Children's Motor Skills Based on Geographical Location

Habilidades motrices de los niños en función de su ubicación geográfica

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How to cite in APA

Gusril, G., Saputri, F. R., Ihsan, N., Chaeroni, A., Abdullah, M. F., Aman, M. S., Mokhtar, A. H., Komaini, A., & Mutohir, T. C. (2025). Children's Motor Skills Based on Geographical Location. *Retos, 63*, 936–948. https://doi.org/10.47197/retos.v63.110059

Abstract

Introduction: The problem this research the childrens have low motor skills. This study aims to: (1) assess the motor abilities of children in highland areas, (2) assess the motor skills of children in lowland areas, (3) assess the motor skills of children in coastal areas, and (4) analyze the differences in motor skills among elementary school students based on geographical location (highlands, lowlands, coastal areas).
Objective: to state the objective and scope of the research or hypotheses.
Methodology: The quantitative research method used in this study involved a survey of State Elementary School 26 Singgalang Tanah Datar, Padang City Experimental State Elementary School, and State Elementary School 01 Pariaman City. The study's population comprised 188 students, from which a sample of 115 students was selected using the purposive sampling technique. The research instrument such as the standing broad jump, ball passing to the wall, 4-second dash and basketball throw. The instrument has a validity score of 0.64 and a reliability score of 0.92.
Results: The results indicate that geographical factors (highland, lowland, coastal areas) significantly affect children's motor skills.
Discussion: Effect of different geographical locations on levels of motor skills.
Conclusions: (1) children from the highland region showed good motor skill levels; (2) children from the lowland region displayed sufficient motor skills; (3) children in the highlands engaged in more motor skill activities compared to those in lowland and coastal areas; and (4) there were notable differences in motor skills between children in coastal areas and lowland areas.

Keywords

Childrens; geographical location; highland; lowland; coastal areas, motor skills.

Resumen

Introducción: El problema de esta investigación los niños tienen bajas habilidades motoras. Este estudio pretende: (1) evaluar las habilidades motrices de los niños de las zonas de tierras altas, (2) evaluar las habilidades motrices de los niños de las zonas de tierras bajas, (3) evaluar las habilidades motrices de los niños de las zonas costeras, y (4) analizar las diferencias en las habilidades motrices entre los alumnos de primaria en función de la ubicación geográfica.
Objetivo: enunciar el objetivo y el alcance de la investigación o las hipótesis.
Metodología: El método de investigación cuantitativa utilizado en este estudio consistió en una encuesta en la Escuela Primaria Estatal 26 Singgalang Tanah Datar, la Escuela Primaria Estatal Experimental de la ciudad de Padang y la Escuela Primaria Estatal 01 de la ciudad de Pariaman. La población del estudio estaba formada por 188 alumnos, de los cuales se seleccionó una muestra de 115 mediante la técnica de muestreo intencional. El instrumento de investigación fue el salto de pie, el pase de balón a la pared, la carrera de 4 segundos y el lanzamiento a canasta. El instrumento tiene una puntuación de validez de 0,64 y una puntuación de fiabilidad de 0,92.
Resultados: Los resultados indican que los factores geográficos (zonas costeras, tierras bajas y tierras altas) afectan significativamente a las habilidades motoras de los niños.
Discusión: Efecto de las diferentes ubicaciones geográficas en los niveles de habilidades motoras.
Conclusiones: (1) los niños de la región de las tierras altas mostraron buenos niveles de habilidades motoras; (2) los niños de la región de las tierras bajas mostraron suficientes habilidades motoras; (3) los niños de las tierras altas participaron en más actividades de habilidades motoras en comparación con los de las zonas costeras y de las tierras bajas; y (4) hubo diferencias notables en las habilidades motoras entre los niños de las zonas costeras y las zonas de las tierras bajas.

Palabras clave

niños; zona costera; situación geográfica; tierras altas; tierras bajas; habilidades motrices.

Introduction

Geographical location and socioeconomic status appear to have a major impact on the type, quantity, and quality of motor skills that children engage in. When analyzing how background and location affect motor skills activity levels, it's important to look at how various surroundings and socioeconomic circumstances affect the type and frequency of motor skills that children engage in. This problem is analyzed through an interdisciplinary approach that incorporates research from urban planning, developmental psychology, and sociology.

