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Improving Communication and Motor Development Through Sports: A Systematic Literature Review

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ABSTRACT

Communication is one of the most important aspects of human life. Without communication, interaction would not occur. Growth and development in early childhood are crucial because during this period—particularly between 0 and 12 months of age—children experience rapid growth and development. The purpose of this study is to determine the benefits of communication and motor development in enhancing physical activity based on a systematic literature review. The study employed the Systematic Literature Review (SLR) method. The database used to search for literature was Google Scholar. The results were presented by evaluating the quality of the documents in detail and in accordance with the scope of the study. Six relevant articles were identified out of 25 related articles. Based on search results aligned with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, engaging in physical activity can improve mental health. The documents sought in this study were those published within the last 10 years in nationally indexed Sinta journals and available as open access. Based on the results and discussion, the conclusion of this study states that exercise can improve motor development and communication.

Keywords: Communication, Motor Development, SLR

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INTRODUCTION

Communication is one of the most important aspects of human life. Without communication, interaction would not take place. Communication in healthcare must occur, as healthcare providers are obligated to establish communication with patients or their families. Patients' families must also provide feedback to help achieve therapeutic goals. Furthermore, through effective two-way communication, healthcare providers are able to clearly explain the condition the patient is experiencing. Meanwhile, patients or their families will gain a clear understanding of the health issues they are currently facing.

Among the various communication models currently in use, interpersonal communication is one that has evolved within the healthcare field. Interpersonal communication occurs between two people interacting face-to-face. This type of communication fosters open dialogue between two individuals, such as a patient and a physical therapist. Patients or parents who openly describe the patient's condition help the physical therapist make an accurate diagnosis. Consequently, the physical therapist can determine the appropriate therapy or stimulation program tailored to the patient's needs (Nihaya, 2016). Communication is indeed the foundation for all social beings to establish connections between individuals. However, even in the communication process, some individuals who are physically and mentally healthy often still face communication challenges, particularly when interacting with children (Diyono, et al., 2022).

There are many ways parents can optimize their child's development, one of which is by providing developmental stimulation. In today's globalized era, pediatric physical therapy has become a common point of reference for parents seeking developmental stimulation programs for their children. To achieve good results in the process of developmental stimulation, parents must openly share information about their child's condition with the physical therapist. Communication patterns themselves refer to the patterns of interaction between two or more people in sending and receiving messages accurately so that the intended message can be understood (Djamarah and Bahri, 2004). Physical therapists and parents often face barriers during the examination and assessment process because each child has different conditions or due to a lack of openness on the part of parents in describing their child's condition to the physical therapist. The communication patterns employed by physical therapists are crucial for accurately determining the child's condition.

Primary communication involves the transmission of verbal and nonverbal symbols from the communicator to the recipient. Secondary communication, on the other hand, is the process of conveying messages using tools as an intermediary medium. A linear communication pattern refers to the straight-line flow of a message from one point to another. In contrast, a circular communication pattern involves feedback from the recipient to the sender, which is a key determinant of successful communication.

Growth and development in early childhood are extremely important because during this period—particularly the 0–12-month age range—children experience rapid growth and development. This period is often referred to as the "Golden Age." The Golden Age is the optimal time to closely monitor a child's growth and development so that any deviations, such as delays in motor development, can be detected as early as possible. If deviations are identified during a child's first year, appropriate corrective measures can be implemented by leveraging brain plasticity to optimize their growth and development or reduce the risk of deviations (Kementerian Kesehatan, 2016).

Monitoring a child's growth and development can encompass physical, psychological, and social aspects. Parents can begin monitoring as early as possible. Growth and development consist of two processes that differ in nature but are interrelated and inseparable: growth and development. Growth refers to changes in size, volume, quantity, or dimensions at the cellular, organ, or individual level. Growth itself is quantitative in nature, making it possible to measure it using units of weight, length, bone age, and metabolic balance. Development is the increase in the complexity of the body's structural and functional capabilities. Development involves the differentiation of cells, tissues, organs, and organ systems so that each can fulfill its function.

Child growth and development have specific characteristics, namely changes in size, changes in proportions, the disappearance of old characteristics, and the emergence of new ones. Growth has its own unique aspect, namely varying rates across different age groups. Each child also has a distinct pattern of growth and development. There are three periods of rapid growth: the fetal period, infancy (0–1 years), and puberty. The developmental process occurs in tandem with growth, so every growth phase is inevitably accompanied by functional changes. Development is the interaction between the maturation of the central nervous system and the organs it influences. The early stages of development include cognitive, motor, emotional, social, and language development. Development during these early stages determines development in subsequent phases. If one aspect faces challenges, it will affect the others (Chamidah, 2012).

