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LITERATURE REVIEW: MOTOR ANALYSIS OF DEAF CHILDREN

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Abstract This article provides an empirical overview of deaf children. The aim of this article is to analyze the motoric skills of deaf children. This research method used literature observation from electronic databases from Google Scholar stored in the Publish or Perish software because the author wants to know the discussion about motoric analys deaf children in Indonesia. The keywords used are motoric skills of deaf children. There are 7 articles on the motoric skills of deaf children, 5 studies explain that both gross and fine motoric learning can enhance the motoric skills of deaf children, such as through fan dance, Malay dance, sewing, game-based motoric learning in physical education, and independence training models. 2 studies discuss the gross motoric skills of special needs children in the good category. Based on the results of the literature review, it can be concluded that there are many activities that can be used to improve the motoric skills of deaf children, both fine and gross motoric skills. From the 7 articles, all treatments used in the research generally improve the motoric skills of deaf children. The results of this study are expected to be used as a reference for other researchers to use as a reference, and this research is expected to be a reference for parents or teachers to participate in training children's motor skills to always develop in various ways. Whether through art, physical activity and sports.

Keywords: literature review; deaf children; motoric skills of deaf children; gross motoric skills; fine motoric skills

INTRODUCTION

The development of motoric skills is a crucial element in the overall development of an individual. Essentially, this development progresses as the nerves and muscles of a child mature. All movements, no matter how simple, result from complex interactions between various core body systems controlled by the brain.

Motoric development involves coordinated activity between the nervous system, muscles, brain, and spinal cord. It is a gradual process that occurs with age, where an individual's movements evolve from simple, uncoordinated, and inexperienced states to mastery of complex and well-organized motoric skills.

Motoric development encompasses both gross and fine motoric skills. Gross motoric skills involve movements of the body that engage large muscles or most parts or all of the body influenced by the child's own maturity, such as the ability to sit, kick, run, and others, while fine motoric skills involve movements that use small muscles or specific body parts influenced by opportunities for learning and practice, such as moving objects with hands, drawing, stacking, cutting, and writing. Many parents are not aware that a child's gross and fine motoric skills need to be trained and developed continuously through various activities. This development enables a child to perform various tasks better, including academic and physical achievements (Lismadiana, 2018).

Gross motoric skills refer to movement patterns involving the entire body, such as walking, running, and jumping. These skills develop from birth, such as rolling over, crawling, and progressively become more complex with growth and development, such as swimming, cycling, and participating in sports. Effective gross motoric skills are important for developing fine motoric skills. Common difficulties associated with motoric skills include poor coordination, poor balance, difficulty with eye-hand coordination tasks, and less smooth movements (Valley, n.d.).

Gross Motoric Development : Babies Learn from Head to Toe. Control of the upper body muscles develops before control of the lower body muscles. As babies grow, they first develop control in the neck (head control) and trunk (sitting balance), and then they learn to control the shoulders, elbows, wrists, and eventually their

fingers. The same applies to the lower body, starting from the hips first, then learning to control the thighs, legs, and finally the toes. Gross motoric skills involve large muscle groups in the arms, legs, and body, while fine motoric skills involve small muscles in the body, typically considered movements involving fingers and hands.

The development of gross motoric skills helps children build strength and confidence in their bodies. Children also enjoy the same benefits of sports and physical activities as adults, which are important for maintaining a healthy lifestyle, regardless of age. Developing gross motoric skills helps children grow in their ability to perform more complex skills, such as navigating new playground environments or playing team sports. As children gain control over their bodies, they begin to build strength. Little ones need plenty of opportunities to practice movement because that's how they learn and grow.

Classification of Gross Motoric Skills by Age. Generally, the development of gross motoric skills for infants and toddlers is as follows :

Newborn to 2 months : Head lag with pull to sit. Lifts head and can turn to both sides while prone (See our guide to mastering tummy time). Kicking both legs and moving both arms symmetrically while supine. Turns head to both sides while supine. **3-4 months** : Lifts head parallel to trunk when pulled to sit. Pushes up on forearms and turns head from one side to other while prone. Rolls from prone to supine. **5 months** : Brings feet to mouth while lying supine. Rolls from back to stomach. Pushes up with hands with arms extended while prone. Rotates in a circle on abdomen. **6-8 months** : Catches self with loss of balance while sitting. Creeps on belly. Reaches for toys to play with while sitting. Sits independently. **9-11 months** : Crawls on hands and knees. Stays around furniture. Transitions between lying and sitting upright without assistance. Pulls self to standing with one foot in front. Walks with two hands held. **11-12 months** : Walks with one hand held. Stands independently for a few seconds. **13-14 months** : Climbs stairs crawling. Stands from floor without support. Walks independently : Yes, walking is a gross motoric skill. Squats and stands up without support. **15-18 months** : Walks up stairs with handrail or holding hands. Crawls downstairs prone, with feet first. Can kick a ball forward.

