*Available Online at www.e-iph.co.uk*
*Indexed in Clarivate Analytics WoS, and ScienceOPEN*

E-B Environment - Behaviour Proceedings Journal

*AcE-Bs2024Langkawi*

https://www.amerabra.org

e-IPH e-International Publishing House Ltd., United Kingdom

**12th ASIAN Conference on Environment-Behaviour Studies,**
**Holiday Villa Beach Resort & Spa, Langkawi Island, Malaysia, 01-03 Mar 2024**

# Healing Library@Seberang Jaya: A Conceptual Snoezelen Room for Mind, Body, and Soul

**Mohamad Ghazali Masuri[1,2], Roslinda Ghazali[3], Muhammad Hidayat Sahid[4], Smily Jesu Priya Victor Paulraj[5], Jayachandran Vetrayan[5], Suriani Hashim[6]**

[1] Centre for Occupational Therapy Studies, Faculty of Health Sciences, UiTM Puncak Alam, Malaysia
[2] KGB Local Services & Training Sdn. Bhd., Malaysia
[3] Architecture Department, Jabatan Kerja Raya Pulau Pinang, Malaysia
[4] Occupational Therapy Department, Vocational Education Program, Universitas Indonesia, Indonesia
[5] College of Applied Medical Sciences, King Saud Bin Abdulaziz, University for Health Sciences, Riyadh Kingdom of Saudi Arabia
[6] Teras Med Resources, No. 40, Jalan Pekaka 8/4, Seksyen 8 Kota Damansara, Petaling Jaya, Malaysia

mghazali@uitm.edu.my, roslinda@jkr.gov.my, hidayatsahid@ui.ac.id, paulrajs@ksau-hs.edu.sa, vetrayanj@ksau-hs.edu.sa, sueterasmed@gmail.com, Tel: 0196259314

**Abstract**
The Snoezelen room is known as a multisensory room. Snoezelen's environment could improve the behavior and quality of life with mental retardation and mental illness. This paper explores the elements of the snoezelen environment that aid the autistic space. The environment promotes a sense of enjoyment and relief from tension and pressure, consequent improvement in general behavior. The finding for this literature review summarizes the narrative studies, highlighting the key elements that support creating this environment. The snoezelen environment may provide direct and indirect stimulation that offers a sensory approach.

Keywords: Autism; Sensory design; Snoezelen environment


DOI: https://doi.org/10.21834/e-bpj.v9i28.5832

## 1.0 Introduction

Autism is defined as a spectrum disorder, and the symptoms impact a person's ability to interact socially, relate to others, and communicate. Children with autism may also experience over or under-sensitivity to sound, touch, taste, smell, and light. Their interaction with others may be challenging, and their sensory environment around them may feel overwhelming. In recent years, increasing numbers have occurred in every nation of the world, and there are still many autism yet to register, especially in Malaysia (Ghazali, Sakip et al., 2018). The tremendous number of people impacts the country, community, and family (Ghazali, Sakip, et al., 2018). In Malaysia, the government has recommended that non-government organizations (NGOs), private learning centers, and healthcare professionals overcome the cases and be equipped to treat and care for autistic individuals (Chiam, 2016). Despite this increasing number of people with autism, a Snoezelen or multisensory room has yet to be developed in public areas, especially in the library. This paper explores the elements of the 'Snoezelen' environment that aid the autistic space. Healing Library at Seberang Jaya, Pulau Pinang, is the first public library in Malaysia that accepts snoezelen rooms as part of their 'home' library unit. The concept aims to offer a balanced life for

*eISSN: 2398-4287 © 2024. The Authors. Published for AMER & cE-Bs by e-International Publishing House, Ltd., UK. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/). Peer–review under responsibility of AMER (Association of Malaysian Environment-Behaviour Researchers), and cE-Bs (Centre for Environment-Behaviour Studies), College of Built Environment, Universiti Teknologi MARA, Malaysia.*
DOI: https://doi.org/10.21834/e-bpj.v9i28.5832

every visitor across all ages. The healing library with a multisensory room typically aims to create a space that engages various senses for therapeutic or educational purposes. This paper explores the elements of the 'Snoezelen' environment that aid the autistic space. The objective is to identify design considerations in creating the 'Snoezelen' room. Based on reviewing previous literature, the researcher identified the sensory issues and experiencing autism behaviors, characters, and surroundings through an intensive literature review to understand their needs. The 'snoezelen' environment promotes a sense of enjoyment and relief from tension and pressure, consequent improvement in general behavior. The finding for this paper highlights the key elements that support creating this environment. The snoezelen environment may provide direct and indirect stimulation of sensory modalities and can be used individually or as a collection to offer a sensory approach. With strong collaboration with local therapists, this room can also be an intervention space for people with special needs.

