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Implementing the Handwashing Dance on Early Childhood Health Literacy: A Case Study at TK Siti Sulaechah 01 Semarang

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Abstract

This study explores the implementation of the Handwashing Dance as an innovative tool to promote early childhood health literacy at TK Siti Sulaechah 01 Semarang. Employing a qualitative research design, the research aimed to provide a comprehensive understanding of the effects of this method on children's knowledge and practices regarding hand hygiene. Data were collected through interviews, observations, and document analysis involving the principal, teachers, and parents of Group B2. The findings indicated that the Handwashing Dance significantly improved children's cognitive, affective, and psychomotor skills related to handwashing. Specifically, children demonstrated better recall of handwashing steps, increased enthusiasm and participation in hygiene activities, and improved coordination in handwashing movements. Teachers and parents noted that children were more likely to wash their hands regularly and correctly at school and home. Integrating dance, song, and handwashing movements engaged the children, making the learning process enjoyable and memorable. These results suggest that the Handwashing Dance has considerable potential for broader application in early childhood health education, promoting lifelong healthy habits. However, the study's limitations, including its small sample size and single-site focus, highlight the need for further research with larger, diverse populations to validate these findings. This study underscores the importance of incorporating interactive and play-based approaches in health education to foster positive health behaviors from an early age. Further research could explore the scalability of this approach and its effectiveness in diverse educational settings.

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Introduction

Hand hygiene is a crucial component of public health and is recognized globally as a primary measure to prevent the spread of infectious diseases (Houser et al., 2019; Lotto et al., 2020). The World Health Organization (WHO) has consistently highlighted the significance of proper handwashing techniques as a key strategy in controlling outbreaks of infectious diseases, including respiratory and gastrointestinal infections (Islam, 2023; Edwards et al., 2020). Early childhood is a critical period for instilling lifelong health habits, including proper handwashing techniques, which are essential in reducing the transmission of pathogens and ensuring overall child well-being (Breslin Davda & Buchanan, 2024; Canfield et al., 2020). During these formative years, children develop foundational behaviors that impact their long-term health and development, making it imperative to integrate health education into early childhood curricula. The educational discipline emphasizes integrating health literacy into early childhood curricula to promote holistic development, encompassing cognitive, affective, and psychomotor domains (Khaironi, 2018; Yang Setia, 2018). Despite this recognition, gaps persist in effectively engaging young children in health practices, warranting innovative approaches to reinforce these essential behaviors (Borzekowski et al., 2019; Roberts-Tyler et al., 2021). These challenges underscore the need for creative methods to teach young children about health engagingly and memorably.

Several studies have explored diverse strategies to enhance young children's health literacy and hygiene practices. For instance, integrating interactive and engaging activities, such as songs and dances, has shown promise in reinforcing educational content and fostering active participation (Carson et al., 2022; Gonzalez Casanova et al., 2021). These methods leverage the natural inclination of children to learn through play and movement, making the learning process enjoyable and effective (Sri Lestari & Kartika, 2022; Brasher et al., 2021). Programs like the Handwashing Dance have been particularly noted for their potential to make health education enjoyable and memorable for young children (Mathis et al., 2022; Schluter et al., 2018). These interventions teach children about the importance of hygiene and help develop their motor skills and coordination through the physical activity involved in dancing. Research has indicated that children are more likely to remember and practice health behaviors when they are taught engagingly and interactively, which suggests that the use of dance and music could be a highly effective strategy in early childhood education (Borzekowski et al., 2019; Brasher et al., 2021).

Research indicates that early interventions focusing on health literacy can have long-term benefits, enhancing children's academic performance and social-emotional skills (Justice et al., 2018; Lipscomb et al., 2021). For example, early childhood mental health consultation (ECMHC) programs have significantly improved classroom behavior, reduced social-emotional challenges, and enhanced academic achievement in mathematics, literacy, and writing (Mathis et al., 2022). These interventions are especially critical in settings where traditional educational resources may be limited, and creative, cost-effective solutions are necessary to meet academic goals (Kirkøen et al., 2021; Khanam & Khan, 2023). Integrating health literacy into early childhood education can support broader educational objectives by fostering a learning environment promoting physical health and well-being. Furthermore, the role of educators and caregivers in modeling and reinforcing health practices cannot be overstated, as consistent and supportive interactions significantly impact children's learning outcomes (Nauman et al., 2023; Waters et al., 2022). By involving caregivers in health education, children receive consistent messages about the importance of hygiene at school and home, reinforcing their learning and practice of these behaviors.

