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APPLICATION OF OCCUPATIONAL THERAPY IN CHILDREN WITH DISABILITIES

Abstract: Occupational therapy is a specific discipline within the broader spectrum of special education and rehabilitation services. Although there may be some overlap in populations served and therapeutic approaches, each, occupational therapy and special education and rehabilitation, play a crucial role in supporting individuals with disabilities to lead more fulfilling lives. Occupational therapy for children with disabilities is based on an understanding of the interaction between children, their activities and the environment, and therefore, when assessing abilities, the starting point is to see whether limitations are the result of external barriers and limitations or are primarily related to developmental ability and functional status. The growth of a child into an adult person involves continuous adaptation to the demands set by the environment and assimilation of opportunities, and this dynamic interaction is even more complex in children born with a risk factor or a certain type of disability. So occupational therapy can be a huge benefit for children with disabilities, as an effective way to help these kids perform meaningful activities and enrich their lives. This study employs a systematic literature review methodology to explore the application of occupational therapy (OT) in children with special needs. A systematic approach ensures a

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comprehensive and unbiased synthesis of existing literature to identify key themes, interventions, and effectiveness in pediatric occupational therapy. Occupational therapy (OT) plays a crucial role in improving the quality of life for children with special needs by enhancing their independence, functional abilities, and overall well-being. Through individualized interventions, OT helps children develop essential motor, cognitive, sensory and social skills, enabling them to participate in daily activities at home, school and in the community.

Keywords: *occupational therapy, children with disabilities, special education and rehabilitation*

Introduction

Occupation appears with the emergence of humanity. An occupation is what we do, and what we work, and it gives us the basis for self-perception, it involves us in the world around us, enabling us to survive and take care of ourselves. Occupations help us develop our abilities and skills, allow us to satisfy our interests, connect with other people and highlight our values (Christiansen & Townsend, 2004).

One of the most significant features that separates the occupation from other activities of people, is the social and symbolic context of occupation. As a human determination, the occupation is characterized by an exact set and a useful purpose that is realized in certain situations or contexts that affect the realization itself, it is recognized by others and has an individual meaning for the person involved in it, but also for others (Rashikj-Canevska, 2022).

Not only adults, but also children are occupational beings and as such are born with an innate desire to experience learning, control, and mastery. This intrinsic motivation and ability to engage in occupations or everyday life activities is something that establishes purpose and fulfilment, enables physical and emotional health and well-being, organizes behaviour, and improves the quality of life. The perceived meaning of occupations is a multidimensional construct that encompasses the subjective emotional and cognitive qualities children attach to their occupations (Rosenberg, Cohen, 2022). Basic occupations in childhood are education, play and leisure, social participation, activities of daily living (ADLs) and instrumental

activities of daily living (IADLs), rest and sleep, and work. Development and competence in these areas as children and youth influence success, interests, and values in adult occupations. These occupations affect skill acquisition and in turn serve as the source by which skills develop, creating a bidirectional and complex relationship.

On the way for the child to become an adult, it is necessary to continuously adapt to the conditions and requirements set by the environment itself, as well as the tasks that arise from the roles it has in everyday life. The dynamic nature of this interaction is created by the child's internal clock, responsible for maturation. During development, on the one hand, childhood occupations influence the acquisition of skills and abilities, but on the other hand, they in turn serve as a source through which skills are developed, creating a two-way and complex relationship. Areas of developmental progression include sensory, motor, socio-emotional, and cognitive processing abilities (Feldhacker et al, 2018). Occupations are important throughout the life span, starting from birth and continuing to the end of life, constantly developing and evolving. Childhood occupations and participation impact the choice and participation in the professions of adults, to influence competence throughout the life span, as well as to contribute to the continued quality of life during the aging process.

