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THE PHYSICAL FITNESS STATUS OF PRESCHOOL CHILDREN AGED 4-5 IN KINDERGARTENS IN HO CHI MINH CITY

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Abstract:

Introduction: Assessing the physical fitness of preschool children aged 4-5 in Ho Chi Minh City is an important concern. *Problem Statement*: Currently, there is a need for reliable and valid methods to evaluate the physical fitness of young children in kindergartens to inform educational practices and interventions. *Approach*: The study utilizes scientific research methods in the field of physical education and sports to identify appropriate fitness tests. *Materials and Methods*: Five scientifically grounded, reliable, and valid tests were selected to assess the physical fitness of preschool children aged 4-5. *Results*: The study evaluated the current physical fitness status of 4-5-year-old children in kindergartens across Ho Chi Minh City. *Discussion*: The findings provide a basis for kindergarten teachers to implement these assessments and improve educational activities to enhance the physical fitness of preschoolers. *Conclusions*: The study establishes a foundation for applying standardized physical fitness tests in early childhood education settings to promote better physical health outcomes among preschool children aged 4-5 in Ho Chi Minh City.

Keywords: *Assessment Methods, Educational Interventions, Fitness Evaluation, Early Childhood Education, Health Outcomes.*

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Introduction

Children are the future owners of each country's human resources. Preschool education aims to help children develop physically, emotionally, intellectually, and aesthetically, form the first elements of personality, and prepare children for the first grade. Therefore, physical development, particularly for preschool children, is one of the essential goals of preschool education. For 4-5-year-old children, this is when children have a high need for movement, a wide range of activities, and communication. However, many big cities, especially Ho Chi Minh City, have limited facilities and playground areas, and the number of children in a class is too crowded. This leads to children having little or not enough exercise compared to their age, which affects their physical strength and doesn't meet the expectations of the preschool education program. Additionally, preschool teachers face many difficulties in assessing the physical strength of 4-5-year-old preschool children.

The study suggests implementing physical fitness assessment tests for 4-5-year-old preschool children and examines the current physical fitness levels of Ho Chi Minh City preschoolers. This information will help preschool teachers apply fitness assessment tests and enhance educational activities to improve young children's physical fitness.

APPROACH & PARTICIPANTS

In our research, we employed the following methods: document analysis and synthesis, sampling, questionnaire interviews, pedagogical testing, and statistical methods.

We conducted our research with 200 experts, preschool teachers, preschool managers, and 400 preschool children aged 4-5 in Ho Chi Minh City.

RESULTS AND DISCUSSION

Examining the feasibility of physical fitness assessment tests for preschool children aged 4-5 in Ho Chi Minh City through expert interviews

Through research of domestic and foreign documents, the objectives of the Preschool Education Program, Development Standards for 5-year-old Children; thesis by author Le Anh Tho (1995); thesis by author Lam Thi Tuyet Thuy (2008). Based on the theory and research on the physical condition of 4-5-year-old preschool children in Ho Chi Minh City. The study selected 07 physical fitness assessment tests for 4-5-year-old preschool children in Ho Chi Minh City. The chosen tests meet the professional requirements for assessing the physical fitness of 4-5-year-old preschool children in Ho Chi Minh City.

The study interviewed 200 experts, managers, and preschool teachers in Ho Chi Minh City in two separate interviews, with one month between each. The interview questionnaire used a 5-level Likert scale (*1: Strongly Disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly Agree*), and only the tests with over 70% of respondents choosing "strongly agree" will be used for the following study.

The results in Table 1 indicate that the results of the two interviews for the indicators show $\chi 2 < \chi 2$ table (9,488) with df = 4 at the probability threshold $P > 0.05$. This means the difference in the two observed values is not statistically significant. Additionally, the study selected five tests to evaluate the physical fitness of 4-5-year-old preschool children in Ho Chi Minh City, with teachers, managers, and experts agreeing to choose "strongly agree" as $\geq 70\%$. The tests include:

- Running 10m fast (seconds)
- Jumping on the spot (centimeters)
- Hit and catch the ball with two hands (times per minute)
- Throw the sandbag far with the dominant hand (meters)
- Sit and bend forward (centimeters)

Table 1. Results of interviews with experts regarding physical fitness assessment tests for 4-5-year-old preschool children in Ho Chi Minh City

Test	1st time (n=200)										2nd time (n=200)										χ^2
	Strongly Disagree		*Disagree*		*Neutral*		*Agree*		*Strongly Agree*		*Strongly Disagree*		*Disagree*		*Neutral*		*Agree*		*Strongly Agree*		
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	
Running 10m fast (seconds)	172	86,00	12	6,00	8	4,00	8	4,00	0	0,00	182	91,00	10	5,00	4	2,00	4	2,00	0	0,00	3,13
Jumping on the spot (centimeters)	168	84,00	18	9,00	8	4,00	6	3,00	0	0,00	180	90,00	12	6,00	6	3,00	2	1,00	0	0,00	3,90
Dominant grip force (kilograms)	130	65,00	36	18,00	18	9,00	16	8,00	0	0,00	134	67,00	40	20,00	14	7,00	12	6,00	0	0,00	1,34
Hit and catch the ball with two hands (times per minute)	162	81,00	16	8,00	16	8,00	6	3,00	0	0,00	176	88,00	14	7,00	8	4,00	2	1,00	0	0,00	5,38
Throw the sandbag far with the dominant hand (meters)	158	79,00	18	9,00	14	7,00	10	5,00	0	0,00	172	86,00	12	6,00	10	5,00	6	3,00	0	0,00	3,46
Sit and bend forward (centimeters)	156	78,00	14	7,00	18	9,00	12	6,00	0	0,00	164	82,00	18	9,00	14	7,00	4	2,00	0	0,00	5,20
Balance on one leg (seconds)	122	61,00	32	16,00	28	14,00	18	9,00	0	0,00	126	63,00	34	17,00	28	14,00	12	6,00	0	0,00	1,33