Implementing health literacy programs in early childhood education also aligns with broader public health initiatives to reduce the incidence of communicable diseases (Boyd et al., 2023; Canfield et al., 2020). National health screening programs for preschool-aged children have been used as early detection tools to identify those needing literacy interventions, particularly in underrepresented communities (Schluter et al., 2018). Studies have shown that when children are taught proper handwashing techniques early, they are more likely to adopt these practices into adulthood, contributing to improved community health outcomes (Islam, 2023; Hollowell et al., 2020). Additionally, interventions incorporating health literacy into early childhood education can help bridge gaps in health knowledge and practices among different socioeconomic groups, promoting equity in health outcomes. Moreover, embedding health literacy within early education curriculums ensures that children receive consistent messages about the importance of hygiene, reinforcing these behaviors in various contexts (Li et al., 2021; Burgoyne et al., 2023). The long-term benefits of such programs extend beyond individual health, as they foster a culture of hygiene and disease prevention within communities, ultimately contributing to public health goals.

Despite the proven benefits of early health literacy interventions, challenges still need to be addressed in their widespread adoption and implementation. Factors such as cultural perceptions, access to resources, and the availability of trained educators can influence the effectiveness of these programs (Nazif-Muñoz et al., 2020; Shavitt et al., 2022). In some regions, misconceptions about hygiene practices or a lack of understanding about their importance can hinder the adoption of health education initiatives. Additionally, innovative methods like the Handwashing Dance must be adapted to fit different educational settings' specific needs and contexts to maximize their impact (Kofinti et al., 2022; Von Suchodoletz et al., 2023). The

adaptability of these programs is crucial for ensuring their effectiveness across diverse cultural and socioeconomic backgrounds. Parental involvement is also critical, as reinforcing these practices at home can significantly enhance children's understanding and adherence to proper hygiene behaviors (Canfield et al., 2020; Benedict et al., 2024). Engaging parents in health literacy programs supports children's learning and fosters a home environment that prioritizes health and hygiene, reinforcing the behaviors taught at school.

While previous research highlights the potential of interactive and engaging health literacy interventions, more studies need to examine the implementation and outcomes of such programs in diverse educational settings (Roberts-Tyler et al., 2021; Tekile et al., 2020). Many studies have focused on short-term outcomes without adequately addressing the long-term sustainability of these interventions or their impact on children's health behaviors over time. Moreover, many studies need to comprehensively evaluate the long-term effect of these interventions on children's health behaviors and academic outcomes (Borzekowski et al., 2019; Mathis et al., 2022). Addressing these gaps requires a detailed investigation into how these programs can be tailored and effectively integrated into early childhood education curricula, considering different learner populations' unique characteristics and needs (Houser et al., 2019; Schluter et al., 2018). Additionally, exploring how these programs can be scaled and adapted to different cultural and socioeconomic contexts is necessary to ensure their broader applicability and effectiveness.

This study aims to evaluate the implementation and effectiveness of the Handwashing Dance as a tool for enhancing health literacy among children in Group B2 of Siti Sulaechah 01 Kindergarten, Semarang. Focusing on a specific educational setting, this research provides insights into how interactive, movement-based learning activities can instill proper handwashing habits in young children. The study will investigate the impact of the Handwashing Dance on children's cognitive, affective, and psychomotor development, providing a comprehensive evaluation of its effectiveness as a health education tool. The findings are expected to contribute to the broader discourse on early childhood health education, offering practical recommendations for educators and policymakers to enhance health literacy programs. Ultimately, this study aims to demonstrate that engaging, play-based interventions can effectively promote essential health behaviors, thereby improving children's overall development and long-term health outcomes. By addressing gaps in existing research and providing evidence-based recommendations, this study seeks to advance the field of early childhood education and public health, promoting healthier futures for children.