To date, a small amount of research has been conducted investigating the occupational identity of children with disabilities. Although participation in daily activities is considered a vital part of children's development, which is related to their quality of life and future life outcomes, research studies show that children with disabilities are at risk for less participation in ordinary activities at home and in the community, which again negatively affects their acquisition of knowledge, abilities and development of new skills (King et al, 2003). Several conducted studies indicate that children with disabilities have more problems with inclusion in daily activities and homework, less social contact, less involvement in recreational activities and leisure activities outside the home, and even more frightening is that the differences in occupational patterns between the children with disabilities and their peers increase as children move into adolescence (Law et al., 2001).

The participation of children with disabilities in different occupations is limited by their body structure and functions and restricted by human and physical environmental factors (Bedell et al., 2013). A study conducted by

Denissen and coworkers (2007) indicates that children with disabilities attach less value to everyday activities, and perceive them as less important compared to peers, which is likely due to a tendency to avoid cognitive dissonance and frustration due to their functional difficulties. For this reason, children with disabilities implicitly tend to reduce the level of importance they attach to activities they perceive as difficult.

Therefore, occupational therapy (OT) is a holistic form of therapy that focuses on helping children develop the necessary skills & abilities for everyday life. In order to support their daily functioning, occupational therapy interventions for children with disabilities focus on improving body functions, acquiring new skills, and adapting to the environment (Rosenberg &Erez, 2022).

In the further text, we present occupational therapy (OT) as a vital intervention that supports children with special needs in developing the skills necessary for everyday activities. These children may face challenges related to motor coordination, sensory processing, self-care, communication, and social interaction, which can impact their independence and overall well-being. OT aims to enhance their ability to participate in daily life by using specialized techniques, adaptive strategies, and therapeutic activities tailored to their unique needs.

Methods

This study employs a systematic literature review methodology to explore the application of occupational therapy (OT) in children with special needs. A systematic approach ensures a comprehensive and unbiased synthesis of existing literature to identify key themes, interventions, and effectiveness in pediatric occupational therapy. Relevant literature was identified through electronic database searches in Google Scholar database, Emerald, Garuda Portal, Oxford, IJSR, ResearchGate, PubMed, CINAHL (Cumulative Index to Nursing and Allied Health Literature), PsycINFO, Scopus, Web of Science, OT-specific journals (e.g., American Journal of Occupational Therapy, Journal of Occupational Science) etc.

Search terms included combinations of the following keywords: “occupational therapy”, “children with special needs”, “pediatric occupational therapy”, “early intervention”, “developmental disabilities”. Inclusion Criteria were: Peer-reviewed articles published from 2000

to the present, studies focusing on occupational therapy interventions for children (ages 0–18) with special needs, research articles, systematic reviews, meta-analyses, and case studies. The methodological quality of the included studies was assessed using the following tools: Cochrane Risk of Bias Tool for randomized controlled trials (RCTs), Critical Appraisal Skills Programme (CASP) checklist for qualitative studies, and Newcastle-Ottawa Scale (NOS) for observational studies.

Occupational therapy in children with disabilities

There is a wide range of intervention approaches used in children with disabilities and they can be divided according to the place where they are applied, according to the way of work or according to the type of disability. Occupational therapy in the units for neonatal intensive care.

Occupational therapy in neonatal intensive care units is a relatively new practice in the bigger part of the world, although in North America occupational therapists have been working in this field for decades. Back in the 1970s, the developmental needs of premature newborns were recognized, so occupational therapists were employed in intensive care units. Like other models, this form of occupational therapy has a holistic approach, in addition to developmental stimulation and baby care, the occupational therapist is also responsible for the occupations and engagements of the parents. The goals and interventions of occupational therapy are aimed at specific problems, such as limited range of motion, increased or decreased muscle tone, extreme irritability of the newborn, disturbed nutrition, slow development or developmental disharmony, etc. (AJOT, 2018).