Based on their literature review study entitled "Urban-Rural Differences in Children's motor skills" Brown & Johnson (2019) enunciated those urban areas often present unique challenges and opportunities for children's motor skills. Limited outdoor spaces in urban settings lead to more indoor and structured motor skills. metropolitan settings frequently offer special chances and challenges for kids motor skills. Because there are less safe outside spaces for children motor skills in, technology-based motor skills is more common in urban areas. Furthermore, play experiences at urban playgrounds and recreational centers are frequently of lower quality due to overcrowding. On the other hand, open spaces are more abundant in rural settings, which promotes unstructured outdoor motor skills. Martinez and Thompson (2020) found that large natural settings are beneficial for rural kids because they encourage motor skills that is both imaginative and physically demanding. However, the lack of contemporary motor skills equipment and amenities in remote places may restrict the range of motor skills activities available.

In a different study, Duncan and Edwards (2020) talk about how children's motor skills is affected by the environmental and physical difficulties that highland locations present. They claimed that unique environmental and physical obstacles found in highland areas influence children's motor skills. The rough ground and steep inclines promote physically demanding and daring motor skills, improving children motor skills and physical health. Nevertheless, inclement weather might restrict outside motor skills throughout specific seasons, increasing the need for indoor activities. In highland areas, cultural variables are also important, according to Ramirez and Khatun (2019). They emphasize how important traditional games and neighbourhood gatherings are to children' motor skills in various domains, encouraging motor skills that is collaborative and socially cohesive. Due to the restricted access to contemporary motor skills areas,

In a study on the impact of lowland environments on children's motor skills, Smith and Allen (2018) made the case that these geographic characteristics encourage prolonged physical activity. However, in lowland areas, motor skills chances are greatly impacted by socioeconomic considerations. They claim that lowland regions, which are typified by wide, level surfaces, are perfect for outdoor motor skills and organized sports. Thompson and Roberts (2017) found in another similar study that whereas disadvantaged locations frequently lack developed motor skills infrastructure, affluent lowland regions had better access to parks and recreational amenities.

Walker and Henderson (2019) conducted a study on play among kids near the seashore. Sand, water, and marine life are among the natural factors that make coastal locales distinct motor skills experiences for children. They discovered that engaging in sensory motor skills and exploration along the seaside is beneficial for the development of the brain and senses. Coastal regions typically have warm, temperate climates that facilitate outdoor motor skills throughout the year, promoting social and physical contact. Moreover, there are a lot of safety and environmental problems in coastal motor skills locations. Motor skills activities near the seaside encourage sensory motor skills and exploration, which is important for cognitive and sensory development, in keeping with this later concern. Coastal regions typically have warm, temperate climates that facilitate outdoor motor skills throughout the year, promoting social and physical contact.

However, as Green, R., & White, S. (2020) stated in their paper "Environmental and Safety Concerns in Coastal motor skills Spaces" that weather, tides, and currents can all have an impact on coastal motor skills and put childrens at risk while they're motor skills. There are environmental factors that can affect the quantity and quality of coastal motor skills spaces, including pollution and beach erosion. They recommended that in order to encourage safe and ecologically conscious motor skills in coastal areas, educational initiatives and community programming are essential.

Another topic that Greenfield and Marks (2018) have investigated is how children's motor skills are impacted by their socioeconomic position (SES). It was discovered that kids with higher socioeconomic status (SES) backgrounds usually had more motor skills available to them, such as educational toys and extracurricular activities. However, children from lower socioeconomic backgrounds frequently experience financial hardships that restrict their access to safe motor skills areas and recreational facilities. They contend that some of these differences can be lessened by investing in public motor skills spaces and enlisting the aid of the community.

It appears that parental attitudes regardingmotor skills have a considerable impact on children's motor skills activities when considered in the context of parental participation and cultural customs. A study on the cultural influence on motor skills behavior in various socioeconomic backgrounds was conducted by Singh and Patel (2017). They showed how motor skills is incorporated into everyday routines and highly valued in some cultures, while motor skills is subordinated to academic performance in others. Parental availability and participation in their children's motor skills are also influenced by socioeconomic considerations; parents in lower SES families typically work longer hours and have less free time to spend with their kids.

