a developmental support strategy but cannot establish the effectiveness of a shorter intervention in the present case.

Family involvement is essential when addressing prolonged gadget use in children. In this case, the mother expressed uncertainty about establishing appropriate limits on the child's device use. Consequently, nursing education should emphasize consistent household rules, parental supervision, and the provision of age-appropriate alternative activities. Parents should also be encouraged to balance screen-based activities with physical play, learning, adequate rest, and face-to-face interaction. As highlighted by Mallawaarachchi et al. (2024), screen-use contexts, including the type of content and caregiver involvement, are relevant considerations when interpreting potential developmental outcomes. Thus, family-centered nursing guidance should address not only the duration of gadget use but also how screen-based activities are integrated into the child's daily routine.

The nursing care plan in this case focused on developmental support and improving the mother's knowledge of appropriate gadget-use management. The selection of the nursing diagnosis Risk for Developmental Delay should be supported by relevant risk factors identified during the assessment and should not be based solely on prolonged gadget use. Similarly, Deficient Knowledge is relevant when an assessment demonstrates that the caregiver lacks sufficient information or understanding regarding appropriate screen-use management and alternative activities. The child's reported ability to maintain relationships with peers indicates that a persistent social interaction impairment was not established by the available assessment findings. Nevertheless, structured play may provide opportunities for shared activities and communication with other children as part of broader developmental support.

Several limitations should be considered when interpreting this case. First, the study involved only one participant, limiting the transferability of the findings to other children. Second, the intervention period was short, consisting of three nursing intervention sessions, which was insufficient to determine whether any behavioral changes could be sustained over time. Third, gadget-use duration, motor performance, attention, and social interaction were not assessed using clearly reported quantitative or standardized instruments. The findings therefore rely primarily on caregiver reports and behavioral observations. These limitations

prevent conclusions regarding the effectiveness of jump-rope play therapy or a causal relationship between the intervention and changes in the child's behavior.

From a nursing perspective, this case highlights the importance of comprehensive assessment of children's screen-use patterns, developmental activities, and family management practices. Structured physical play and family-centered education may be incorporated into nursing care as supportive strategies to encourage age-appropriate activities and promote parental awareness of balanced gadget use. Future studies should employ clearly defined outcome measures, provide detailed documentation of intervention procedures and responses during each session, and include longer follow-up periods. Further research involving larger samples and more rigorous designs is needed to examine the potential effects of structured physical play on screen-use behavior, physical activity, attention, and social interaction.

Overall, this case demonstrates how structured physical play and family-centered nursing education can be incorporated into nursing care for a school-aged child whose family reports prolonged gadget use. Jump-rope play should be considered a supportive recreational and developmental activity rather than an established treatment for gadget addiction or developmental disorders.

Conclusion

This case study describes the application of jump-rope play therapy as a supportive nursing intervention for a school-aged child whose family reported prolonged gadget use. The initial assessment identified extended daily gadget use, caregiver-reported difficulties with attention, reduced interest in studying, and limited engagement in alternative recreational activities. Nursing care incorporated structured physical play and family-centered education to support age-appropriate activities and improve the caregiver's understanding of balanced gadget use.

Following the three-day nursing care process, positive behavioral changes were observed or reported, including greater participation in play activities, improved cooperation during therapy, and increased engagement in activities beyond screen-based entertainment. Family involvement in establishing appropriate gadget-use boundaries and supervising alternative play activities was also an important component of the nursing intervention. These findings should be interpreted cautiously because the study involved only one child and did not use standardized measurements to objectively assess gadget-use duration or developmental outcomes before and after the intervention.

Jump-rope play may be considered a supportive recreational activity within family-centered nursing care to encourage physical activity and provide alternatives to screen-based entertainment. However, this case study cannot establish its effectiveness in reducing gadget use or improving motor development, attention, or social interaction. Further studies involving larger samples, clearly defined outcome measures, detailed intervention procedures, and longer follow-up periods are needed to evaluate the potential benefits and sustainability of this approach. Structured physical play, combined with consistent family

guidance and developmentally appropriate activities, may be incorporated into nursing care to support children's overall growth and development.

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Author Contribution

Dian Maelana Lestari contributed to the conceptualization, data collection, implementation of nursing care, data analysis, and preparation of the original manuscript. Andan Firmansyah contributed to methodological guidance, validation, research supervision, and critical review and revision of the manuscript. Both authors contributed to the finalization of the manuscript, approved the final version, and agreed to be accountable for their respective contributions to the work.

Conflict of Interest

The authors declare that they have no conflicts of interest related to the conduct of the study, manuscript preparation, or publication of this article.

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