One of the tasks of the occupational therapist in the neonatal intensive care unit is the positioning of the newborn. The way the newborn is positioned is of particular importance for the neurodevelopmental outcome, but also for the prevention of stress and ensuring good sleep for premature babies. The occupational therapist educates and trains staff on the general principles of positioning makes specific assessments of the infant's needs, and determines the appropriate position. The correct setting of the newborn will enable the prevention of postural abnormalities, optimize the developmental potential and functional abilities, ensure balance between flexion and extension, minimize energy consumption, and provide the baby with a more comfortable position for a sense of security (Rubio-Grillo, 2019).

Another very important activity is stimulation. Parents should be informed about the degree and level of stimulation required in their child. There are several basic principles that must be followed in order to prevent excessive sensory stimulation. Each newborn has its own threshold of tolerance, which is why the therapist makes individual assessments. Parents are informed exactly where to place soft toys, and when and how to use visual and musical toys for stimulation.

The therapist should familiarize the parents with the wide repertoire of the behaviour of their baby, as well as with the meaning of each behaviour. The occupational therapist describes the baby's competencies, but also the difficulties and problems the baby will face in given situations. Also, an important component to which the therapist should pay more attention is the feeding of the newborn, especially if he has difficulty in sucking and swallowing (Hong, Howard 2002). The therapist is responsible for the adaptation of the home to the needs of the newborn, the transfer of the newborn and his follow-up during the first year.

Occupational therapy in early childhood intervention

According to IDEA (Individuals with Disabilities Educational Act of 1990) occupational therapy should be the primary treatment for children enrolled in early intervention programs from birth through the second year.

The occupational therapist is part of the early intervention team and has a significant role in the coordination and integration of communication between team members as well as the family, follows the child, evaluates and shares its results and reports with other members of the team or additional services that serve the family. In treatment planning and work organization, the occupational therapist develops a family service plan, guided by the needs of the family, with child-centred treatment goals set by family members (Case-Smith 2001). The occupational therapist advocates for the functional application of the developed abilities in the wider environment, and not just the isolated development of individual abilities. In that direction, the therapist does not always organize direct treatment with a central placement of the child, sometimes better results are achieved through indirect treatment (AOTA 2010).

Occupational therapy in schools

The transition to a school environment has been identified as a critical period for a child's social development and the development of academic abilities. The role of the occupational therapist in schools is to facilitate the process of transition, i.e. getting used to the school environment and accepting the new rules, but also to provide adequate support for the child with disabilities in order to successfully realize the requirements and activities set by the educational program. The occupational therapist implements therapeutic occupations in the direction of increasing independence and autonomy in the realization of daily activities, such as play, self-care, maintaining a hobby, and acquiring academic skills. Also, the occupational therapist participates in arranging and organizing the space, which will enable a stimulating environment for children's development, protection from injuries and occurrence of secondary disabilities (Law et al. 2001).

The very process of occupational therapy in schools begins with an assessment, on the one hand, contextual factors are assessed: physical, social, cultural, sensory and virtual environment, and on the other hand the student's abilities are assessed: reflexes, functional skills, mobility, positioning, sensory processing, object manipulation, socialization, etc.

The most appropriate model of OT in schools is environmental intervention, where the occupational therapist whenever possible uses the natural situations, routines, curriculum and resources within the school environment to co-design educational programs and interventions. Occupational treatment in schools can be organized into three basic forms: direct treatment (separate individual work with the child), integrated treatment (in the classroom or block schedule), monitoring and consultation. Occupational therapy in children with hearing impairments

The basic activities of the occupational therapist within the special educational programs are aimed at the development of self-help, socialization, fine motor skills, sensory integration and perceptual-motor development. In general, the basic tasks in the work of the occupational therapist with children with hearing impairment are aimed at achieving the following goals (Wilson, 1998; Rashikj-Canevska, 2022):

- Improvement of sensory processing and stimulation. Children with hearing impairment have insufficient stimulation of cortical structures

through the auditory channel, and it is necessary to provide other forms of stimulation, such as kinesthetic, tactile or visual stimulation through multisensory activities. Sensory integrative techniques are useful for the development of the kinesthetic system, which together with the tactile and proprioceptive systems have a significant role in the application of sign language;

