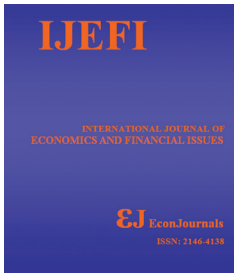

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Motor Competency of Orang Asli Children from the Royal Belum Rainforest Reserves

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ABSTRACT

Physical inactivity is a growing problem among children of today's society. Whereas levels of physical activity are influenced by motor competence, defined as the ability to execute different motor tasks necessary to manage everyday life and reduce probability of other health risks (over and under nutrition). These skills are developed early in childhood, which can be categorized as fundamental motor skills (FMS), however its acquisition has mostly assessed European children. Normative data on Asian or Malaysian sample are scarce and indigenous or Orang Asli children non-existent. The main aim of this study was to investigate FMS in the object control skill category among Orang Asli children in the Royal Belum (RB) Forest Reserves of Gerik Perak. All the 7 year olds children (n = 28) from two primary schools of RB participated in the study. Anthropometry of the children was collected prior to the FMS assessment. Children from Sekolah Kebangsaan Banun (n = 10) were 5% taller and 21% heavier and their body mass index (BMI) ratios 9% higher than children from SK Tiang (n = 18). However, these children were lower than normative height (below −2 standard deviation [SD]) and weight (−1 SD) of World Health Organization data. FMS scores indicated that 55% more children from SK Tiang (an inner village) have higher scores than children from SK Banun (40%) in the administered test. Differences in the levels of FMS development are influenced by many factors that include the environment, socioeconomic status, parental influences and structured physical education in schools. The result was based on only one test protocol; there is a battery of tests that may have different outcomes. Nevertheless these initial findings may provide guideline for early identification of disparity between children and provide information to the responsible authorities (schools, JHEO, researchers) to support development of motor competence and lifestyle practices among young children in the community.

Keywords: Physical Activity, Motor Competence, Fundamental Motor Skills, Object Control Skill
JEL Classifications: R00

1. INTRODUCTION

Motor competence or fundamental motor skills (FMS) constitute gross and fine motor abilities that are necessary during development of early childhood. Daily function depends on mastery of certain FMS and contributes to successful participations in physical activities throughout life. Locomotor and object control are gross motor skills (Haywood and Getchell, 2005) that include the ability to move the body through space (running, skipping, hopping, leaping) and ability to manipulate and project objects (throwing and catch, kick, bounce, strike and roll), respectively.

Studies on movement skills are mainly undertaken to identify motor impairment, dysfunctions and developmental disorder among children (Davies, 2003). The instruments used to assessed FMS were mostly developed in Europe for European samples and focused for specific target group thus specific in content (Cools et al., 2009). The FMS performances data would then either

be compared to normative values or based on certain criterion. Moreover, normative data on Asian or Malaysian sample are scarce and specifically on Orang Asli children non-existent. A study by Yusof et al. (2007) on adult Orang Asli of Lembah Belum found that more than 50% and 1% of the adults were underweight and obese based on anthropometric indices probably affected by their socio-economy and lifestyle practices.

Therefore, the main aim of this study was to qualitatively examine Orang Asli children specifically the 7 years old from the Belum Forests area. The children were assessed on the object control skills criteria and the chosen tool tested their ability to accurately kick a ball using their right and left feet into a designated goal area. The FMS instrument used in this study, CEKAP, has been developed locally and tested on populations of children from other states of the non Orang Asli origin. Findings from this initial investigation would add to the very few published papers on the Orang Asli of Malaysia and specifically the Royal Belum (RB) Forest Reserves in Gerik Perak.

2. METHODS

Two schools that are located in the North part of Perak state in the RB Rain Forests Reserves in Gerik Perak were visited. Sekolah Kebangsaan Tiang is only accessible by speedboat and located about 45 min from the Pulau Banding Jetty. The populations comprised of Orang Asli from the Jahai group. 18 of the students from primary one came from the one school that exists in the area. Sekolah Kebangsaan RPS Air Banun is more easily reachable as it can be assess via a small village road, a 3 km distance from the km 48 exit of the main East-West highway. Populations consisted mainly from the Temiar group of indigenous people. Only 10 of the students were in attendance during the day of assessments (Qureshi et al., 2014).