In summary, it is possible to speculate that children's motor skills activities are greatly shaped by their socioeconomic background and geographic location, which in turn affects their social, cognitive, and physical development. This theory is based on a number of studies that were previously evaluated. Every environment—rural, urban, hilly, lowland, and coastal—offers different motor skills opportunities and obstacles. None of the previously stated research have been methodically conducted in an Indonesian context; all were conducted in western civilizations. Therefore, there is a great need to do a comparable study, particularly to determine how different geographic regions (coastal, lowland, and highland areas) affect the amount of activity that children play (see Table 1).

Table 1 The comparison of highland, lowland, and coastal regions and patterns in children's motor skills activities

No	Types of Regions	Characteristics of patterns in children's motor skills activities
1	High Land	Emphasize physically challenging and culturally rooted motor skills. Harsh weather conditions can limit outdoor motor skills, necessitating adaptable motor skills strategies.
2	Low Land	Offer flat, expansive spaces ideal for organized sports and exploration. Socio-economic disparities significantly affect motor skills opportunities, highlighting the need for equitable infrastructure development.
3	Coastal Areas	Provide unique sensory and water-based play opportunities. Safety and environmental concerns must be addressed to maintain high-quality motor skills spaces.

C

omparing the motor skills environments across highland, lowland, and coastal regions reveals distinct patterns influenced by physical geography, socio-economic status, and cultural practices. Highland regions emphasize physically challenging and culturally rooted motor skills, lowlands offer spaces for organized sports and exploration, while coastal areas promote sensory and water-based motor skills. Each setting presents unique advantages and challenges, necessitating tailored interventions to optimize play opportunities. Based on the results of comparison analysis of the present study geographical location profoundly influences children's moto skills activities, shaping their physical, cognitive, and social development. The result of this study along the line with the previous studies.

It should be noted that by understanding these influences can inform policies and practices aimed at promoting diverse and enriching play experiences across different environments. Since the present study delimits its focus on analysing the influences of geographical locations (highland, lowland, and coastal areas) on the levels of children's motor skills. Future research should continue to further explore these dynamics, considering the intermotor skills between geography, and other variables including socio-economic status, and cultural practices in shaping children's motor skills. This comprehensive examination underscores the need for context-specific strategies to enhance motor skills opportunities, ensuring that all children can benefit from the developmental advantages that motor skills provides. Finally, policies and practices aiming at encouraging varied and enriching motor skills experiences across various locations can benefit from an understanding of these impacts.

As we know West Sumatra is one of the provinces located on the island of Sumatra which has highland, lowland and coastal areas. The characteristics of the highland area are located on the slopes of Mount Singgalang with an altitude of 1260 meters above sea level with low oxygen content, so that it has an

impact on the heart, breathing and blood circulation are spurred to move to meet the oxygen needs in the body (Diobadra, Sepriadi, 2019). Lowlands have an altitude of below 500 meters above sea level with a surface that tends to be flat and temperatures that are high or warmer compared to highlands. Coastal plains are located on plains and sea waters and have a varied coastal morphology such as: sandy beaches, mangrove beaches and have environmental vulnerability to degradation and conversion of land due to an altitude of 4 mdpdl. On this plain, there is also an elementary school for children's education, which also has an impact on the physical condition of children, including motor skills. In summary, it is possible to speculate that children's play activities are greatly shaped by their socioeconomic background and geographic location, which in turn affects their social, cognitive, and physical development. This theory is based on a number of studies that were previously evaluated. Every environment—rural, urban, hilly, lowland, and coastal—offers different play opportunities and obstacles. None of the previously stated research have been methodically conducted in an Indonesian context; all were conducted in western civilizations. Therefore, there is a great need to do a comparable study, particularly to determine how different geographic regions (coastal, lowland, and highland areas) affect the amount of activity that children motor skills

Comparing the motor ability environments across highland, lowland, and coastal regions reveals distinct patterns influenced by physical geography, socio-economic status, and cultural practices. Highland regions emphasize physically challenging and culturally rooted play, lowlands offer spaces for organized sports and exploration, while coastal areas promote sensory and water-based play. Each setting presents unique advantages and challenges, necessitating tailored interventions to optimize play opportunities. Based on the results of comparison analysis of the present study geographical location profoundly influences children's motor skills, shaping their physical, cognitive, and social development. The result of this study along the line with the previous studies.