- development of self-care abilities according to chronological age. Often, the occupational therapist acts as a consultant, proposing strategies to improve the child's independence and personal care;
- improvement of fine motor skills and hand coordination. For smooth and fluent communication using sign languages, movements such as the opposition of the thumb, flexion and extension of the thumb and index finger, and adduction and abduction of the fingers are necessary. Such movements require the differentiation of finger motility, which is directly related to sensory abilities, i.e. tactile discrimination. These abilities do not always develop naturally in hearing-impaired children, so involvement in occupational therapy is necessary;
- encouraging socialization;
- help with professional orientation and training.

Occupational therapy in children with visual impairments

Children with visual impairments are included in occupational therapy programs very early, as a result of early detection of the effects that visual impairment has on mobility and manipulation. Children with normal vision develop their eye-hand coordination very early in life, while, on the other hand, children with significant visual impairment have to rely on ear-hand coordination, which develops much later. Also, their coordination depends on the development of the tactile system of perception, responsible for the research and development of concepts. For learning and mastering spatial aspects, body movements are important, but not infrequently visual impairment is followed by fear of movement. All of this causes difficulties in the developmental progression of children with visual impairment (Weden, DeCarlo & Barstow; 2023).

The occupational therapist has his own contribution to the implementation of the intervention plan by working on (Case-Smith 2009; AOTA 2011):

- Development of age-appropriate self-care skills. The occupational therapist guides the child through the implementation of daily activities, for example: demonstrating the correct positioning during meals, which improves independence, presenting an appropriate way of eating (corrects inappropriate behaviour patterns), performing toilet training of the child;
- improving sensory integration. A child with visual impairment will benefit from vestibular stimulation using scooters, swings, cradles, etc., activities that will contribute to reducing the fear of falling, crossing the midline, etc. (Ricketts, 2008);
- encouraging movement through space. In order to overcome resistance to movement and change, activities are organized that are characteristic of earlier developmental stages, such as laying in a prone position on the stomach, crawling on a surface with different textures and consistency, pulling or pushing toys and the like;
- development of maximum tactile perceptual ability. A variety of activities are used to develop tactile discrimination, such as finger painting, searching for and identifying objects hidden in sand or grit, stacking puzzles, etc.
- Reduction of tactile defensiveness. The visually impaired child is unable to notice the approach of people or objects, so he reacts defensively to touch. Vibrational and proprioceptive activities, different degrees of pressure, and manipulation of materials with different textures are used;
- encouraging the use of hands for manipulation. Activities with rotation and transfer of small objects from one hand to another are usually applied;
- getting to know the parts of the body and the body pattern;
- forming laterality and getting to know different directions (up, down, forward, back). The child must learn that things in the environment have sides and must learn to measure and estimate distance and directions;
- encouraging socially acceptable behaviour. Correct positioning with the face towards the interlocutor, maintaining an upright position, and appropriate behaviour in accordance with different situations;
- the development of play and involvement in various games.

Occupational therapy in children with autistic spectrum disorder

Given the nature of the autistic spectrum disorder and the different manifestations in all children, it is necessary that occupational therapy be carried out individually. Treatment itself may be aimed at modifying symptoms or addressing underlying processes, aiming to improve the child's daily functioning (Roberge & Crasta; 2022). Some approaches are aimed at changing basic processes, for example: applying sensory integration to enable the child to cope with sensory modulation (Case-Smith, Weaver & Fristad; 2015). The choice of intervention approach will depend on several factors, the experience and knowledge of the therapist, the conditions and organization of the environment and of course the characteristics of the child. The most commonly used approaches in the treatment of children with an autistic spectrum disorder are: sensory integration, sensory stimulation, behavioral approach, play therapy, developmental therapy, and psychosocial therapy. Applying the interventions, the occupational therapist aims to develop in the child with an autistic spectrum disorder:

- daily life skills such as toilet training, dressing, managing personal hygiene, nutrition, etc.;
- fine motor skills, necessary for holding objects, manipulating objects, writing, etc.;
- gross motor skills and develop skills for more complex motor planning, walking, climbing stairs, riding a bicycle;
- increasing muscle tone through coordinated muscle activities, in order to improve stability, especially of the muscles of the trunk, shoulders and hip joint, which will improve posture;
- integration of primitive reflexes;
- sensory integration and appropriate reaction to external state;
- perceptual abilities: noticing differences in terms of colour, size, shape, distance, etc.;
- awareness of one's own body and its relationship with other persons and objects in the environment;
- visual reading and writing abilities;
- play, copying/imitation, self-help, solving problem situations, etc.

Occupational therapy in children with intellectual disabilities

People with intellectual disabilities have limited cognitive abilities and adaptive behaviour, which indirectly limits their participation in daily activities (National Institutes of Health 2010). The role of the occupational therapist in supporting the social integration of people with intellectual disabilities is different, and the service can be directed directly to the person with disabilities or consultatively to the family, caregivers or the institution where the person with intellectual disabilities is placed. Treatment is provided throughout the life cycle in accordance with the changing needs, wishes and preferences of the user in all areas of occupation. Intervention often requires repeated drills and practice to achieve internalization and learning, as well as organizing performance in different contexts to enable generalization (Yalon-Chamovitz, Selanikyo, Artzi, Prigal and Fishman 2010). Main interventions include:

- increasing muscle strength, especially trunk muscles and correcting posture;
- integration of primitive reflexes, whose persistence further worsens the clinical picture;
- improvement of gross motor skills and coordination of movements;
- improvement of fine motor skills, especially manipulation of objects from the environment and bilateral coordination (use of both hands);
- activities of daily living training, instrumental activities of daily living (IADL). This area represents a central focus of intervention in occupational therapy for this population.
- Learning/education: activities necessary for children with intellectual disabilities to actively participate in the learning environment, including academic and non-academic activities. The intervention in this area covers various educational settings, such as daycare centres, kindergartens, special and regular schools, vocational training centres etc.
- Job training (creation and implementation of programs for vocational orientation, vocational training and employment). The intervention varies and may include training of basic work skills (norms of behaviour, work routines), developing and practising basic cognitive abilities, practising motor skills, exposure to a variety of work, support and advice for developing areas of interest, identifying abilities and choosing suitable occupations, analyzing occupations and adapting them according to needs, as well as support and help with placement in different work communities ;

- education of parents (caregivers) for proper organization of daily activities and inclusion of persons with intellectual disabilities, while ensuring consistency, proper focus on abilities, and structuring of tasks;
- development of sensitivity and training of staff in public institutions on how to communicate with people with different types of disabilities;
- creating and implementing special training for people with IP for independent living in group homes, while developing skills for cooking, self-care, home maintenance, socialization and free activities, etc.;
- accessibility and environmental modification: the various limitations that characterize the population of people with intellectual disabilities require both general and specific environmental modifications in order to ensure accessibility for the user;
- application of assistive technology is one of the methods used to adapt to the environment and includes modifications of hardware, software and various combinations.

Occupational therapy in children with motor impairments

In many ways, occupational therapy is useful for children with motor impairments such as cerebral palsy or muscular dystrophy; spinal muscular atrophy etc. It works on optimizing the functions of the upper body, improving the coordination of small muscles of the hands, fingers, feet, and mouth; occupational therapy helps the child to master daily activities. It helps them learn how to perform daily routine activities while being as independent as possible. What a child with motor impairment should learn and acquire during occupational therapy is implemented through all the child's daily activities, from getting up, walking to school, playing and free time, until bedtime (Steultjenset al. 2004). Occupational therapy begins with an assessment of the child's physical and mental functioning, with special attention to the physical aspect, sensory aspect, visual aspect, psychosocial aspect as well as external factors. More specific activities in occupational therapy for children with motor impairments are (Rashikj-Canevska, 2022):

