

ASSESSING BALANCE AND FLEXIBILITY IN TRIBAL CHILDREN OF KERALA: A PILOT STUDY.

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Abstract

This pilot study aimed to assess balance and flexibility among tribal children in Kerala, India, focusing on participants from three distinct localities: Wayanad, Palakkad, and Thiruvananthapuram. A sample of 90 children aged between 10-14 years was selected from each locality. Balance was measured using the Stork Balance Stand Test, while flexibility was assessed through the Sit and Reach Test. Statistical analysis was performed using ANOVA to compare means across localities, followed by Scheffe's post hoc test for pairwise comparisons. Results revealed statistically significant differences in both balance and flexibility among the tribal children from the three locations. Specifically, Wayanad generally exhibited superior performance in both balance and flexibility compared to Palakkad and Thiruvananthapuram. These findings underscore the importance of considering regional disparities in physical fitness among tribal children and highlight the need for targeted interventions to promote physical health and well-being in this population.

Keywords: Tribal children, physical fitness, balance, flexibility.

Introduction

Physical fitness is a cornerstone of overall well-being, particularly in children, encompassing crucial components such as balance and flexibility (Malina, 2004). Among different demographic groups, tribal communities face unique challenges that can significantly influence their physical health and fitness levels (Ramanathan & Gopinath, 2018).

In Kerala, India, where tribal populations constitute a notable segment of the state's populace, understanding the balance and flexibility abilities of tribal children is essential for developing targeted health interventions (Kerala State Planning Board, 2020).

Balance, the ability to maintain the body's equilibrium, and flexibility, the range of motion around joints, are fundamental aspects of physical fitness (Wells et al., 2013). These attributes not only facilitate daily activities but also play a pivotal role in preventing injuries and enhancing overall physical performance (Wells et al., 2013).

Despite their acknowledged importance, there is a scarcity of research focusing specifically on balance and flexibility among tribal children, particularly in Kerala (Gopalan, 2016). Hence, this pilot study aims to address this gap by providing initial insights into the balance and flexibility levels of tribal children in Kerala (Kumar & Raj, 2019).

This study adopts a multidimensional approach, considering various factors influencing balance and flexibility, including socio-economic status, lifestyle factors, and access to healthcare services (Kerala Health Department, 2020). Through this pilot investigation, we endeavor to lay the groundwork for future comprehensive studies and inform targeted interventions aimed at enhancing the physical health and well-being of tribal children in Kerala (Ministry of Tribal Affairs, Government of India, 2020).

Methodology

The study aims to analyze Physical Fitness Components among Tribal Children in Kerala by selecting participants from three distinct localities: Vayanadu, Palakkadu, and Trivendrum, with each contributing a sample size of 90 children aged between 10-14 years. Inclusion criteria involve targeting tribal children within this age range while excluding those with physical disabilities or medical conditions affecting physical fitness. The selected physical fitness variables are Balance (measured by the Stork Balance Stand Test) and Flexibility (assessed through the Sit and Reach Test). ANOVA will be employed for data analysis to compare means across localities, followed by Scheffe's post hoc test for pairwise comparisons if the ANOVA yields significant results. Methodologically, ethical approval will be sought, participants will be recruited from schools and community centers, and informed consent will be obtained. Data collection will involve standardized procedures for physical fitness assessments, followed by ANOVA and Scheffe's post hoc test for data analysis.

Results

Table 1 shows the ANCOVA Results on Balance among the groups.

Mean			Source	Sum of Squares	df	Mean Square	F	Sig.
Wayanad	Palakkad	Thiruvananthapuram	Between Groups	431.087	2	215.543	95.234	.000
28.7700	25.8317	23.4177	Within Groups	196.908	87	2.263		

Based on the provided Table 1 ANCOVA results for Balance among the Tribal from Wayanad, Palakkad, and Thiruvananthapuram, the F-value is 95.234 with a corresponding p-value of .000. Since the p-value is less than the conventional significance level of 0.05, this indicates that there are statistically significant differences in Balance among the Tribal from the three locations.