The process of addressing developmental abnormalities identified during a child's growth and development typically follows the standard physiotherapy protocol. Ideally, the patient's clinical condition is first assessed by a rehabilitation physician or a pediatric development specialist using various diagnostic tests before beginning a physiotherapy program. Based on the diagnostic findings, the physician will prescribe a developmental physical therapy program, after which the patient is referred to a physical therapist to receive interventions aligned with the established goals. The physical therapist then conducts a re-assessment to determine the appropriate physical therapy diagnosis and, if possible, reviews the medical history—particularly regarding the course of the condition and treatment history.

In the next stage, the physical therapist selects several therapeutic methods appropriate to the treatment goals, indications, and findings from the physical examination. The physical therapy techniques used typically include one or a combination of several techniques considered to have a positive impact on the child's future developmental progress. Generally, exercise therapy is the most commonly used technique, particularly for pediatric physical therapy conditions, which may sometimes be supplemented with manual therapy (Sudarsini, 2017).

To achieve optimal results in stimulating a child's growth and development, there must be effective communication between the physical therapist and both the parents and the child. Physical therapists and parents may face challenges during the therapy process because every child has unique needs. Therefore, the communication approach used by the physical therapist is crucial, particularly for accurately assessing the child's condition.

Early childhood development forms the foundation of a child's character. During this period, children are in their "golden age," a critical stage where they require optimal stimulation from educators, including parents. One of the rapidly developing skills at this age is motor development, which is divided into two types: fine motor skills and gross motor skills. Gross motor skills involve movements of specific muscles that may cause sweating, while fine motor skills require only movements of the hands and eyes. Motor development refers to the skills and movement patterns a child can perform, which are essential for controlling their body movements in the future. Additionally, a child's motor development helps build muscle strength. However, every child's motor development is unique; some develop quickly while others take longer, which can be influenced by their neurological development or structure. Several factors that can influence a child's motor development include genetic factors, malnutrition, and parenting styles.

One theory that provides a detailed explanation of motor development in children is the Dynamic System Theory, developed by Thelen and Whitney. According to this theory, to acquire motor skills, children must pay attention to things around them that motivate them to act and use their perceptions to perform movements. Motor skills in children reflect their desires. In addition to being closely related to physical and intellectual aspects, motor skills are also linked to children's psychological dimensions (Fatmawati, 2020).

Growth and development during the first few years of life are important indicators of children's health. Growth is the increase in the number of body cells in an organism, while development is the process by which an individual changes throughout their life (Cole, 2012). Every child goes through a growth and development process in accordance with their age stage; monitoring a child's development includes cognitive, social-emotional, and communication development, as well as motor development (Butchon & Liabsuetrakul, 2017).

Communication development serves as an indicator of a child's overall development; delays or impairments in speech and language systems can affect cognitive, sensory, motor, psychological, and emotional development, as well as the child's surrounding environment (Soetjiningsih & Gde, 2013). The percentage of children with speech and language disorders, based on national population surveys, is generally highest among those aged 3–6 years (11%), followed by those aged 7–10 years (9.3%) (Black et al., 2015).

Motor development encompasses all types of movement, which fundamentally involve generating and controlling physical strength, muscle control, and biomechanics. Monitoring development helps identify children's gross motor skills, which are linked to the quality of communication between parents and children (Dosman et al., 2012). Child development can be assessed using the Milestone Development Chart and the Denver II. These assessment tools can help diagnose a child's development regarding motor skills and communication development at that age (R. Christopher Sheldrick et al., 2014).

METHOD

This study employs a qualitative method, in which the researcher conducted library research to examine references relevant to the topic of this article. The author cited the literature used both directly and indirectly, listing the referenced sources in the bibliography.

The systematic approach employed in this study is the Systematic Literature Review (SLR). The SLR method involves two processes: the review process and the systematic identification of journals using predetermined guidelines (Triandini et al. 2019), guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). PRISMA is a flowchart- and evidence-based guide designed to assist authors in conducting systematic literature reviews (Pati and Lorusso 2018). When using the SLR method, it is crucial for the author to conduct a critical evaluation, as this provides significant value to readers; therefore, the author performs evaluations related to inclusion and exclusion criteria.

The database used in this literature review is Google Scholar. According to Will (2016) as cited in Putra, Resta, Carsiwan, and Rahmat (2024), this website makes it easy for researchers to find the journal articles they need—a process that is simple and fast, requiring only three steps. The focus of this study is improving mental health through exercise.