- normalization of muscle tone and reduction of the frequency of involuntary movements: to reduce the muscle tone of the limbs (usually hypertonia of the flexors of the upper limbs and hypertonia of the extensors of the lower limbs), and to increase the tone of the trunk muscles, which will improved posture;

- inhibiting pathological patterns of reflex movements and stimulating developmental patterns of purposeful movements;
- development of control over fine motor skills: differentiation of finger movements, thumb opposition, increase in muscle strength, grip, tweezer grip, etc.;
- bilateral coordination: learning to control both sides of the body, using both hands in manipulating objects;
- increasing the strength and stability of the upper body: strengthening and stabilizing the trunk, exercises for the muscles of the shoulders, arms and neck;
- crossing the centre line: activities for crossing the centre line of the body with the opposite arm or leg;
- visuomotor abilities: improvement of eye-hand coordination;
- improvement of visual perception;
- developing the ability to care for oneself;
- cognitive stimulation and sensory integration;
- dealing with pain and fatigue: conservation of energy;
- maintenance and control of physiological functions: urination and defecation;
- going to school and meeting school requirements: adapting the classroom, organizing the work surface, sitting correctly in order not to lead to worsening the condition, using writing and reading aids, finding the optimal way of writing;
- adaptation and functionality in the home: accessibility of all rooms, provision of holders, adaptation of power switches, usability of the kitchen and kitchen appliances, etc.;
- play and free time, emotional and medical support.

Conclusion

Occupational therapy plays a crucial role in supporting children with disabilities by enhancing their independence, improving their functional abilities, and promoting their overall well-being. Through individualized interventions, therapists help children develop essential motor, cognitive, and social skills, enabling them to participate more effectively in daily activities. Early intervention and a holistic approach are key to maximizing the benefits of occupational therapy, ensuring that children can reach their full potential and lead fulfilling lives. By fostering collaboration between

therapists, families, and educators, occupational therapy contributes significantly to the inclusion and empowerment of children with disabilities in society.

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PRIMENA OKUPACIONE TERAPIJE KOD DECE SA SMETNJAMA U RAZVOJU

Rezime

Okupaciona terapija je posebna disciplina u okviru šireg spektra usluga specijalne edukacije i rehabilitacije. Iako može doći do preklapanja u populacijama koje se opslužuju i terapijskim pristupima, i okupaciona terapija i specijalna edukacija i rehabilitacija, igraju ključnu ulogu u podršci pojedincima sa invaliditetom da vode ispunjenije živote. Okupaciona terapija za decu sa smetnjama u razvoju zasniva se na razumevanju interakcije između dece, njihovih aktivnosti i okruženja, pa se stoga pri proceni sposobnosti polazi od toga da li su ograničenja rezultat spoljnih barijera i ograničenja ili su prvenstveno povezana sa razvojnim sposobnosti i funkcionalnog statusa. Modeli okupacione terapije koji se primenjuju u rad sa decom generalno su podeljeni u dve široke kategorije: modeli zasnovani na zanimanju i modeli zasnovani na neuromaturaciji. Nedavno su razvijeni modeli zasnovani na zanimanju i zasnovani su na sistemskim teorijskim pristupima, naglašavajući optimalne radne performanse, neuromaturacioni modeli se primenjuju duže vreme i zasnivaju se na hijerarhijskom razvojnom zakonitosti. Odrastanje deteta u odraslu osobu podrazumeva kontinuirano prilagođavanje zahtevima koje postavlja okruženje i asimilaciju mogućnosti, a ova dinamička interakcija je još složenija kod dece rođene sa faktorom rizika ili određenom vrstom invaliditeta. Dakle, okupaciona terapija može biti od velike koristi za decu sa smetnjama u razvoju, kao efikasan način da se pomogne ovoj deci da obavljaju značajne aktivnosti i obogate njihove živote.

Ključne reči: *okupaciona terapija, deca sa smetnjama u razvoju, specijalna edukacija i rehabilitacija*