## 2.0 Literature Review

The literature indicates that the 'Snoezelen' environment provides direct and indirect stimulation of sensory modalities and could be used individually or as a collection to provide a sensory approach. The snoezelen room is also known as a multisensory room because, once inside, there are opportunities to stimulate all the senses of vision, sound, smell, taste, touch, and vestibular experiences. Research done by Practice (2003) found that the snoezelen environment was enjoyable and relaxing, and their challenging behaviors were associated with a reduction. Snoezelen's environment could improve the behavior and quality of life with mental retardation and mental illness. The use of snoezelen environments in education, therapy, and leisure provision for children and adults with intellectual disabilities(Hogg et al., 2001). Snoezelen and relaxation positively affected concentration and seemed to be the most enjoyable therapies compared to hand massage and active therapy (Practice, 2003).

### *2.1 Snoezelen Room or Multisensory Room*

The Snoezelen originated in the Netherlands in the 1970s due to experimentation by Ad Verheul and other Dutch occupational therapists (Tonetti & Rossetti, 2023). Snoezelen is pronounced "snooze-uh-len," roughly translated from Dutch, meaning "to explore and relax" (Tyndall, 2012). The word Snoezelen is a combination of two Dutch words, meaning "sniffing" and "dozing," and the word refers to the "pleasurable sensory experiences generated in an atmosphere of trust and relaxation (Abdullah et al., 2020; Tyndall, 2012). The design of a sensory environment is often constrained in a room; hence, scholars often use the term Snoezelen Room rather than sensory environment (Abdullah et al., 2020). The sensory room is a specially designed space or room where stimuli can be controlled, manipulated, diversified, reduced or multiplied, implemented separately or combined, packaged to encourage or reduce interaction, and adapted to meet the needs of motivation, interest, therapy, education and the development of users (Manja et al., 2022).

Over the years, snoezelen rooms have been developed worldwide to facilitate children with autism and other disabilities to better regulate the amount of sensory stimulation they experience (Abdullah et al., 2020). The room is usually filled with special equipment and tools such as an aroma diffuser, sound equipment, vibrating platform, speakers, projector, a motorized mirror ball, soft plays seating, beanbag chairs, a ball pool, fiber optics, and bubble tubes, which the children adjust to meet their needs (Abdullah et al., 2020; Pierce, 2022; Tonetti & Rossetti, 2023). The activities provided in a sensory room may benefit children with autism in becoming more physically active or accepting a more comprehensive range of sensory experiences when used as part of a comprehensive intervention program as the American Academy of Paediatrics (AAP) Council on Children with Disabilities states that sensory activities may help to calm the children with autism and reinforce their desired behavior (Abdullah et al., 2020). The sensory room is a designated area that can support sensory preferences and needs, which aims to provide sensory input, a relaxed atmosphere with pleasant surroundings, soothing sounds, captivating aromas, tactile experiences, massage, and vibration so they can be better prepared for learning and interacting with others (Ncse, 2021; Tyndall, 2012). According to (Ortotecsa, 2024), a physically and cognitively accessible environment to the snoezelen room would benefit the users, especially in developing self-confidence, self-control, responding to changing stimuli (visual, tactile, proprioceptive, etc.), establishing good communication, psycho-motor skills, exploration of the environment, gross motor skills, fine motor skills, relaxation, emotions and memories, rhythm and movement with music and visual support.