It should be noted that by understanding these influences can inform policies and practices aimed at promoting diverse and enriching play experiences across different environments. Since the present study delimits its focus on analysing the influences of geographical locations (highland, lowland, and coastal areas) on the levels of children's s motor ability. Future research should continue to further explore these dynamics, considering the interplay between geography, and other variables including socio-economic status, and cultural practices in shaping children's motor play ability This comprehensive examination underscores the need for context-specific strategies to enhance motor ability opportunities, ensuring that all children can benefit from the developmental advantages that motor skills provides. Finally, policies and practices aiming at encouraging varied and enriching motor ability experiences across various locations can benefit from an understanding of these impacts.

Elementary school is a basic educational institution that provides children with the ability to continue to higher education. In achieving its programs, elementary schools through their curriculum provide a variety of programs consisting of general education programs, academic education programs and skills education programs. One of the subjects contained in the general education program is Physical Education, Sports and Health. The goal of Physical Education, Sports and Health is so that children's basic motor skills develop well and improve physical fitness. In the fundamentals of basic movement, there is one component of motor skills which is a very important component in achieving children's success in adulthood.

Children's motor skills are considered an important factor in physical, social, psychological and cognitive development. The scientific literature links children's motor skills to academic achievement, social-emotional development, and physical health (Hestbaek et al., 2017; Cameron et al., 2016; Gashaj et al., 2019; Irene MJ van der Fels a, Sanne CM te Wierikea & Marije T. ElferinkGemser a, b, Joanne Smitha, 2015). The development of children's motor abilities is crucial to both their physical and mental growth. Until recently, there hasn't been a lot of research on how a child's location affects their motor skills. Several investigations conducted by multiple researchers are among them (Duncan & Edwards, 2020; Ramirez & Khatun, 2019; Smith & Allen, 2018; Walker and Henderson, 2019; Green and White, 2020). The results of these studies are extremely important since children's play activities can be impacted by changes in the physical and social surroundings.

There are various reasons why research on children's motor skills depending on geography is crucial. First, by identifying the unique needs of various communities according to their geographic location, this research can aid in the design of more appropriate and successful interventions. Second,

policymakers can use the information from this research to create programs and infrastructure that assist kids' motor development in a variety of geographic settings. Finally, parents and educators may better understand and support the needs of each child's unique development by knowing how geographical circumstances affect diversity in children's motor abilities. Furthermore, by comprehending how a child's physical environment affects their motor skills, we can guarantee that every youngster, wherever they may reside, has an equal chance at developing to the fullest. The current research is is expected to be the basis for further efforts in developing comprehensive strategies to support children's motor development in various geographical contexts.

The development of basic motor skills is an important aspect of children and is meaningful for adulthood in the future (Webster et al., 2019). Motor skills develop in line with the maturity of nerves and muscles which are the foundation in moving towards achievement sports. Therefore, every movement that a child makes, no matter how simple, is actually the result of a complex pattern of interaction of various parts and systems in the body that are controlled by the brain (Musriroh & Khulusinniyah, 2019). The development of motor competencies during infancy and childhood depends on and is influenced by the characteristics of a child's growth and maturity (morphological, physiological, and neuromuscular). Since motor development occurs in certain social contexts, the environment in which a child is raised is important. Each context places special demands on the motor competence and physical activity of infants and children (Venetsanou & Kambas, 2010). The environment in which the child lives affects the child's motor skills.

The importance of children's motor development has attracted the attention of experts and policy makers. However, research shows that most children leave primary school with inadequate motor skills (Gu et al., 2019; Hastie, 2017; Bryant et al., 2014; Hardy et al., 2013). Motor skills play a role in adapting to the physical and social environment, as well as shaping social interactions, which affect learning ability, social interaction that affects learning ability and emotional maturity (Tapeli, 2018).

Elementary school age children are individuals who are always actively moving and doing play activities that are their world. They want to always try new things in every new play activity that they get from interaction with their friends. They are also active individuals in movements such as running, jumping, throwing and so on. In upper-class elementary school students, they basically already have the ability to do eye-hand coordination and are able to regulate speed when running. The results of the study stated that there was a relationship between nutritional status, play activities and physical fitness to the motor ability of elementary school students (Gusril, 2004). This age is a time when they enjoy playing with their peers who act as their socialization agents. Through physical education, students can directly express the potential for the desired movement, in addition, they can also channel their desire and desire to move. Play is a very necessary thing in the growth period. However, along with the advancement of technology that exists today, such as television, android phones (HP), Facebook, Instagram, PlayStation games and so on, the development of children has changed, from those who are usually active to passive or lazy to do activities and prefer to spend hours sitting in front of the television and playing games. These activities have a negative impact on children, especially their development and motor skills. It is not surprising that students' motor skills will decrease with the activities carried out (Ferdi Wardika and Nanik Indahwati., 2017).