The second stage is the screening stage, during which the researcher screens the systematic literature. This stage determines which document titles and abstracts will be reviewed. The third stage is the eligibility stage, which consists of several sub-stages, each involving a manual process by the author to add or remove documents based on stability criteria and document suitability checks. It is recommended that articles that have undergone extensive review be excluded from the systematic review procedure. This study uses four criteria. The four criteria are: 1) The timeframe must be 10 years, or in this study, from 2016 to 2026. Therefore, if an article was published outside the specified timeframe, it will not be included in this literature review. 2) Document type: The documents required for this study are those containing empirical data (secondary documents such as review articles, books, and conference papers will not be included). 3) Indonesian language: The articles selected are those written in Indonesian; if an article is written in a language other than Indonesian, it will not be used. 4) Sinta-indexed: Articles published on Google Scholar must be Sinta-indexed to meet the quality standards for the included articles (Putra, Resta et al., 2024).

RESULT AND DISCUSSION

After applying the PRISMA guidelines, relevant research findings on the relationship between communication and children's motor development were identified. Of the 25 articles used in this study, 12 were related to the relationship between communication and children's motor development. During the article mapping process, which involved a systematic literature review, the mapping results were based on criteria defined from various relevant journal publications. This study employed four criteria. These four criteria are: 1) A timeframe of 10 years, specifically from 2016 to 2026. Thus, articles published outside this specified timeframe will not be included in this literature review. 2) Document type: The documents required for this study are those containing empirical data (secondary documents such as review articles, books, and conference papers will not be included). 3) Indonesian language: The articles selected are those written in Indonesian; if an article is written in a language other than Indonesian, it will not be used. 4) Sinta-indexed: Articles published on Google Scholar must be Sinta-indexed to meet the quality standards for the included articles (Putra, Resta et al., 2024). The journals used for publishing the articles include, among others.

Table 1. Featured Articles

No.	Title	Author	Year	Method	Results
1	The Application of Therapeutic Group Therapy for Parents in Stimulating Speech Development in Young Children	Ernawati hamidah Asap suryadin Lutiyah Sri kurnia dewi	2026	Quantitative study with a quasi-experimental pre- and post-test design	The results of the analysis showan improvement before and after the therapeutic group therapy was conducted, with a p-value of 0.01, Thus, there is an effect of providing therapeutic group therapy to parents in stimulating

					speech development in children. In conclusion, the results of the TKT intervention proved to improve parents' ability to stimulate speech development in young children. Therefore, TKT is effective as an effort to support children's language development through parental involvement.
2	The Effect of Therapeutic Communication on Cooperative Attitudes in Early Childhood	Yenni Fusfitasari, Dita Amita, Kurniawan Saprihadi	2021	A quantitative pre-experimental study using a one-group pretest-posttest design	The average cooperative attitude of early childhood increased from 4.03 before the intervention to 7.08 after the application of therapeutic communication. Statistical test results showed a p-value of 0.000 (< 0.05), indicating that therapeutic communication significantly influences the improvement of cooperative attitudes in early childhood. In conclusion, the research results indicate that therapeutic communication has a significant effect on the cooperative attitudes of early childhood (p-value = 0.0001 < 0.05). The application of therapeutic communication can improve children's cooperation when interacting with healthcare personnel. Therefore, early childhood education institutions need to collaborate with healthcare personnel to implement therapeutic communication on an ongoing basis.
3	The Relationship Between Children's Motor Skills and Communication Skills in 2-Year-	Adnan Faris Naufal dan Savilla Dara Ardiani	2022	A correlation study using a cross-sectional design	Data analysis involved a normality test using the Kolmogorov-Smirnov method, yielding a p-value of 0.000, indicating that the data are not normally

	Olds				distributed. The relationship between variables X and Y was tested using Spearman's rho correlation test, yielding a correlation coefficient of 0.914, indicating a very strong correlation between children's motor function abilities and communication skills in 2-year-olds. In conclusion, there is a relationship between children's motor function abilities and communication skills in 2-year-olds
4	Minimizing the use of gadgets that hinder the motor development of young children The Application of Therapeutic Communication on Cooperative Attitudes in Early Childhood	Yasa Griya Sejati, Utami Nurlaili	2022	A correlation study using a cross-sectional design	Data analysis employed a normality test using the Kolmogorov-Smirnov method, yielding a result of 0.000, indicating that the data are not normally distributed. The relationship between variables X and Y was tested using Spearman's rho correlation test, yielding a correlation coefficient of 0.914, indicating a very strong correlation between children's motor skills and their communication abilities at age 2. In conclusion, there is a relationship between children's motor skills and their communication abilities at age 2.
5	The Effect of Growth and Development Stimulation Education on Parents' Ability to Detect Early Developmental Issues in Children Aged 0–5 Years.	Siska Nurul Abidah Hinda Novianti	2020	Quasi-experimental design with a one-group pretest-posttest design	Statistical analysis using the Wilcoxon test yielded a significant p-value of 0.000 (p-value < 0.05), indicating that developmental stimulation education has an effect on parents' ability to detect early developmental milestones in children aged 0–5 years. In conclusion, providing developmental stimulation

