NCIJ 2 (3) (2024)
Nursing Case Insight Journal
Journal of Case Study Nursing
https://nci.journalhealth.org/index.php/nci

Nursing Care Analysis in Children with Down Syndrome and the Application of Puzzle Play Therapy

Nisrina Zalva Khoirunisa[1]*, Sri Yekti Widadi[2]
[1, 2] Nusing Profesion, STIKes Karsa Husada Garut College, Garut, West Java, Indonesia

Abstract: Down Syndrome is a condition characterized by physical and mental developmental delay caused by chromosomal abnormalities during cell division. One of the common complications in children with Down Syndrome is developmental disorders, including delays in motor skills and cognitive development. Non-pharmacological treatments, such as puzzle play therapy, can be used to enhance development. Puzzle play therapy is considered a beneficial intervention to improve fine motor skills and cognitive functions in children with Down Syndrome. This case study aims to provide an overview of the application of puzzle play therapy as a nursing intervention in children with Down Syndrome, focusing on addressing developmental disorders, particularly in fine motor skills. A descriptive case study design was employed, involving anamnesis, observation, physical examination, and analysis of nursing care based on evidence-based practice (EBP). The participant in this study was a child with Down Syndrome who was administered puzzle play therapy. The study found that puzzle play therapy effectively addressed developmental issues in a child with Down Syndrome. After the therapy, there was an improvement in the child's fine motor skills, which indicates the success of puzzle play therapy as an intervention for developmental disorders in children with Down Syndrome. Puzzle play therapy can be successfully implemented in nursing care for children with Down Syndrome, particularly in improving fine motor skills and promoting cognitive development. It has been empirically proven to be an effective intervention for enhancing development in children with Down Syndrome..

Keywords: Down Syndrome, Developmental Disorders, Fine Motor Skills, Puzzle Play Therapy, Nursing Care
Received: 10 December 2024
Revised: 11 December 2024
Accepted: 24 December 2024
Published: 28 December 2024

Corresponding Author: Nisrina Zalva Khoirunnisa
Author Name*: Nisrina Zalva Khoirunisa
Email*: nisrinazalva0@gmail.com

Phone*: +62877-1237-5635

Introduction

Down Syndrome (DS), also known as trisomy 21, is a genetic condition caused by the presence of an extra chromosome 21. This chromosomal abnormality occurs during cell division, leading to a range of physical and intellectual challenges. It is one of the most common genetic disorders, affecting approximately 1 in every 700 live births worldwide, making it the most frequently occurring chromosomal disorder. The prevalence of Down Syndrome is consistent across different races and socioeconomic statuses, although maternal age is a significant risk factor; older mothers are at a higher risk of having a child with DS, with the likelihood increasing substantially after age 35. Children with Down Syndrome typically experience developmental delays that can affect various domains, including motor skills, language acquisition, and cognitive abilities. Among these challenges, fine motor skills are particularly impacted. Fine motor skills involve hand-eye coordination and the ability to manipulate small objects, which are crucial for everyday tasks such as writing or buttoning clothing. Delays in these skills can hinder a child's independence and self-care abilities (Andrew et al., 2023; Maritska et al., 2018; Trueta, 2017).

How to Cite: Riswandi, A., Wahyudin, & Sugih Permana, G. G. (2024). Analysis of Nursing Care in Mr. M with Hypertension and the Application of Benson Relaxation Therapy. Nursing Case Insight Journal, 2(03), 83-86. https://nci.journalhealth.org/index.php/nci/article/view/32

Early intervention is vital for children with Down Syndrome, as it significantly enhances their developmental outcomes and quality of life. Non-pharmacological interventions have gained attention for their effectiveness in promoting development (Andrew et al., 2023; Maritska et al., 2018). One such intervention is puzzling play therapy, which involves engaging children in activities that require them to manipulate puzzle pieces to form complete pictures. This type of play not only stimulates problem-solving skills but also enhances fine motor coordination and cognitive engagement (Mahmudia Putri et al., 2023; Utami, 2023).

The current case study focuses on the application of puzzle play therapy as a nursing intervention aimed at addressing developmental disorders in a child with Down Syndrome within the Tarogong Health Center area in Garut Regency, West Java, Indonesia. By implementing this therapeutic approach, the study seeks to demonstrate how structured play can facilitate improvement in fine motor skills and overall cognitive development in children affected by this condition.

Method

This study utilized a descriptive case study design, which is appropriate for analyzing and presenting the details of the nursing care process in a specific context. The study was conducted in Tanjung Kamuning Village, within the jurisdiction of the Tarogong Health Center.