Gross Motoric Skills at 2 Years Old

In addition to the skills listed above, gross motoric skills for 2-year-olds include: Walking and running fairly well. Kicking a ball with both feet. Going up and down stairs alone. Jumping in place (both feet off the ground).

Gross Motoric Skills at 3 Years Old

Examples of gross motoric skills for 3-year-olds include: Being able to balance on one foot for a few seconds. Catching a large ball. Jumping forward 10-24 inches. Riding a tricycle.

Gross Motoric Skills at 4 Years Old

Running, jumping, and climbing well. Jumping on one foot. Catching a ball. Cartwheeling.

Gross Motoric Skills at 5 Years Old

Jumping and skipping rope. Beginning to slide and swim. Riding a bike with or without training wheels.

Each child develops at their own pace, so the above gross motoric milestones are estimates/guidelines. Because gross motoric development occurs within age ranges and stages, they build on each other. For example, a baby must be able to pull themselves up to stand before they can walk.

There are three types of gross motoric movements :

1. Locomotion, which means movement

Anything a child does to move from one place to another is locomotion. Examples of gross motoric skills in the locomotion category include rolling, crawling, crawling on hands and knees, shuffling, walking, running, climbing, jumping, hopping, skipping, and leaping.

2. Stationary skills, which refer to non moving movements.

Stationary gross motoric skills include head control, sitting balance, standing on one or both feet, climbing, descending, bending, stretching, pushing, pulling, swinging, rocking, rotating, and spinning.

3. Manipulation, which means moving objects in various ways.

Think about all the things a child can do with a ball - they can roll, throw, catch, kick, stop, or hit the ball. All of these actions are manipulative gross motoric skills.

A physical therapist trains a series of basic skills to help a child maximize their gross motoric potential, including: Balance Coordination,

Muscle Strength and Endurance, Motoric Learning and Planning, Body Awareness, Sensory Processing, Coordination, Postural Control, Muscle Tone (Addressing low muscle tone or high muscle tone), Crossing the Midline (moving arms or legs across the midsection of the body to perform a task).

Physically impaired children still have the opportunity to develop maximally, especially in terms of movement, although they may not develop as maximally as normal children. Deaf children are children with special needs with hearing impairments. Deafness is a condition of hearing loss that causes a person unable to perceive various stimuli, especially through their auditory senses. Deaf children tend to have communication problems. Inability to communicate tends to be a problem in terms of language skills, reading, writing, social environmental adjustments, and academic achievement. (Fitri & Imansari, 2020) conducted observations at Insan Mulia Surabaya Natural School Kindergarten found that children experience problems with gross motoric skills related to the child's inability to balance their body. The first thing to see when a child walks, some children when walking are still wobbly, cannot balance their bodies while walking. Furthermore, the second is seen from the child's ability when playing a balance board. Children are not yet able to walk on the balance board because of difficulty in balancing their bodies, children feel hesitant when playing, and easily fall when walking on the balance board, so they need the help of teachers and friends when playing. Children have difficulty in controlling body movements such as (head, shoulders, arms, and legs). Simply put, balance can be defined as "maintaining the center of gravity of the body within the stability limits determined by the support base. The right balance will allow someone to perform activities or movements effectively and efficiently with minimal risk of falling. (Lengkana et al., 2020) static and dynamic balance learning significantly affects the improvement of balance in elementary school students. Static and dynamic balance learning together provides an increase in balance in elementary school students.

Marisyanti Indah Sari researched the development of basic gross motoric skills through fan dance art learning in deaf children. According to Marisyanti, to develop the basic gross motoric skills

of deaf children, enjoyable learning is needed. This study used a single subject research method (SSR) with an A-B-A design. The results of this study indicate that fan dance learning can be used as one way to develop the basic gross motoric skills of deaf children in locomotoric, non-locomotoric, and manipulative aspects (Indahsari, 2012)

METHOD

This study employs a Literature Review method that summarizes several relevant literatures related to the research title. Literature review or systematic Literature Review is a term used to refer to research or development methodologies carried out to gather and evaluate research related to a specific topic focus (Triandini et al., 2019).