					education can improve parents' ability to provide early stimulation. This improvement has a positive impact on children's language and memory development. Additionally, appropriate stimulation helps enhance children's school readiness and optimize their developmental potential.
6	The Effectiveness of Parental Communication on Children's Intrapersonal Personality	Tri Endang Jatmikowati	2018	Correlational study	The study results, with a correlation coefficient of 0.900 and a critical value of 0.514 at a 5% significance level, indicate a positive direct correlation between the two variables. This means that higher levels of effective parental communication are associated with higher levels of a child's intrapersonal intelligence. In conclusion, through consistent practice and parental awareness of the importance of effective communication with their children, parents can help their children develop their intrapersonal skills.

After passing the screening stage, 12 documents were selected. Then, during the eligibility stage, the selection was narrowed down to 6 documents indexed in Sinta and written in Indonesian. At the eligibility stage, 7 documents remained that had passed the qualification stage to determine their quality. After completing the eligibility process, the documents were reviewed and evaluated. Next, the results were used to answer the research questions and discuss the analysis in detail by identifying the title, then reading the abstract and the full text to examine the document's main themes.

Based on the reviewed articles, communication is a critical factor in the healthcare process, particularly in pediatric physical therapy and child development stimulation. Interpersonal communication among physical therapists, parents, and children is essential to ensure that information regarding the child's condition is conveyed clearly, so that the therapy or stimulation program provided aligns with the child's developmental needs. Results from selected studies indicate that therapeutic group therapy for parents can enhance parents' ability to stimulate early childhood speech development with a p-value of 0.01, suggesting that this intervention is effective in supporting children's language development through parental involvement (Ernawati Hamidah, et al., 2026). Additionally, the application of therapeutic communication has also been shown to improve cooperative behavior in young children, with the average cooperative behavior score increasing from 4.03 to 7.08 following the intervention and a p-value of 0.000, indicating that therapeutic communication significantly influences

children's cooperation during interactions with healthcare professionals (Yenni Fusfitasari, et al., 2021).

This article also explains that there is a close relationship between children's motor and communication development. Research findings indicate a very strong correlation between motor function and communication skills in 2-year-olds, with a Spearman's rho correlation coefficient of 0.914 (Adnan Faris Naufal and Savilla Dara Ardiani, 2022). This indicates that good motor skills can support children in exploring their environment, interacting, and developing their communication skills. However, a child's development may be hindered if they spend too much time using gadgets. Excessive gadget use has the potential to reduce concentration during learning, hinder communication skills such as language and socialization, and increase the risk of addiction and developmental disorders in children (Yasa Griya Sejati and Utami Nurlaili, 2020). Therefore, parents play a crucial role in controlling gadget use and replacing it with more active, communicative, and age-appropriate stimulating activities.

Thus, it can be concluded that effective communication, parental involvement, and developmental stimulation play a crucial role in optimizing early childhood development. Education on developmental stimulation has been shown to influence improvements in parents' ability to detect developmental issues in children aged 0–5 years, with a p-value of 0.000, enabling parents to provide more appropriate early stimulation (Siska Nurul Abidah and Hinda Novianti, 2020). Additionally, effective parental communication is positively associated with children's intrapersonal personality development, with a correlation coefficient of 0.900, meaning that the better the parental communication, the better the child's intrapersonal skills (Tri Endang Jatmikowati, 2018). Overall, this article demonstrates that communication between physical therapists, parents, and children must be open, focused, and ongoing to ensure that the child's motor, language, social, emotional, and personality development can progress optimally.

CONCLUSION

Parental involvement, and developmental stimulation play a crucial role in optimizing early childhood development. Education on developmental stimulation has been shown to influence improvements in parents' ability to detect developmental. Overall, this article demonstrates that communication between physical therapists, parents, and children must be open, focused, and ongoing to ensure that the child's motor, language, social, emotional, and personality development can progress optimally.

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