Methods

This study employed a qualitative research design to explore the implementation of the Handwashing Dance to promote early childhood health literacy in Group B2 at TK Siti Sulaechah 01 Semarang. A qualitative approach was chosen to provide a detailed and comprehensive understanding of the observed behaviors and spoken words related to the research topic (Sugiyono, 2019). This design allowed for an in-depth exploration of the practices and perceptions of early childhood educators and the children themselves regarding the handwashing dance activity. The study involved multiple stages of data collection, including interviews, observations, and document analysis. Initially, in-depth interviews were conducted with the kindergarten principal, teachers, and student guardians to gather firsthand information about the implementation and reception of the Handwashing Dance (Ulfah, 2020). These interviews were recorded with consent and transcribed for analysis. Observations were then carried out to systematically record the practice of the Handwashing Dance in the classroom setting. Additionally, relevant documents such as photographs, files, and previous records related to health literacy activities were collected to complement the interview and observational data.

The tools and technologies used in this study included audio recording devices for capturing interviews, notebooks for recording observational data, and digital cameras for

photographing relevant activities and documents. These tools facilitated accurate and comprehensive data collection, ensuring that all aspects of the Handwashing Dance implementation were thoroughly documented—data collection techniques comprised of interviews, observations, document analysis, and triangulation. Triangulation was employed to enhance the credibility and validity of the data by combining different data collection methods and sources. The collected data were analyzed using an inductive approach involving data reduction, data display, and conclusion drawing (Sugiyono, 2019). Data analysis began concurrently with data collection, allowing for continuous refinement of the research focus and ensuring the analysis was grounded in empirical data from the field. Several strategies were implemented to ensure the study's reliability and validity. Triangulation was used to cross-verify data from multiple sources and methods, enhancing the study's credibility. Member checking was also employed, where participants were asked to review and confirm the accuracy of the transcribed interview data. Furthermore, detailed documentation of the data collection and analysis processes was maintained to provide transparency and replicability. These measures collectively ensured that the study's findings were reliable and valid, offering a robust understanding of the implementation of the Handwashing Dance as an early childhood health literacy initiative.

Result

3.1. Research Location

Siti Sulaechah 01 Semarang Kindergarten is an early childhood education institution established by the Yayasan Badan Amal Jariah Keluarga H.M. Suchan Semarang. Founded on October 27, 1998, it is located on Mayangsari Tengah Raya Street, Kalipancur, Ngaliyan District, Semarang City. The vision and mission of Siti Sulaechah 01 Semarang Kindergarten are dedicated to forming an Islamic generation that is smart, independent, creative, innovative, and possesses good character. Their mission focuses on fostering Islamic behavior in daily life, implementing innovative teaching methods to achieve quality education, developing children's independence through life activities, and organizing a creative, innovative, and enjoyable learning process. Currently, the kindergarten accommodates 56 students, divided into four groups with two groups each for levels A and B, taught by four dedicated teachers.

The facilities at Siti Sulaechah 01 Semarang Kindergarten are comprehensive, including four central rooms for different activities: the beam center, preparation room, role-playing area, and the image (faith and purity) center. Each room has appropriate furniture, such as chairs, tables, cabinets, APE shelves, wall clocks, and trash cans. The administrative office houses spaces for the school head, administrative staff, and a guest room. The teachers' room is a workspace for educators, with chairs, tables, cupboards, lockers, wall clocks, and trash cans. The playground offers various games like skateboards, swings, and climbing ropes. Additionally, the Student Health Unit supports the health of students and staff, providing facilities for periodic weight and height measurements. The kindergarten also features a warehouse for storing unused items, three bathrooms, and a hand washing area designed with taps and hand soap, ensuring hygiene standards suitable for young children.