Many factors affect children's motor development, including geography (place of residence), (Eddy et al., 2021; Santos et al., 2020), equipment or facilities, and teachers or facilitators (Rahyubi, 2012), parents (Pedersen et al., 2023), physical activity (Laukkanen et al., 2013; Rebelo et al., 2023) and the surrounding environment. Research shows that geographical locations such as highlands, lowlands, and coasts have an impact on children's lifestyle and physical activity (Valentini et al., 2016; de Chaves et al., 2016).

Children living at high altitudes undergo physiological adaptations, including changes in lung volume, which can affect their motor skills (Ortiz-Prado, Encalada, et al., 2022). The importance of differences in physical activity and environment between children in various geographical locations encourages the need for further research to understand the differences in motor skills in elementary school students.

In this context, the study intends to analyze the differences in motor skills in elementary school students based on geographical location, focusing on highland, lowland, and coastal areas. Because geographical

location it's very important especially atletic sport some time atlet go to highland to do practice to adaptatition condition if they joint in competition.

Method

This study is classified as a quantitative research, using comparative analysis with a participant survey method in three elementary schools, each located in the highlands, lowlands, and coastal areas.

The population of this study is 4th and 5th grade students of State Elementary School 26 Singgalang X Koto which is located in the highlands of Tanah Datar Regency, Padang City Experimental State Elementary School which is located in the lowlands, and State Elementary School 01 Kampung Jawa Kota Pariaman which is located on the coast with a total of 188 people. This population is located in the province of West Sumatra and has the same culture, the age ranges from 10 to 11 years. The sampling technique used was Purposive sampling and a sample of 115 people was obtained. The reason for using Purposive sampling is by considering the geographical location of the school and the age of the students between 10 and 11 years old. The research instrument used to measure children's motor skills Scoot ability test modified Gusril consists of: long jump without a prefix, wall pass, 4-second sprint, basketball throw (Gusril, 2024). This instrument has a validity of 0.64 and a reliability of 0.98. The data analysis technique used by Oneway Anova. Before data analysis, a normality test and a data homogeneity test were carried out.

Results

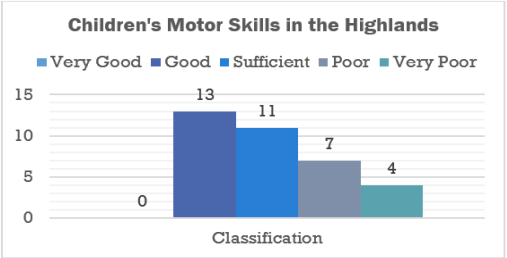
Based on the analysis of data on the motor skills of highland children, it can be described as follows: Highest score 64, lowest score 31, Average 49.97, Mode 63, Median 48 and Standard Deviation 16.5. For more detailed data on the motor skills of highland children, see the following table.

Table 2. Highland Motor Ability Data Frequency Distribution

It	Interval class	Frequency		Category
		absolute	Relative (%)	
1	N > 65	0	0	Very good
2	55 – 64	13	37	Good
3	45 – 54	11	31	Sufficient
4	35 – 44	7	20	Poor
5	No. <34	4	11	Very poor
	Total	35	100	

Based on Table 2 above, the motor skills of Highland children in the very good category are absent, the good category is 13 people (37%), the sufficient category is 11 people (31%), the poor category is 7 people (21%), and the very poor category is 4 people (11%). For more details, you can see the following histogram (figure 1).

Figure 1. Histogram of Children's Motor Ability in the Highlands.