### *2.2 Designing for the Physical Environment*

Designers must be aware of the neurodevelopment abnormalities of individuals with autism to provide appropriate environments. An architect is driven by creative senses to define an architectural space, generating harmony between the user and space that increases the quality of perception (Ehsani Far et al., 2022). According to Ehsani Far et al. (2022), designing children's spaces is influenced by light, color, the correlation between indoor and outdoor spaces, appropriate materials (safe), communications, and workable space hierarchy. While considering the physical environment, an effective 'enabling environment' for children with autism is a well-designed learning environment that can facilitate social and academic learning (McAllister & Sloan, 2016). As Altenmüller-Lewis (2017) mentioned, the key to designing for children with autism seems to revolve around the sensory environment and its relationship to autistic behavior. Research by Gaiani et al. (2022) revealed that one of the fundamental design elements remained the light and acoustic performances. These two components are a primary problem that creates barriers in the perception or concentration of individuals with autism. Ortotecsa (2024) shared design criteria before undertaking any project; it is essential to bear in mind the following points - the room must be located in a quiet and soundproofed area in order to prevent noise disturbance; Access to the room must be accessible and appropriately signposted; It does not need to be too big; It is intended to be an intimate space. However, it must be very comfortable

for the user; Natural light is unnecessary. Indeed, artificial lighting is preferable. Ventilation is essential, usually provided by the door, and a window that can be opened is sufficient.

Meanwhile, Ghazali, Md Sakip, et al. (2018) revealed that children with neurological disorders may have impaired sight, hearing, smell, and feeling impairments. Therefore, they suggested that it is essential for designers to experience the environment before designing environments for autistic children. They defined sensory design as acoustic, color, smell, lighting, accessibility, wayfinding, compartmentation, safety, and security, which would create a quality physical environment for children with autism.

## 3.0 Method

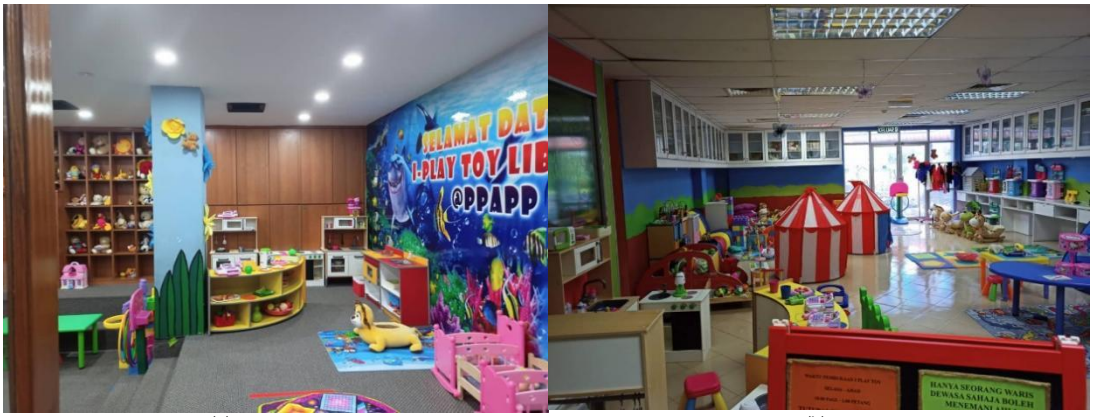
This study has carried out a scooping review to deepen this issue. The Snoezelen Room Library Scoping Review is a comprehensive analysis of existing literature, research, and resources related to Snoezelen rooms. This review aims to provide an overview of the current state of knowledge in the field, including the benefits, best practices, and potential applications of Snoezelen rooms in various settings. This scoping review seeks to advance the understanding and implementation of Snoezelen rooms for individuals with diverse needs by synthesizing and critically analyzing available information. To conduct this scoping review, a systematic search of electronic databases will be performed to identify relevant literature, research studies, and resources related to Snoezelen rooms. The systematic search will encompass PubMed, PsycINFO, and CINAHL to ensure a comprehensive and diverse range of sources.

Additionally, grey literature, including government reports and conference proceedings, will be included to gather a holistic view of the topic. The search strategy will incorporate keywords such as "Snoezelen room," "multi-sensory environment," and "sensory stimulation," coupled with Boolean operators to refine the search results. A manual search of reference lists from relevant articles and publications will be conducted to identify additional sources that may have yet to be captured in electronic databases. This approach will help to minimize the risk of overlooking essential contributions to the field, ensuring that the scoping review is thorough and inclusive. Furthermore, a rigorous screening and selection will be employed to sift through the identified literature. Inclusion and exclusion criteria will ensure that the final selection encompasses high-quality and relevant sources. This process will involve a careful assessment of the literature's relevance to the scope of the review, its methodological rigor, and its contribution to the understanding of Snoezelen rooms. The data extracted from the selected sources will be synthesized and analyzed to identify common themes, key findings, and gaps in the existing literature. This synthesis will provide a nuanced understanding of the current state of knowledge, shedding light on the benefits, challenges, and potential applications of Snoezelen rooms across different populations and settings. The search will include sources such as academic journals, conference proceedings, and grey literature. Inclusion criteria will be applied to select studies focusing on the benefits, best practices, and applications of Snoezelen rooms in different contexts. After the identification of relevant literature, a thorough analysis and synthesis of the findings will be conducted to discern common themes, trends, and gaps in the existing body of knowledge. This will involve categorizing the literature based on critical topics and critically evaluating the quality and relevance of the sources. Additionally, a consultation process with experts in the field of sensory environments and individuals with experience in implementing and using Snoezelen rooms will be carried out to gather insights and perspectives that may be limited in the published literature.