In total 28, 7 years old indigenous children from the two schools were participants in this study. The specific FMS test chosen examined their ability to manipulate and project objects that consisted of repeated bouts of kicking a football (size 5). Subjects were asked to kick into a 1 m goal area (gaps between 2 cones) from a 3 m distance for a total of 10 times using each right and left foot (five chances each using their dominant and non-dominant leg). Complete tests protocol and scoring techniques are based on the CEKAP instruments (Instrumen Pentaksiran Kemahiran Asas Pergerakan), and shown in attachment. Results of the object control skill were compared between children from the two schools because even though they reside within the RB reserves area their geographical location differs. Anthropometry and data on the frequency of scores using each left and right foot were reported.

3. RESULTS

Findings are descriptive, as statistical inferences will not be made in this initial study. Subjects' anthropometrics data and their object control skills are reported in Tables 1 and 2 respectively.

The children from SK Banun were 5% taller and 21% heavier and their BMI ratios are 9% higher than children from SK Tiang. However, when both their anthropometrics were compared to the published demography data for boys from the World Health Organizations (WHO) (de Onis et al., 2006) these children falls below the normative levels for weight (less by −1 and −2 standard deviation [SD]) and height (lower than −2 SD). Their BMI ratio was however within the range of the WHO data (Figure 1).

In the object manipulation skill tests that tested their gross motor skill, participants were given a chance to kick a football into a goal area. Since this is an initial exploratory study analysis of data was based on descriptive statistics. Frequencies of successful kicks refer to a maximum score of five and zero or no goal is the minimum achievable from trials for each left and right foot.

Based on performance and comparing numbers of children and their scores; about 55% of the children from SK Tiang scored higher (scores of 4 and 5) than children from SK Banun (40%). Moreover, 50% of children in SK Banun had lower scores (scores of 3 through 1) with 1 child that failed to score a goal using the right foot.

Comparing the score within each school and between the right and left foot (Table 3), on average children in SK Tiang performed

Table 1: Demography of participants (*n*=28) from two schools in the RB Forest Reserves

Measurements	SK Tiang (*n*=18)		SK Banun (*n*=10)	
	Mean	SD	Mean	SD
Weight (kg)	16.75	2.82	20.3	5.19
Height (cm)	104.5	4.51	110.2	5.2
BMI	15.29	1.97	16.72	2.78

SD: Standard deviation

Table 2: Number of kicks both successful and non-successful using the right and left foot

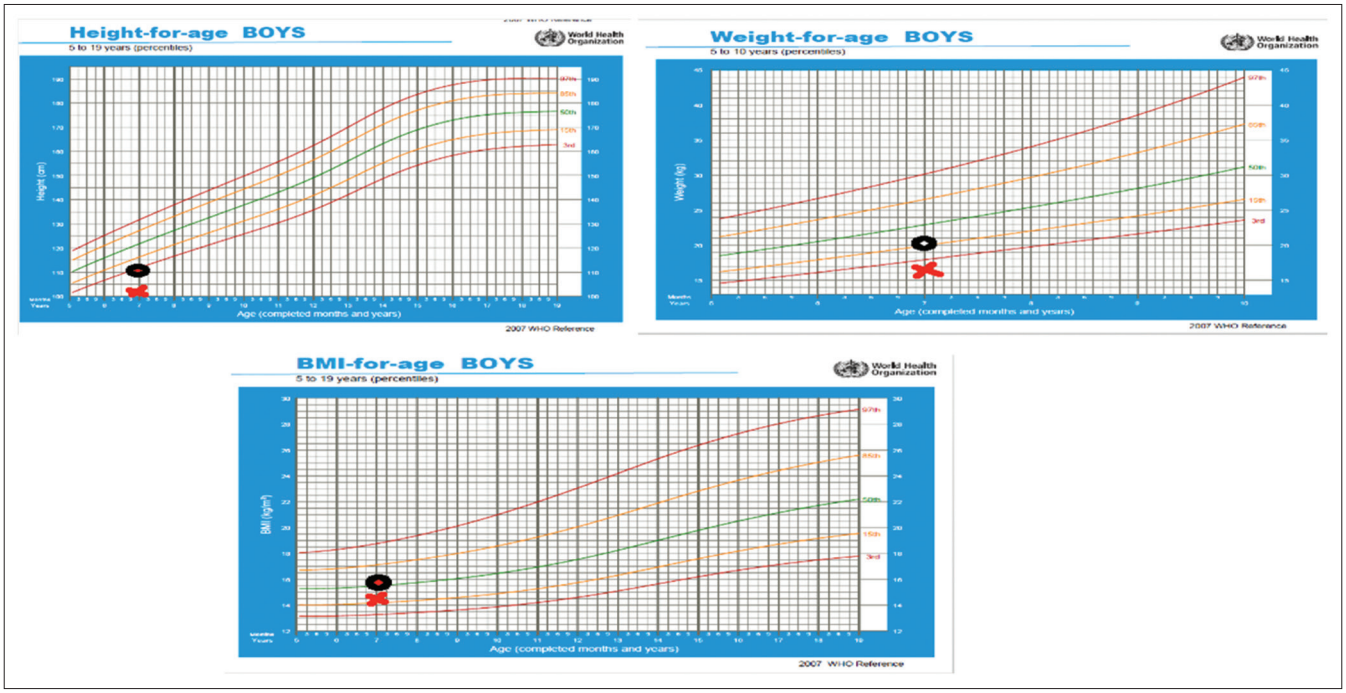
Scores*	SK Tiang (*n*=18) (%)		SK Banun (*n*=10) (%)	
	Right foot	Left foot	Right foot	Left foot
5	4 (22.2)	6 (33.3)	2 (20)	2 (20)
4	6 (33.3)	4 (22.2)	2 (20)	1 (10)
3	6 (33.3)	3 (16.7)	4 (40)	5 (50)
2	1 (5.6)	5 (27.8)	1 (10)	0
1	1 (5.6)	0	0	2 (20)
No goal	0	0	1 (10)	0