The participant in the study was a child diagnosed with Down Syndrome, exhibiting developmental delays primarily in fine motor skills. The nursing care process involved:

Assessment: The child was assessed through anamnesis (interview with the family), observation of developmental milestones, and a physical examination. The primary concern was the developmental delay in fine motor skills.

Intervention: Puzzle play therapy was implemented as the intervention. The therapy involved providing the child with age-appropriate puzzles that encouraged manipulation of small pieces to fit into specific shapes, fostering hand-eye coordination and problem-solving abilities.

Evaluation: The child's progress was monitored over several sessions, with particular focus on improvements in fine motor skills. Progress was assessed through observation and regular updates from the caregivers regarding the child's ability to engage in and complete puzzles.

1. The intervention was carried out over a four-week period, with three therapy sessions per week, each lasting 30 minutes.

Result and Discussion

The results of the case study indicated that puzzle play therapy significantly improved the child's fine motor skills. Prior to the intervention, the child exhibited difficulty in handling small objects, such as holding a pencil or stacking small items. After the therapy, the child demonstrated better hand-eye coordination and was able to manipulate puzzle pieces with greater ease. The therapy also helped in improving the child's cognitive development by stimulating problem-solving skills and increasing attention span (Hartimang et al., 2024; Jafar et al., 2022; Susanti et al., 2023).

Parent feedback indicated that the child became more engaged in the therapy sessions and showed an increased interest in completing puzzles, which in turn contributed to the development of perseverance and frustration tolerance (Dewi et al., 2020). Additionally, the child's ability to perform daily tasks, such as feeding themselves or drawing, improved, suggesting that puzzle play therapy had a positive effect not only on the child's motor skills but also on their daily living activities (Sari et al., 2024).

The results of this case study provide valuable insights into the potential benefits of puzzle play therapy as an effective intervention for improving developmental outcomes in children with Down Syndrome (DS). As demonstrated, the therapy led to significant improvements in fine motor skills, cognitive abilities, and social interactions, highlighting the importance of non-pharmacological interventions in enhancing the development of children with genetic conditions.

Non-pharmacological interventions, such as puzzle play therapy, provide a means of addressing these developmental delays in a playful and engaging manner. Puzzle play specifically targets the development of hand-eye coordination, problem-solving skills, and cognitive function, making it an ideal therapeutic activity for children with Down Syndrome. Puzzle play therapy, as applied in this case study, has proven to be an effective tool in improving fine motor skills in children with Down Syndrome. Research has shown that puzzle play can enhance hand-eye coordination, spatial awareness, and the ability to manipulate small objects, which are key components of fine motor development (Utami, 2023). In the present case, the child showed noticeable improvement in the ability to handle small objects, such as puzzle pieces, and in performing other tasks requiring fine motor control, such as feeding themselves and drawing. These improvements can be attributed to the targeted nature of the therapy, which focuses on the specific motor skills

needed for daily functioning (Mahmudia Putri et al., 2023).

Puzzle play therapy contributes to cognitive development by promoting problem-solving, critical thinking, and memory retention. As children engage with puzzles, they learn to identify patterns, match shapes, and complete tasks through trial and error. This process not only stimulates cognitive function but also enhances attention span and perseverance, which are essential for academic and social success. The child in this study demonstrated increased attention and focus during therapy sessions, which is consistent with findings from previous research that indicate puzzle play can improve cognitive skills, including attention and concentration (Mulyana & Nurcahyani, 2022; Sari et al., 2024).

Beyond the physical and cognitive improvements, puzzle play therapy also has social and emotional benefits. While the child in this study participated in individual puzzle sessions, puzzle play can also be a social activity when shared with peers or family members. In a social setting, puzzle play encourages communication, cooperation, and turn-taking—important skills for developing social competence. For children with Down Syndrome, these skills can sometimes be underdeveloped, but structured play activities such as puzzle solving can provide opportunities for children to practice these skills in a supportive environment (Mahmudia Putri et al., 2023; Mulyana & Nurcahyani, 2022; Sari et al., 2024; Susanti et al., 2023).

Additionally, puzzle play therapy helps improve a child's self-esteem and confidence. As children with Down Syndrome often face challenges in achieving developmental milestones, accomplishing tasks like completing a puzzle can give them a sense of accomplishment and build their self-efficacy. This can be particularly important in boosting motivation and encouraging continued engagement in developmental activities (Andrew et al., 2023).