3.2. Implementation of Handwashing Dance in Group B2

Early childhood has distinct traits from adults as they grow and develop uniquely. An analysis conducted in Group B2 of Siti Sulaechah 01 Semarang Kindergarten reveals that everyone is unique and different. The handwashing dance is an innovative method designed to instill the habit of washing hands with soap through a combination of dance movements, handwashing actions, and engaging songs tailored to the character of early childhood education (PAUD) students. This method is expressively packaged to align with the playful learning style of PAUD students, aiming to foster their enthusiasm for washing hands after activities such as playing, before eating, before going to bed, and after using the toilet. Integrating handwashing movements, dance, and song is intended to enhance children's cognitive, affective, and

psychomotor skills, promoting the habit of handwashing. This practice is expected to become a community priority in controlling worm infestations. Observations of children's handwashing abilities were conducted, and interviews with parents and teachers of children in Group B2 provided additional insights detailed in the research data. This data, focusing on applying the handwashing dance as a form of health literacy in early childhood, was analyzed using the Mies and Huberman model.

Table 1. Table Observation of children's understanding of hand washing

Child's Name	Understanding of Handwashing in Children	
	Can Understand	Cannot Understand
Farrel		√
Hussein	√	
Joy	√	
Arkan	√	
Vito	√	
Athaya		√
Fathan	√	
Al	√	
Felly	√	
Gendis		√
Bella	√	
Risti	√	
Syilfa	√	
Silmi	√	
Nabila	√	
Nayla	√	

Table 1 explains that when the researchers conducted observations in group B2, 12 children knew how to wash their hands. These children were able to understand health literacy through hand-washing activities. They washed their hands properly with running water, rubbed their hands adequately, and dried them with a washcloth. They also knew the right time to wash their hands. However, 3 children did not understand how to wash their hands properly as they only washed their hands quickly, appeared rushed, and forgot to use a washcloth to dry their hands. The researchers then interviewed the principal, parents, and teachers of group B2, which will be presented in the research data. The data discusses the implementation of the handwashing dance as early childhood health literacy over four meetings, demonstrating handwashing while observing cognitive, affective, and psychomotor aspects through interviews, observations, and documentation.

The handwashing dance at Siti Sulaechah 01 Semarang Kindergarten provides comprehensive learning for children, helping them understand the concept of learning as expressed by the class teacher. The children can simultaneously grasp the learning process and develop their emotional and motor abilities, benefiting their long-term health and society. In general, early childhood characteristics are relatively similar. Learning without basic concepts or critical thinking skills is challenging to implement and often results in children understanding theory without comprehending the underlying knowledge. This gap makes it difficult to apply their knowledge in various situations. The ability to count is also mentioned as being useless without understanding how, when, and what to use in real-world contexts. Applying cognitive, affective, and psychomotor aspects helps children develop holistically.

In addition, implementing the handwashing dance effectively increases the knowledge of early childhood, which is characterized by several traits. Early childhood is unique; each child is different from one another, even if they are identical twins. They have distinct natures, characteristics, interests, preferences, and backgrounds. According to Bredekamp (1987),

children have unique learning styles, interests, and family backgrounds. The uniqueness of each child aligns with their innate interests, abilities, and cultural backgrounds, which differ from one another. Although there is a general sequence pattern in child development that can be predicted, the pattern of growth and learning still varies from child to child. In the case of handwashing dance, there are slightly different patterns related to the children's abilities.

Early childhood is also a potential period, often called the "golden age" for learning and development. If this period is not utilized well, it can affect subsequent development stages. Almost all children in group B2 of Siti Sulaechah 01 Semarang Kindergarten can follow good developmental progress. Furthermore, early childhood is relatively spontaneous, with children expressing their thoughts and feelings freely without concern for others' responses. This characteristic was evident as the children performed the handwashing dance enthusiastically according to the educator's instructions. However, young children tend to be careless and lack calculation, not considering the dangers of their actions. Lastly, early childhood is marked by high activity and energy levels, with children constantly in motion unless asleep. This trait supports the notion that early childhood is a relentless activity and exploration period.