Fuente: Quantitative analysis

Motor Skills Data of Lowland Children

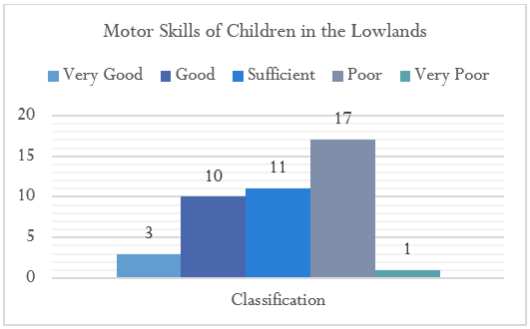
Based on the analysis of the motor skills data of lowland children, it can be described as follows: The highest score is 66, the lowest score is 34, the average is 50, the mode is 46, the median is 51 and the standard deviation is 13.06. For more detailed data on the motor skills of highland children, see the following table.

Table 3. Frequency distribution of Lowland Motor Ability Data

No	Interval classes	Frequency		Category
		Tally	Percentage (%)	
1	No. > 65	3	7	Very good
2	55 – 64	10	24	Good
3	45 – 54	11	26	Sufficient
4	35 – 44	17	40	Poor
5	No. <34	1	2	Very poor
	Total	35	100	

Based on the table above, the motor skills of lowland children as many as 3 people or (7%) are in the very good category, as many as 10 people or (24%) are in the good category, as many as 11 people or (26%) are in the sufficient category, as many as 17 people or (40%) are in the poor category, as many as 1 person or (2%) are in the very poor category. For more details on the motor skills of lowland children, the following histogram can be seen.

Figure 2. Histogram Chart of Children's Motor Ability in Lowlands



Fuente: Quantitative analysis

Motor Ability Data of Coastal areas Children

Based on the analysis of the data on the motor skills of coastal areas children, they can be described as follows: The highest score is 68, the lowest score is 33, the average is 50, the Mode is 50, the Median is 55 and the Standard Deviation is 14.29. For more detailed data on the motor skills of highland children, see the following table.

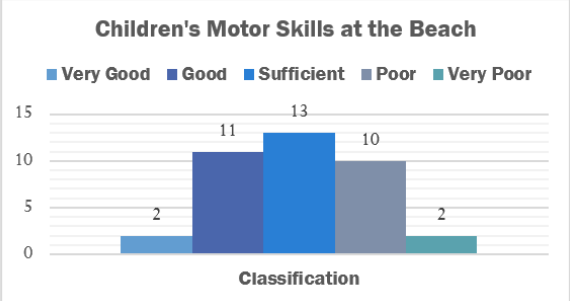
Table 4. Distribution of Motor Ability Data Frequency in the Coastal areas Plains

No	Interval classes	Frequency		Category
		absolute	Relative (%)	
1	No. > 65	2	5	Very Good
2	55 - 64	11	29	Good
3	45 - 54	13	34	Sufficient
4	35 - 44	10	26	Poor
5	No. <34	2	5	Very Poor
	Total	35	100	

Based on the table above, the motor skills of beachside children are in the sufficient category with the following details: very good category as many as 2 people (5%), good category as many as 11 people.

(29%), the category of sufficient as many as 13 people (34%), the category of less as many as 10 people (26%), the category of very poor as many as 2 people (5%).

Figure 3. Histogram of Children's Motor Ability on the Beach



Fuente: Quantitative analysis

Normality Test

The Normality Test was carried out on the motor ability data of children in the highlands, lowlands and coastal areas as a test of analysis requirements. The data normality test uses the Lilliefors test and for more details can be seen in the following table.

Table 5. Normality Test Was Carried Out On The Motor Ability

Normality Test				
No	Location	Look	Letnan	Conclusion
1	Plateau	0,141	o.150	Normal
2	Lowland	o.131	0.137	Usual
3	Coastal Plain	0.089	0.144	Normal

From the Normality test, the data on motor skills of children in the highlands, lowlands and beaches are distributed Normal.

Homogeneity Test

The Homogeneity Test aims to assess or test the homogeneous population against the data. Based on the results of the homogeneity test of motor ability data of highland, lowland and coastal children, it was concluded that the research data had homogeneous variations.

Hypothesis Test

Hypothesis testing was carried out using One-way Variance Analysis (One way Anova) and continued with the t-test. The results of this hypothesis analysis are described in the following table.

Table 6. Hypothesis Analysis Are Described

Location		N	To	Tt	Conclusion
Motor Ability	Plateau Lowland Coastal Plain	115	10.65	0,08	

Based on the results of the t-test calculation, motor ability data were obtained from highland areas, lowland areas with the research location of the Padang City Experimental Elementary School and the coastal area with the research location of the Padang City Experimental Elementary School. the research place of SDN 01 Kampung Jawa I, Pariaman City, is To = 10.658 ≥ Tt = 0.082 with a significance level of $\propto = 0.05$. So, it can be concluded that there is a difference in the motor ability of highland children with lowland areas and coastal areas with the research location of SDN 01 Kampung Jawa I, Pariaman city.