Table 2 shows the ANCOVA Results on Flexibility among the groups.

Mean			Source	Sum of Squares	df	Mean Square	F	Sig.
Wayanad	Palakkad	Thiruvananthapuram	Between Groups	593.159	2	296.580	181.545	.000
26.0690	22.2453	19.8337	Within Groups	142.127	87	1.634		

Based on the provided Table 2 ANCOVA results for flexibility among the Tribal from Wayanad, Palakkad, and Thiruvananthapuram, the F-value is 95.234 with a corresponding p-value of .000. Since the p-value is less than the conventional significance level of 0.05, this indicates that there are statistically significant differences in flexibility among the Tribal from the three locations.

Table 3 shows the paired mean comparison Results on Balance and Flexibility among the groups.

Criterion Variable	Paired Comparison		Mean Difference	Sig.
Balance	Wayanad	Palakkad	2.93833*	0.000
	Wayanad	Thiruvananthapuram	5.35233*	0.000
	Palakkad	Thiruvananthapuram	2.41400*	0.000
Flexibility	Wayanad	Palakkad	3.82367*	0.000
	Wayanad	Thiruvananthapuram	6.23533*	0.000
	Palakkad	Thiruvananthapuram	2.41167*	0.000

The paired mean comparison results reveal significant differences in both Balance and Flexibility among the groups. For the Balance variable, Wayanad demonstrates significantly higher mean values compared to both Palakkad and Thiruvananthapuram, with mean differences of 2.93833 and 5.35233, respectively, and p-values of 0.000 for both comparisons. Additionally, Palakkad shows a significantly higher mean Balance compared to Thiruvananthapuram, with a mean difference of 2.41400 and a p-value of 0.000. Regarding Flexibility, Wayanad displays significantly higher mean values compared to both Palakkad and Thiruvananthapuram, with mean differences of 3.82367 and 6.23533, respectively, and p-values of 0.000 for both comparisons. However, Palakkad exhibits a significantly higher mean Flexibility compared to Thiruvananthapuram, with a mean difference of 2.41167 and a p-value of 0.000. In summary, Wayanad generally outperforms Palakkad and Thiruvananthapuram in both Balance and Flexibility, while Palakkad demonstrates superior Flexibility compared to Thiruvananthapuram.

Discussion and conclusion

The results of the paired mean comparison analysis indicate statistically significant differences in both Balance and Flexibility among the tribal populations from Wayanad, Palakkad, and Thiruvananthapuram. This suggests that there are variations in physical

attributes and capabilities among these groups, potentially influenced by factors such as lifestyle, environment, and genetic predispositions.

Specifically, in terms of Flexibility, while Wayanad generally outperforms Palakkad and Thiruvananthapuram, Palakkad exhibits a significantly higher mean Flexibility compared to Thiruvananthapuram, with a mean difference of 2.41167 and a p-value of 0.000. This discrepancy could be attributed to various factors such as differences in physical activity levels, cultural practices, and access to resources.

One potential explanation for the observed differences is the variation in lifestyle and occupational activities among these tribal populations. For instance, individuals from Wayanad might engage in activities such as farming or manual labor, which could contribute to improved physical fitness and flexibility compared to those from Palakkad and Thiruvananthapuram. Additionally, environmental factors such as climate and terrain may also play a role in shaping physical attributes and capabilities.

Moreover, cultural practices and traditions prevalent in each region could influence physical activity patterns and, consequently, physical fitness levels. For example, certain traditional practices or forms of exercise specific to Palakkad might enhance flexibility compared to those practiced in Thiruvananthapuram.

It's important to acknowledge that further research is needed to comprehensively understand the underlying factors contributing to the observed differences in physical attributes among tribal populations from these regions. Longitudinal studies examining lifestyle factors, dietary habits, occupational activities, and genetic factors could provide valuable insights into the mechanisms driving these disparities.

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