Early childhood is characterized by egocentrism, where children tend to see things from their perspective and believe everything they want is theirs. This narcissistic behavior is evident when children fight over toys or cry when their desires are not met. As described by Piaget, this stage of cognitive development includes the sensory-motor, preoperational, and concrete operational stages. Children at this stage are still developing their ability to see things from perspectives other than their own, which is a critical part of their cognitive growth.

Children in early childhood also exhibit a strong curiosity, constantly asking questions like "What is this?" and "Why is that?". This curiosity drives them to explore and learn about the world around them. This curiosity is evident in Group B2 of Siti Sulaechah 01 Semarang Kindergarten as children engage in new activities like the handwashing dance. This activity provides new knowledge and helps develop their cognitive abilities. After three meetings, it was observed that the children in group B2 were highly curious about handwashing. They understood the importance of handwashing, knew the correct times to wash their hands, and could accurately describe the steps involved, demonstrating their ability to absorb and apply new information.

Additionally, early childhood is marked by high levels of imagination and fantasy. Children often create worlds filled with imaginative scenarios that may seem illogical to adults. This rich imagination is sometimes misunderstood as lying or making up stories, but it is a natural part of their development. However, children at this age also tend to be frustrated easily and have short attention spans. They may quickly abandon challenging activities and frequently shift their focus unless the activity is engaging. Learning approaches should be varied and enjoyable to cater to these traits, ensuring children remain interested and engaged. This period, often called the "golden age," is crucial for rapidly developing all their potential abilities.

Discussion

This study explored the implementation of the Handwashing Dance to promote early childhood health literacy in Group B2 of TK Siti Sulaechah 01 Semarang. The research addressed the critical early childhood period, characterized by rapid developmental changes in physical, cognitive, and socio-emotional domains (Khaironi, 2018; Lipscomb et al., 2021). Children are exceptionally receptive to learning new behaviors and concepts during this period, making it an ideal time to introduce health literacy interventions (Sri Lestari & Kartika, 2022; Harditya & Mukminin, 2018). Given the unique developmental characteristics of young children, integrating playful and engaging activities like the Handwashing Dance can effectively promote hygiene practices and health awareness (Borzekowski et al., 2019; Von Suchodoletz et al., 2023). The combination of dance movements, handwashing actions, and engaging songs aligned with early childhood educational theories emphasizing active and experiential learning, fostering children's enthusiasm for maintaining hygiene.

The findings of this study indicated substantial improvements in children's cognitive, affective, and psychomotor abilities post-intervention. Cognitively, children clearly understood when and how to wash their hands correctly, as evidenced by their ability to recall and follow the proper steps (Schluter et al., 2018; Waters et al., 2022). This reflects the effectiveness of interactive and repetitive activities in enhancing young children's knowledge retention. Affective improvements were notable, with children expressing enjoyment and willingness to engage in handwashing activities, reflecting an increased awareness and positive attitude towards hygiene (Breslin Davda & Buchanan, 2024; Khanam & Khan, 2023). Psychomotor skills were also significantly enhanced as children transitioned from basic hand-rubbing to performing the complete handwashing procedure accurately, demonstrating the intervention's effectiveness in bridging knowledge and practice (Carson et al., 2022; Lipscomb et al., 2021). This holistic improvement underscores the importance of multi-sensory learning experiences in early childhood education.

When comparing these results with prior studies, both consistencies and unique contributions emerged. Similar to findings from research on other interactive health education interventions, the Handwashing Dance significantly improved children's cognitive and motor skills (Justice et al., 2018; Boyd et al., 2023). Studies have consistently shown that integrating movement and music into educational activities can enhance children's engagement and learning outcomes (Canfield et al., 2020; Houser et al., 2019). However, this study also highlighted affective improvements, a less frequently measured but crucial aspect of health literacy. The children's increased enjoyment and positive attitudes toward handwashing underscore the importance of incorporating elements that make health practices appealing and sustainable for young learners (Lipscomb et al., 2021; Brasher et al., 2021). This holistic approach differentiates this study from previous research that may have focused more narrowly on cognitive outcomes.