Literature search was conducted using the Google Scholar database assisted by the Publish or Perish application because the author wants to know the discussion about motoric analys deaf children in Indonesia. Journal data search was performed using the keywords motoric skills of deaf children. There were 7 articles discussing deaf children's motor skills from 2013-2023. All literature obtained was then selected based on the inclusion and exclusion criteria.

From the results above, it can be concluded that there is still a lack of articles that discuss the motor skills of deaf children.

RESULT AND DISCUSSION

After collecting journals using the Publish or Perish application through Google Scholar search with the keyword motoric skills of deaf children and filtering them according to the needs, a total of 7 articles discussing the motoric skills of deaf children were obtained.

Table 1. Analysis Results

No.	Authors, Title	Design Method	Result
1	Marisyanti Indahsari, (Indahsari, 2012) Pengembangan Keterampilan Gerak Dasar Motorik Kasar pada Anak Tunarungu JASSI_Anakku	Experimental Research Single Subject Research (SSR) Method	The study investigates the influence of fan dance art learning on the development of gross motoric skills in deaf children.

2	Aulia Azmi (Azmi Aulia, 2014) Tingkat Kemampuan Motorik Kasar Anak Tuna Rungu di SLB B Karnanamanohara Sleman Thesis UNY	Descriptive research with survey method	The study examines the level of gross motoric skills in deaf children aged 4-6 years at SLB B Karnanamanohara Sleman, categorized as good.
3	Bambang Irawan (Irawan, 2022) Pengaruh Model Permainan dengan Aspek Kemandirian Terhadap Kemampuan Motorik Kasar Anak Tunarungu di SLB N Mesuji Lampung Thesis UNY	Experimental with 2 x 2 factorial design	The study evaluates the effect of game-based models on independence aspects on the gross motoric skills of deaf children.
4	Nur Ahmad Muharram, Septyaning Lusianti (Muharram & Lusianti, 2017) Pengembangan Tingkat Kemampuan Motorik Kasar Anak Tunarungu Kategori Ringan Di SLB B Kota Kediri Tahun 2017	Descriptive research with survey method	The study assesses the level of gross motoric skills in deaf children aged 4-6 years at SLB B Kota Kediri, categorized as good.
5	Firsi, Desni, Imma (Firsi wt all., 2014) Efektifitas Penerapan Gerak Dasar Tari Melayu dalam Perkembangan Motorik Kasar Siswa Tunarungu	Descriptive analysis	The study examines the effectiveness of Malay dance basic movements in the development of gross motoric skills in deaf students.
6	Ari Darmawanti, Genesa Vernanda, Rusnaili (Darmawanti et al., 2023) Upaya Meningkatkan Kemampuan Motorik Halus Anak Tunarungu Kelas III SDLB Melalui Teknik Jelujur Di Sekolah Luar Biasa Kurnia Poncowati	Single Subject Research (SSR)	The study investigates efforts to improve fine motoric skills in deaf children using sewing techniques at Kurnia Poncowati Special School.
7	Didik Apriyanto (Apriyanto, 2014) Pengembangan Model Pembelajaran Motorik Berbasis Permainan Pada Mata Pelajaran Pendidikan Jasmani Anak Tunarungu Di Sekolah Dasar Luar Biasa	Developmental research	The study develops a game-based motoric learning model for deaf children, validated by content, design, and media experts.

In the table above, there are 7 articles regarding the motoric skills of deaf children. Among them, 5 articles discuss gross motoric skills of deaf children, 1 article discusses fine motoric skills, and the remaining 1 article discusses both gross and fine motoric skills. From the 7 studies, 5 studies explain that learning gross and fine motoric skills can enhance the motoric skills of deaf children, such as through fan dance, Malay dance, sewing, game-based motoric learning in physical education classes, and independence training models. 2 of these studies discuss the good performance of gross motoric skills in Special Needs Education (SLB) category.

From the results of the search above, it can be concluded that there is still a lack of articles that discuss the motor skills of deaf children.

CONCLUSION

Based on the results of the literature review, it can be concluded that there are many activities that can be used as references to improve the motoric skills of deaf children, both fine and gross motoric skills. The 7 articles demonstrate that all treatments used in the research generally improve the motoric skills of deaf children. The development of children's motoric skills will vary for each individual. This is where the task of parents or teachers comes in to train the motoric skills of children to continually develop in various ways. This can be done through art, physical activities, and sports.

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