*Scores of 4 and 5 (high) and 3 through 1 (low)

Table 3: Total number of person and kicks (both feet)

Category	Total scores	*N* (%)	
		SK Tiang (*n*=18)	SK Banun (*n*=10)
High	10	2 (11)	0
High	9	4 (22.2)	1 (10)
High	8	4 (22.2)	3 (30)
Fair	7	2 (11)	1 (10)
Fair	6	0	2 (20)
Fair	5	5 (27.8)	0
Fair	4	0	1 (10)
Poor	3	1 (5.6)	1 (10)
Poor	2	0	0
Poor	1	0	0
Poor	No score	0	1 (10)
	Total	18	10

Figure 1: Position of height, weight and body mass index of the Orang Asli children compared to World Health Organization published normative values for the same age population (SK Banun and SK Tiang)



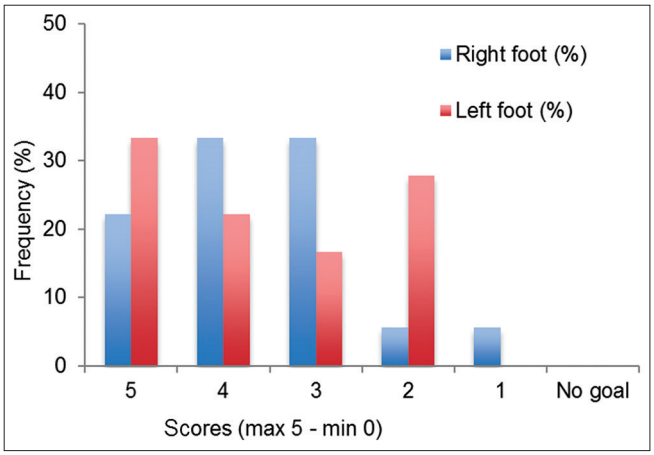
better than children from SK Banun. 10 compared to four had high scores; others fair but similar number of children (one each) in the poor category.

4. DISCUSSION AND CONCLUSION

This initial study investigated motor competency, specifically one of the test that examine gross motor skill of manipulating an object, among 7 years old Orang Asli from the Temiar and Jahai group of RB Forests Reserves in Gerik Perak. The children came from two different geographical areas, one further inside the Forests Reserves and take almost an hour to reach on water while the other can be accessed on four-wheel drive vehicles and about ½ h from the Pulau Banding jetty area.

The descriptive data on motor competence found that children from the inner settlements, SK Tiang, scored better than children from SK Banun. Even though anthropometrically the SK Banun children had the advantage of better height and weight ratio than their counterparts. It is possible that the Jahai children from SK Tiang participated actively in hunter-gatherer lifestyle still practiced by their parents. Moreover, they lived in an environment where their pastimes include frolicking in and out of serene lakes and jungles. Lack of access to modern society made have an advantage in development of their fundamental motor abilities. However, their lower scores on body composition could be associated with lower nutritional intake as suggested by Yusof et al. (2007). It has been suggested that differences in the levels of FMS development are influenced by other factors as well, that include the environment, socioeconomic status, parental influences and structured physical education in schools (Stodden et al., 2008; Jamshaid and Ahmed, 2014).