Tukey Test

After it was known that there were differences in students' motor abilities based on geographical location, namely highland areas with the research location of SDN 26 Singgalang X Koto Regency,

lowland areas with the research location of SDN Perakuan Padang City and coastal areas. Next, a Tukey test was carried out to reveal effective motor skills.

Table 7. Tukey Test to Reveal Motor Skills

Geographical Location	N	1	2	
Plateau	42	40.11960		
Lowland	38		50.41245	
Beachfront	35			61.40880

Discussion

Effects of Different Geographical Locations on Levels of Motor Skills

Children'smotor skills are greatly influenced by their geographic location, which affects not only the kinds of motor skills `that they engage in but also how often and how well they motor skills. Based in part on the findings of the current study and supported by prior empirical research, this discussion examines how children's motor skills are affected by highlands, lowlands, and coastal environments

Highland Regions

Highland regions offer special chances and challenges for childrens' motor skills. The current study's findings suggest that children's motor skills are considerably influenced by their highland geographic location. This is consistent with the findings of Duncan and Edwards' (2020) study, "Children's motor skills in Highland Regions: Physical and Environmental Challenges," which found that motor skills that is physically demanding and adventurous is encouraged in highlands due to their harsh terrain and steep slopes. Children who engage in this kind of motor skills develop resilience and adaptation while improving their motor skills and physical condition. Nevertheless, inclement weather and persistent snowfall can restrict outside motor skills and cause a seasonal dependence on inside activities.

Moreover, play is also greatly influenced by the cultural context of highland regions; Ramirez and Khatun (2019) emphasize in "Cultural and Social Dimensions of motor skills in Highland Communities" that motor skills and community events are essential to children's motor skills in these areas; these activities foster social cohesion and collaborative motor skills, which are critical for social development; the lack of modern motor skills facilities in highland regions forces children to rely on imaginative and nature-based motor skills, which can be both enriching and restrictive.

Lowland Areas

Lowland areas offer a distinct motor skills experience because of their large, level grounds that are perfect for motor skills and organized sports. The current study's findings conclude that children's motor skills fall somewhere in the middle of the spectrum. One might expect the level of children in motor skills should have been high, especially in time engagement. However, due to other factors including low socio-economic factor may hinder the children’s level of motor skills. Smith and Allen (2018) contend in "Environmental Influences on Children's motor skills in Lowland Regions" that lowlands' physical characteristics encourage prolonged physical activity, such as sports and unstructured play. However, motor skills possibilities in these regions can be greatly impacted by socioeconomic status. The study "Infrastructure and motor skills Opportunities in Lowland Rural Settings" by Thompson and Roberts (2017) emphasizes that while impoverished lowland regions frequently lack developed play infrastructure, wealthy regions have better access to parks and recreational amenities.

The difference in play options between lowland and highland areas highlights the significance of community and governmental actions aimed at enhancing motor skills areas. The disparity in motor skills possibilities can be closed by funding community-driven initiatives and recreational infrastructure, guaranteeing that all kids, regardless of socioeconomic status, have access to engaging motor skills.

Coastal Areas

Coastal regions offer unique motor skills environments, where natural elements like sand, water, and marine life become central to children's motor skills. The present study shows that the level of children's motor skills is relatively no difference to those on lowland region. Meanwhile, In their paper "Children's motor skills in Coastal Areas: Interaction with Natural Elements," Walker and Henderson (2019) point out that motor skills along the shore encourage sensory motor skills and exploration, both of which are important for the development of the brain and senses. Coastal regions typically have warm, temperate climates that facilitate outdoor motor skills throughout the year, promoting social and physical contact.

But in seaside motor skills areas, environmental and safety concerns are paramount. The article "Environmental and Safety Concerns in Coastal motor skills Spaces" by Green and White (2020) addresses the potential hazards that children may face while mootor skills in coastal areas due to weather, tides, and currents. Additionally, motor skills venues' quality may be impacted by environmental problems like pollution and coastal erosion. These results emphasize the necessity of community-based activities and educational programs to support safe and environmentally conscious play in coastal areas.