(a) (b)

Fig. 1. (a) Front view of PPAPP; (b) PPAPP foyer.

The Penang Public Library Corporation (PPAPP), located in Seberang Jaya, Penang, is the location chosen to construct this multisensory space. This cross-sectional study has received support and cooperation from PPAPP. The whole project will go through several phases, the first component of which is to complete the multisensory equipment, which will then be followed by therapy consultation for visitors. PPAPP's current strategic position and its modern library features have attracted many visitors. With this additional component, activities and visitors are expected to increase even more.




(a) (b)

Fig. 2. (a) Toys corner; (b) Play area.

The following picture refers to the situation before preparing the multi-sensory space. Existing games and equipment are arranged in an open state. Anyone can access this open space at any time. It gives the effect of 'less control' in the selection process of sensory stimuli.

(a) (b)

Fig. 3. (a) Researcher team with bubble tube installed; (b) Group of trainees.

The research team was a multi-sensory base unit containing colored foam tubes, a unique sofa, and a remote control switch (not pictured). The position of these tools is placed in the corners of the corners to give maximum space and safety. The glass on the back will be darkened to give the maximum effect of the use of light later. Figure b shows the first group of participants who have completed phase one basic training. They will be responsible for regulating the use of this space later. In addition, participants will also help researchers collect relevant data for future research and improvement.

## 4.0 Result

The systematic search of electronic databases, including PubMed, PsycINFO, and CINAHL, as well as the inclusion of grey literature and manual search of reference lists, has yielded 27 articles related to Snoezelen rooms that fulfill the inclusion criteria. The rigorous screening and selection process applied to the identified literature has ensured that the final selection encompasses high-quality and relevant sources, contributing to a robust foundation for analysis. Upon identifying relevant literature, a thorough analysis and synthesis of the findings will be conducted to discern common themes, trends, and gaps in the existing body of knowledge. This will involve categorizing the literature based on critical topics and critically evaluating the quality and relevance of the sources. Furthermore, a consultation process with experts in sensory environments and individuals with experience in implementing and using Snoezelen rooms will provide valuable insights and perspectives that may be limited in the published literature. The synthesis of the data extracted from the selected sources will provide a nuanced understanding of the current state of knowledge, shedding light on the benefits, challenges, and potential applications of Snoezelen rooms across different populations and settings. By delving deeper into the analysis, this scoping review aims to uncover valuable insights that can inform and guide future research, Practice, and policy development in sensory environments and multi-sensory interventions. The comprehensive analysis and synthesis of the findings will culminate in a detailed overview of the key findings, common themes, and identified gaps in the existing literature, contributing to the advancement of

understanding and implementation of Snoezelen rooms. This scoping review strives to offer a rich and in-depth exploration of the topic, offering actionable insights for practitioners, researchers, and policymakers committed to enhancing the well-being and quality of life of individuals with diverse needs. The findings of this scoping review will be organized and presented coherently to provide a comprehensive overview of the current state of knowledge on Snoezelen rooms.

The available sources provide valuable insights into using Snoezelen rooms to heal the mind, body, and soul (Lancioni et al., 2002). The first source highlights the importance of considering staff and carer attitudes and the role of Snoezelen in facilitating positive interactions. It also emphasizes the need for improved research designs and a clear theoretical basis for using Snoezelen rooms. The second source focuses on the therapeutic influence of the Snoezelen approach, specifically for individuals with intellectual and developmental disabilities. The review identifies 28 relevant articles that evaluate the therapeutic influence of the Snoezelen approach on individuals with intellectual and developmental disabilities. These articles examine reducing maladaptive behavior and enhancing adaptive behavior through individual Snoezelen interventions (Lotan & Gold, 2009). The third source introduces the concept of working with the whole family in the Snoezelen room, involving a social worker. This approach aims to facilitate family encounters with the child, strengthen parent-child relationships, and improve the quality of life for the resident (Nasser et al., 2004).