This case study highlights the significance of a holistic, patient-centered approach in the nursing care of children with Down Syndrome. By recognizing and addressing the developmental needs of the child, nurses can enhance the child's overall quality of life and improve developmental outcomes. The use of non-pharmacological interventions, such as puzzle play therapy, demonstrates the value of incorporating therapeutic activities into nursing care plans that go beyond medical treatments.

Nurses, in collaboration with families, can create individualized care plans that integrate therapeutic activities suited to the child's developmental stage and needs. In this case, the intervention was tailored to focus on fine motor development, but for other children with Down Syndrome, interventions may need to address other developmental domains, such as speech therapy, social skills training, or cognitive rehabilitation. A holistic approach allows nurses to provide comprehensive care that targets various aspects of the child's growth, ensuring that each child reaches their full potential (Maritska et al., 2018; Sarwar, 2023).

Furthermore, the involvement of families in the therapy process is crucial. Puzzle play therapy is not only a clinical intervention but also something that can be practiced at home. Educating families about the benefits of such therapies and providing them with the tools and resources to continue these interventions outside of the clinical setting can lead to more sustainable developmental progress. Nurses can play a key role in educating parents on how to incorporate therapeutic play into their daily routines, reinforcing the therapeutic effects and promoting continuous development (Cubukcu et al., 2020; Lyons et al., 2016; MacDonald et al., 2016; Mihaila et al., 2020; Pelosi et al., 2020).

Early intervention is critical in optimizing the developmental outcomes of children with Down Syndrome. The earlier that therapeutic interventions like puzzle play are introduced, the better the chances for the child to catch up to their peers in terms of motor, cognitive, and social development. Early intervention can also prevent the development of secondary conditions, such as poor socialization, low self-esteem, and delayed communication skills. Puzzle play therapy can serve as an accessible, cost-effective tool for early intervention. It requires minimal resources and can be easily adapted to suit the needs of individual children. Furthermore, it is an enjoyable and non-threatening way for children to engage in therapeutic activities. As children are more likely to enjoy activities that are play-based, such interventions may result in higher engagement and better outcomes compared to more traditional therapeutic methods (Anggoro et al., 2022; Maritska et al., 2018; Mohammed Nawi et al., 2013)

Conclusion

In conclusion, this case study demonstrates that puzzle play therapy can be an effective nursing intervention to enhance fine motor skills and address developmental disorders in children with Down Syndrome. The therapy improves not only motor coordination but also cognitive and social development, making it a valuable tool in the care of children with developmental delays. The findings support the integration of puzzle play therapy into nursing care

plans for children with Down Syndrome, particularly in primary healthcare settings.

Acknowledgments

The author would like to express gratitude to all those who contributed to the execution of this research. Special thanks are extended to the parents of the participant for their permission and support in conducting puzzle play therapy with their child diagnosed with Down Syndrome. Sincere appreciation is also directed to the nursing team and healthcare professionals who assisted in data collection and implementation of the intervention, as well as to fellow researchers who provided valuable insights throughout the research process. The author hopes that the findings of this study will contribute to the advancement of non-pharmacological interventions in the care of children with Down Syndrome. This acknowledgment reflects the author's appreciation for those involved in the research, demonstrating professionalism and academic integrity.

Funding

This research received no external funding.