Figure 2: SK Tiang (Number of successful kicks for right and left foot)

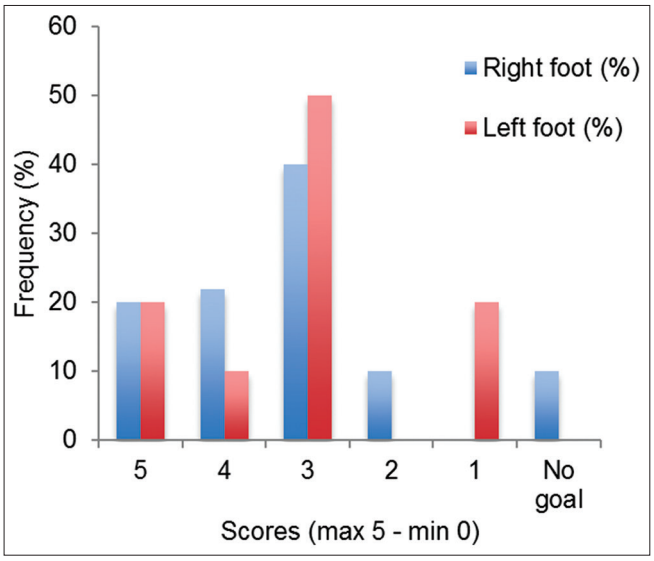


Scores on motor competence were also examined on symmetry of the right and left foot-kicking skills (Figures 2 and 3). The columns represented left and right foot kicks of children within each school. In terms of scores, variability between the right and left foot were slightly larger for SK Tiang compared to SK Banun children. The right foot was more consistent at scoring compared to the left foot. As for SK Banun, 20% of the children demonstrated some symmetry in terms of left and right foot even though that only had a fair score.

5. CONCLUSION

In conclusion, other battery of tests should be administered to further examine the gross motor skill performance for locomotor and object skills manipulation. Specific tests that could examine

Figure 3: SK Banun (Number of successful kicks for right and left foot)



activities involving ability to use both limbs competently should be chosen to verify findings in this study.

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ATTACHMENT – PROTOCOL: OBJECT CONTROL SKILL OF KICKING A BALL USING BOTH THE RIGHT AND LEFT LEGS.

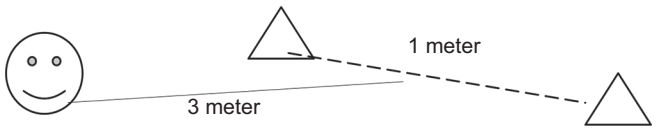
Menyepak bola ke sasaran

Objektif: menguji keupayaan peserta memanipulasi alatan menggunakan anggota bawah badan dengan menyepak bola ke sasaran

Peralatan: bola sepak, 2 kon, lantai berpermukaan rata, pita ukur

Prosedur:

1. Dua kon dengan jarak 1 m yang diandaikan sebagai garisan gol (sasaran) yang diletakkan selari diatas permukaan yang rata.
2. Peserta berdiri 3 m dari kon tersebut.
3. Peserta dikehendaki menyepak bola sepak dengan menggunakkan bahagian dalam kaki ke arah garisan gol (sasaran). Peserta diberikan tiga percubaan.
4. Penguji mencatat jumlah bola yang berjaya melepasi garisan gol.
5. Penguji juga perlu mencatat kualiti pergerakan peserta berdasarkan kriteria prestasi skor yang diberikan di borang skor.



Kaedah Pemarkahan

Menyepak		Kaki kiri	Kaki kanan	Catatan
Bola ke sasaran (3 percubaan)	Bilangan tepat ke sasaran			

Kaki Kiri				Kriteria prestasi	Kaki Kanan			
0	1	2	3		0	1	2	3
				menyepak menggunakkan bahagian dalam kaki				
				kaki di bengkok dan dihayun untuk sepakan				
				bola meleret di atas permukaan lantai				
				kaki imbangan berdiri teguh				
				kedudukan badan terkawal dan seimbang				