Comparative Analysis and Implications

Comparing the motor skills environments of coastal, lowland, and highland areas reveals distinct patterns that are influenced by physical geography, social status, and cultural behaviors. Highland areas highlight motor skills that is physically demanding and deeply rooted in culture, whereas coastal habitats foster play that is sensory-based and involves the water. Lowlands offer facilities for organized sports and exploration. Since each setting has advantages and disadvantages of its own, motor skills needs to be optimized by tailored actions.

Interventions need to take into account the particular needs and characteristics of each geographical area. It is possible to improve children's motor skills in the highlands by updating indoor playrooms and fusing traditional games with modern motor skills activities. In lowland areas, particularly the poorer ones, investments in community-driven activities and recreational infrastructure can assist offset the imbalance in available motor skill areas. Coastal locations could benefit from safety education and environmental conservation efforts to maintain their outstanding motor skills places.

Based on the results of data analysis of children's motor skills based on geographical location, it was concluded that there were differences in children's motor skills in highlands, lowlands, and coastal area. The motor skills of highland children is higher than that of lowlands and coastal area. Likewise, the children motor skills of coastal area is higher than the mutter ability of lowland children. Geographically, this environment has the characteristics of a highland area located on the slopes of Mount Singgalang with an altitude of 1260 meters above sea level and low oxygen content, so that it has an impact on the heart, breathing and blood circulation, muscles are spurred to move to meet the oxygen needs in the body (Diobadra, Sepriadi, 2019). Lowlands have an altitude below 500 meters above sea level with a surface that tends to be flat and high or warmer temperatures compared to highlands, of course, the heart, respiration and blood circulation, muscles are less spurred to work in meeting the oxygen needed in the oxidation process. . The coastal area are located on plains and sea waters and have a varied coastal area morphology such as: coastal area, mangrove beaches and have environmental vulnerability to degradation and land conversion due to an altitude of 4 meters above sea level which also requires less oxygen needs. This is supported by the background of children's daily lives carried out at school and in the environment outside of school, as well as individual factors, this is in line with (Eddy et al., 2021; Santos et al., 2020; Laukkanen et al., 2013; Rebelo et al., 2023) on the other hand, parents greatly affect children's motor development, this is in line with (Pedersen et al., 2023).

Based on the results of the analysis, it was shown that there was a difference in the motor skills of highland children better than the lowlands and coastal area. Likewise, the motor skills of the beach is better than that of the lowlands. Perhaps this is also due to socioeconomic status. Highland children, most of whose parents are farmers, of course there is freedom for children in carrying out daily activities, including play activities that also contribute to motor skills. The results of Gusril's (2004) research stated that there is a relationship between play activities and motor skills of elementary school students.

There is freedom for highland and coastal children in carrying out activities when compared to lowland children who mostly go to and from school by their parents by car or motorcycle.

Conclusions

There is effect geographical factors (coastal, lowland, and highland areas) on children's' motor skills because they shape their social, cognitive, and physical development. The research conclusions: (1) The level of motor skills of children in the highland region good category; (2) The lowland region's level of children's motor skills into the sufficient category. (3) Compared to lowland and coastal areas, children engage in more motor skills in highland areas; (4) There is difference motor skills between children in coastal and lowland areas in terms of the level of motor skills they engage in. Concluded, policies and practices aiming at encouraging varied and enriching motor skills experiences across various locations can benefit from an understanding of these impacts. Beside that, the current study's focus is on determining how geographic locations affect children' motor skills, more research should be done to examine these dynamics and how geography, socioeconomic position, and cultural traditions interact to influence childrens motor skills. This thorough analysis emphasizes the necessity of context-specific motor skills chances enhancement measures to guarantee that all children can reap the developmental benefits of motor skills.

Acknowledgements

Thank you to Universitas Negeri Padang Rector via LPPM gave founding to do this research.

The authors would like to express his gratitude for the financial support from Universitas Negeri Padang through LPPM.

Financing

Funding from the annual budget performance plan (RKAT) of Padang State University in 2024 according to the decision of the UNP Trustee Deliberation No. 132/UN35.MWA/PR2023 Date December 09, 2023. Thank you for Toho Cholik Muthohir Mohd Firdaus Abdullah, Mohd Salleh Aman, Abdul Halim Mokhtar.

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