Additionally, the fourth source discusses using Snoezelen rooms in special schools to achieve educational goals for individuals with severe disabilities. The review highlights the importance of supporting educational goals and how Snoezelen, in conjunction with basal stimulation, can be effective in particular school environments. The scoping review also emphasizes the need for rigorous research and developing a theoretical basis for using the Snoezelen approach. The fifth source acknowledges the increased use of Snoezelen rooms over the past 15 years, particularly with people with intellectual disabilities. Research conducted with various groups has demonstrated positive outcomes in affect, behavior, relaxation, and social interactions within Snoezelen environments (Lotan & Gold, 2009). The scoping review reveals that Snoezelen rooms have shown promise in facilitating positive interactions, reducing maladaptive behaviors, enhancing adaptive behaviors, and supporting educational goals in various populations, particularly individuals with intellectual and developmental disabilities. The scoping review highlights the importance of Snoezelen rooms in facilitating positive interactions and supporting educational goals for individuals with disabilities.

On the other hand, staff and carer attitudes may not significantly impact Snoezelen's interactions. The focus should be on practical outcomes rather than theoretical frameworks or research designs. Research conducted with various groups has demonstrated positive outcomes in affect, behavior, relaxation, and social interactions within Snoezelen environments. These findings highlight the benefits of implementing Snoezelen's approaches across different settings and populations. However, this paper acknowledges that the limitation of this approach could be answered by conducting more rigorous onsite research to validate the therapeutic benefits of Snoezelen rooms further and establish a more precise theoretical basis for their use.

## 5.0 Conclusions

The Snoezelen room has ICT hardware and software to produce a multi-sensory environment for autistic children to learn while playing. Upon implementing the Snoezelen Room in the library, librarians are trained to be adept in using related equipment and to conduct the process of demonstrating to children with autism. The scoping review of the Snoezelen Room library for healing mind, body, and soul reveals that using Snoezelen Rooms has shown promise in promoting positive interactions, reducing maladaptive behaviors, enhancing adaptive behaviors, and supporting educational goals for individuals with intellectual and developmental disabilities. Overall, the scoping review suggests that Snoezelen rooms have beneficial effects on individuals with developmental disabilities, particularly in terms of reducing disruptive behaviors and increasing pro-social behaviors. More rigorous research is needed to validate the therapeutic benefits of Snoezelen rooms further and establish a more precise theoretical basis for their use,

## Acknowledgment

The highest appreciation goes to the PPAPP, Seberang Jaya, Pulau Pinang, Ministry of Higher Education Malaysia, Research Management Centre (RMC), Universiti Teknologi MARA (UiTM), Centre for Occupational Therapy Studies, Faculty of Health Sciences, UiTM, KGB Local Services & Training Sdn. Bhd., Malaysia, Institute for Biodiversity and Sustainable Development (IBSD), UiTM, Occupational Performance and Behaviour Measurement Group (OPERA) RIG, JKR Pulau Pinang, and Teras Med Resources. Thank you to our international collaborators, College of Applied Medical Sciences, King Saud Bin Abdulaziz, University for Health Sciences, Riyadh Kingdom of Saudi Arabia, and Universitas Indonesia, Indonesia.

## Paper Contribution to Related Field of Study

Although the actual study of the Healing Library@Seberang Jaya has yet to be conducted, data from the same study has proven that therapeutic elements can be obtained from preparing this space. In addition, PPAPP's strategic location in Seberang Jaya will be able to attract more visitors here. The cooperation framework with the local occupational therapist will also increase the success of this space later. With this space, visitors with special needs, especially from the M40 and B40 groups, can enjoy the best programs and facilities for free. In the future, this space is also expected to be used as a research and local rehabilitation center for children with special needs such as autism, slow learning, down syndrome, and many more. Finally, the authorities, researchers, and visitors can indirectly take advantage of this space as an alternative to recover oneself and one's feelings from the hustle and bustle of everyday life.

## References

Abdullah, F., Kassim, M. H., Awang, A. H., Hussain, M. H., & Razak, M. R. A. (2020). Teachers' Perspicacity on Implementing Snoezelen Room for Emotional Therapy of Autistic Children. February 2021.