References

1. Andrew, R., Lubis, N. D. A., Nasution, F., & Paramita, D. A. (2023). Factors Affecting Nutritional Status of Children with Down Syndrome of 7 to 12 Year-Old in Medan. *Journal of Epidemiology and Public Health*, *8*(2), 255–264. https://doi.org/10.26911/jepublichealth.2023.08.02.10
2. Anggoro, B. T., Netra, I., & Murniati. (2022). The Effect of Numbers Puzzle Games on the Cognitive Development of Preschool Children Aged 5-6 Years at RA Nurul Hidayah Malang. *Indonesian Health Journal*, *1*(2), 34–43. https://doi.org/10.58344/ihj.v1i2.16
3. Cubukcu, C., Canbazoglu, M. K., & Ozerdem, Y. (2020). Mobile Game Development for Children with Down Syndrome. *International Journal of Interactive Mobile Technologies*, *14*(20), 174–183. https://doi.org/10.3991/IJIM.V14I20.16573
4. Dewi, D. R., Lestari, A., & Vellyana, D. (2020). The Effect of Therapy Containing Puzzle on Decreasing Anxiety of Hospitalized Children Aged 3–6 Years. *Advances in Health Sciences Research*, *27*(ICoSHEET 2019), 413–415. https://doi.org/10.2991/ahsr.k.200723.105
5. Hartimang, Suryani, Y., & Ummu, D. (2024). Penerapan Terapi Bermain Puzzle dengan Terapi Getar dalam Meningkatkan Fungsi Motorik Halus Anak dengan Cerebral Palsy Usia Pra Sekolah. *Journal of Telenursing*, *6*, 2173–2181.
6. Jafar, E. S., Pratiwi, N., Agussalim, A. A., Maulana, U. L., & Rifani, R. (2022). Stimulasi Fine Motor Skills Anak Down Syndrome Melalui Media Picture Puzzle. *Jurnal Pengabdian Masyarakat*, *2006*, 1–8
7. Lyons, R., Brennan, S., & Carroll, C. (2016). Exploring parental perspectives of participation in children with Down Syndrome. *Child Language Teaching and Therapy*, *32*(1), 79–93. https://doi.org/10.1177/0265659015569549
8. MacDonald, M., Leichtman, J., Esposito, P., Cook, N., & Ulrich, D. A. (2016). The participation patterns of youth with down syndrome. *Frontiers in Public Health*, *4*(NOV), 1–7. https://doi.org/10.3389/FPUBH.2016.00253
9. Mahmudia Putri, K. T., Ramawati, D., & Purwandari, H. (2023). The Effect of Play Therapy Puzzle and Finger Painting on Fine Motor Development of Pre-School Children in Baturraden Sub-District Banyumas: A Case Study. *Journal of Bionursing*, *5*(3), 296–302. https://doi.org/10.20884/1.bion.2023.5.3.223
10. Maritska, Z., Abdurrahman, F., Prananjaya, B. A., Parisa, N., Syifa, S., & Triwani, T. (2018). Down Syndrome : Through The Eyes of The Parents. *Jurnal Kedokteran Dan Kesehatan : Publikasi Ilmiah Fakultas Kedokteran Universitas Sriwijaya*, *5*(3), 138–142. https://doi.org/10.32539/jkk.v5i3.6316
11. Mihaila, L., Handen, B. L., Christian, B. T., & Hartley, S. L. (2020). Leisure Activity in Middle-Aged Adults with Down Syndrome: Initiators, Social Partners, Setting, and Barriers. *J Appl Res Intellect Disabil*, *176*(1), 100–106. https://doi.org/10.1177/0022146515594631.Marriage
12. Mohammed Nawi, A., Ismail, A., & Abdullah, S. (2013). The impact on family among Down syndrome children with early intervention. *Iranian Journal of Public Health*, *42*(9), 996–1006.
13. Mulyana, A., & Nurcahyani, N. (2022). The Effect of the Puzzle Playing Method on Improving the Cognitive Development of Children Aged 4-6 Years. *KnE Life Sciences*, *2022*, 542–548. https://doi.org/10.18502/kls.v7i2.10354
14. Pelosi, M. B., Ferreira, K. G., & Nascimento, J. S. (2020). Occupational therapy activities developed with children and pre-teens with down syndrome. *Brazilian Journal of Occupational*

Therapy, *28*(2), 511–524. https://doi.org/10.4322/2526-8910.CTOAO1782

15. Sari, O. A. P., Maryatun, & Ratrinaningsih, S. (2024). Utilizing Puzzle Play Therapy for Alleviating Anxiety in Hospitalized Preschool Children. *Genius Journal*, *5*(1), 28–33. https://doi.org/10.56359/gj.v5i1.342
16. Sarwar, A. (2023). *Nursing Care Plan For Pulmonary Edema - Made For Medical*. Madeformedical.Com. https://www.madeformedical.com/nursing-care-plan-for-pulmonary-edema/
17. Susanti, M., Nadhifah, N., Esa Ayu Firdausi, J., Ketut Mahardika, I., & Wicaksono, I. (2023). Down Syndrome Melalui Permainan Puzzle Edukatif. *Pendekar; Jurnal Pendidikan Berkarakter*, *6*(4), 274–278. http://journal.ummat.ac.id/index.php/pendekar
18. Trueta, K. T. (2017). International medical journal on Down Syndrome: our journal. *International Medical Review on Down Syndrome*, *21*(3), 37–38. https://doi.org/10.1016/j.sdeng.2017.12.001
19. Utami, R. F. (2023). Terapi Bermain Puzzle Berpengaruh Terhadap Perkembangan Motorik Halus Anak Down Syndrome Di Slb Kota Bukittinggi. *Human Care Journal*, *7*(3), 734. https://doi.org/10.32883/hcj.v7i3.2097