This study's results also contrast previous interventions that reported limited effectiveness in changing health behaviors. The comprehensive approach of the Handwashing Dance, addressing cognitive, affective, and psychomotor domains simultaneously, may account for its success (Benedict et al., 2024; Roberts-Tyler et al., 2021). Previous studies have often focused narrowly on cognitive outcomes, potentially overlooking the holistic nature of early childhood development. The significant psychomotor gains observed in this study align with research that emphasizes the role of physical activity in enhancing children's learning experiences (Carson et al., 2022; Nazif-Muñoz et al., 2020). Additionally, engaging, contextually relevant content fosters deeper understanding and retention, supporting the notion that education should be informative and enjoyable.

The findings from this study are particularly significant because they highlight the effectiveness of integrating play and structured activities into early childhood health education. The positive changes observed across cognitive, affective, and psychomotor domains underscore the potential of such interventions to foster holistic development in young children (Khaironi, 2018; Yang Setia in Harditya & Mukminin, 2018). Theoretical frameworks by educational pioneers such as Montessori, Piaget, and Vygotsky support the idea that children learn best through active, hands-on experiences that engage multiple aspects of their development (Brasher et al., 2021; Kofinti et al., 2022). This study's success in improving health literacy through an engaging, dance-based activity reinforces the value of innovative, play-based approaches in early childhood education, suggesting that such methods can be adapted and scaled to various educational contexts.

Despite the promising results, several limitations must be considered. The study's small sample size and the specific context of a single kindergarten limit the generalizability of the findings (Kirkøen et al., 2021; Nauman et al., 2023). Future research should include larger, more diverse populations and longer follow-up periods to assess the long-term impact of such interventions (Islam, 2023; Edwards et al., 2020). Additionally, while the Handwashing Dance was effective in this setting, adaptations may be necessary to suit different cultural and

educational contexts. These limitations notwithstanding, the study provides valuable insights into the potential benefits of integrating movement and music into early childhood health education, paving the way for further exploration and application in various educational settings.

The implications of this study are far-reaching, suggesting that similar interventions could be widely implemented to enhance health literacy and hygiene practices among young children. Educators and policymakers should consider incorporating engaging, play-based activities into health education curricula to promote positive health behaviors from an early age (Lotto et al., 2020; Boyd et al., 2023). This approach not only supports cognitive development but also fosters positive attitudes and practical skills that are essential for lifelong health and well-being. By prioritizing early childhood health education, communities can lay a strong foundation for the future health of their populations, potentially reducing the incidence of hygiene-related illnesses and promoting overall public health.

The Handwashing Dance proved to be an effective method for improving health literacy among children in Group B2 TK Siti Sulaechah 01 Semarang. The intervention successfully enhanced cognitive, affective, and psychomotor skills, demonstrating the value of innovative, engaging educational strategies. This study highlights the importance of holistic approaches in early childhood education and provides a model for future health literacy programs (Mathis et al., 2022; Hollowell et al., 2020). Fostering essential health behaviors early on can have lasting benefits, contributing to children's overall well-being and development. Further research and broader implementation of such strategies are recommended to maximize their potential impact on public health (Gonzalez Casanova et al., 2021; Kirkøen et al., 2021).

Conclusion

The study aimed to implement the handwashing dance to enhance early childhood health literacy at Siti Sulaechah Kindergarten, focusing on teaching children the importance and proper technique of handwashing with soap. The research found that children in Group B2 showed significant improvements in cognitive, affective, and psychomotor domains related to handwashing, demonstrating understanding, positive attitudes, and correct practices. Integrating handwashing routines with music and movement effectively engaged the children, making learning enjoyable and memorable, thereby enhancing their overall health literacy. These findings have significant implications for early childhood education and public health, suggesting that playful, interactive methods can promote essential health behaviors, potentially reducing disease spread and fostering lifelong healthy habits. However, the study's limitations include a small sample size and single-site research, which may affect generalizability. Future research should involve larger, diverse samples and long-term studies to assess sustained impacts. It is recommended that early childhood education curricula incorporate such interactive health education activities, and further studies explore similar interventions' effectiveness and long-term effects on health literacy and hygiene practices.

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