Altenmüller-Lewis, U. (2017). Designing Schools for Students on the Spectrum. Design Journal, 20(sup1), S2215–S2229. Chiam, M. (2016, April 18). Stepping Up. The Star.

Ehsani Far, H., Nayyeri Fallah, S., & Khalili, A. (2022). Relationship between physical environment and neuropsychological perception in children with Asperger's disorder. International Journal of Building Pathology and Adaptation.

Gaiani, A., Fantoni, D., & Katamadze, S. (2022). Autism and Architecture: The Importance of a Gradual Spatial Transition. Athens Journal of Architecture, 8(2), 175–194.

Ghazali, Md Sakip, & Samsuddin. (2018). A Review of Sensory Design Physical Learning Environment for Autism Centre. E-IPH, AicQoL2018PerhentianIsland, 3(7), 7 pages.

Ghazali, R., Sakip, S. R., & Samsuddin, I. (2018). Preliminary Study on Sensory Design for Autism Centre. Environment-Behaviour Proceedings Journal, 3(8), 46–54.

Hogg, J., Cavet, J., Lambe, L., & Smeddle, M. (2001). The use of "Snoezelen" as multisensory stimulation with people with intellectual disabilities: A review of the research. Research in Developmental Disabilities, 22(5), 353–372.

Lancioni, G E., Cuvo, A J., & O'Reilly, M F. (2002, January 1). Snoezelen: An overview of research with people with developmental disabilities and dementia.

Lotan, M., & Gold, C. (2009, September 1). Meta-analysis of the effectiveness of individual intervention in the controlled multisensory environment (Snoezelen®) for individuals with intellectual disability.

Manja, S. A., Masnan, A. H., Mustafa, C. C., & Abdullah, M. (2022). Multi-Sensory Activity in Early Childhood Education: Teachers' Perception on The Importance of Activity Implementation. Jurnal Penyelidikan Sains Sosial (JOSSR), 5(16), 9–17.

McAllister, K., & Sloan, S. (2016). Designed by the pupils, for the pupils: an autism-friendly school. British Journal of Special Education, 43(4), 330–357.

Nasser, K., Cahana, C., Kandel, I., Kessel, S., & Merrick, J. (2004, January 1). Snoezelen: Children with Intellectual Disability and Working with the Whole Family.

Ncse, ©. (2021). Sensory Spaces in Schools. National Council for Special Education. www.ncse.ie
Ortotecsa. (2024). Multisensroy Rooms - Snoezelen. www.ortotecsa.com

Pierce, T. (2022). Sensory Rooms: Increasing Preschool Students' Focus and Engagement in the Classroom. Northwestern College, Orange City, Iowa.

Practice, M. (2003). The application of a multisensory Snoezelen room for people with learning disabilities — Hong Kong experience. 9(2).

Schaaf, R. C., Benevides, T., Mailloux, Z., Faller, P., & Hunt, J. (2014). Occupational therapy and sensory integration for children with autism: A feasibility, safety, acceptability, and fidelity study. Autism, 18(6), 712-721.

Tonetti, A., & Rossetti, M. (2023). Wood Snoezelen. Multisensory Wooden Environments for the Care and Rehabilitation of People with Severe and Very Severe Cognitive Disabilities. In E. A. et Al. (Ed.), Urban Book Series: Vol. Part F813 (pp. 1003–1015). Technological Imagination in the Green and Digital Transition.

Tyndall, J. (2012). Part I. The Glaciers of the Alps, November, xxi–xxii.

Ulrich, D. A. (2000). The test of sensory functions in infants (TSFI): A standardized test of infant sensory and motor performance at term. Pediatric Physical Therapy, 12(1), 7–20.

Van't Hooft, I., & Andersson, K. (2016). The effects of Snoezelen (multi-sensory stimulation) and psychiatric care as usual on psychiatric symptoms in patients with severe dementia: a randomized controlled trial. International Journal of Geriatric Psychiatry, 31(4), 390-398.

Wigram, T., Elefant, C., & Baker, F. (2005). Guided Imagery and Music (GIM) and its relationship to music therapy. Music Therapy Perspectives, 23(1), 41-47.

Zencir, M., Işik, S., & İlçin, N. (2006). Effect of Snoezelen on distress and physiological stress response of children with severe developmental disabilities. Research in Developmental Disabilities, 27(5), 529-545.