Examining the reliability of physical fitness assessment tests for preschool children aged 4-5 in Ho Chi Minh City

The study utilized the retest method to assess the reliability of five physical fitness tests. The interval between the tests was seven days, conducted under similar conditions. Data was collected from 400 preschool children aged 4-5 (205 boys, 195 girls) in 16 Ho Chi Minh City preschools (9 in the inner city and 7 in the suburbs).

Table 2 presents the results of the data processing. All five selected tests met the required reliability, with correlation coefficients ranging from firm to powerful ($r \geq 0.8$).

Table 2: Reliability testing of physical fitness assessment tests for 4-5-year-old preschool children in Ho Chi Minh City (n=400)

Test	1st time		2nd time		r	P
	$\bar{X}$	σ	$\bar{X}$	σ		
Running 10m fast (sec)	4.04	0.31	3.97	0.35	0.970	< 0.05
Jumping on the spot (cm)	58.43	12.99	58.41	12.92	0.946	< 0.05
Hit and catch the ball with two hands (times per minute)	16.04	1.49	16.86	2.23	0.844	< 0.05
Throw the sandbag far with the dominant hand (m)	2.44	0.31	2.47	0.34	0.959	< 0.05
Sit and bend forward (cm)	7.08	0.76	7.11	0.76	0.992	< 0.05

Assessment of physical fitness of preschool children aged 4-5 at preschools in Ho Chi Minh City

The study utilized five physical tests, assessed for reliability in Table 2, to evaluate the physical condition of 4-5-year-old preschool children. The subjects attended 16 preschools in Ho Chi Minh City, 9 in the inner city, and 7 in the suburbs. The results are outlined in Table 3.

Table 3. Physical Status of 4-5-Year-Old Children at Kindergartens in Ho Chi Minh City

Test	Inner City (n=200)				Outer City (n=200)			
	$\overline{X}$	S	ε	C_v	$\overline{X}$	S	ε	C_v
Running 10m fast (sec)	4.09	0.29	0.01	7.05	3.99	0.33	0.01	8.25
Jumping on the spot (cm)	57.3	13.73	0.03	23.97	59.56	12.15	0.03	20.4
Hit and catch the ball with two hands (times per minute)	16.07	1.15	0.01	7.14	16.01	1.78	0.02	11.10
Throw the sandbag far with the dominant hand (m)	2.36	0.30	0.02	12.59	2.52	0.30	0.02	11.91
Sit and bend forward (cm)	7.00	0.77	0.02	11.06	7.17	0.75	0.01	10.45

The results in Table 3 indicate that the average of children in both urban and suburban groups is sufficiently representative, with a relative error of $\varepsilon \leq 0.05$. The coefficient of variation for the urban group shows high homogeneity (C_v< 10%), Running 10m fast (seconds) and hitting and catching the ball with two hands (times per minute). On the other hand, the suburban group also exhibits high homogeneity (C_v< 10%), Running 10m fast (seconds). The test reveals average homogeneity (10% ≤ C_v≤ 20%) in the urban group for Throw the sandbag far with the dominant hand (m), and for the suburban group, it is Sit and bend forward (cm) and Hit and catch the ball with two hands (times per minute). Notably, the Jumping on the spot (cm) in both groups shows low homogeneity (C_v> 20%).

- Running 10m fast (sec): The 10m sprint time for 4-5-year-old inner-city children is 4.09±0.29 seconds, compared to 3.99±0.33 seconds for suburban preschool children.

- Jumping on the spot (cm): The average long jump distance achieved by 4-5-year-old inner-city boys is 57.3 cm with a standard deviation of 13.73 cm. In comparison, 4-5-year-old suburban preschool children achieve an average distance of 59.56 cm with a standard deviation of 12.15 cm. This indicates that 4-5-year-old inner-city preschool children have a lower long jump performance than their suburban counterparts.

- Hit and catch the ball with two hands (times per minute): The rate of hitting and catching the ball with two hands for 4-5-year-old inner-city boys is 16.07 ± 1.15 balls per minute. In comparison, 4-5-year-old suburban preschool children hit and catch the ball at 16.01 ± 1.78 balls per minute. This suggests that 4-5-year-old inner-city preschool children perform better in hitting and catching the ball with two hands than their suburban counterparts.

- Throw the sandbag far with the dominant hand (m): The throwing distance achievement with the dominant hand for 4-5-year-old inner-city boys is 2.36 ± 0.30m, while for 4-5-year-old suburban preschool children, it is 2.52 ± 0.30m. This means that 4-5-year-old inner-city preschoolers exhibit a shorter throwing distance than their suburban counterparts.

- Sit and bend forward (cm): The average forward bending of 4-5-year-old urban boys is 7.00 ± 0.77cm, while suburban preschool children in the same age group have an average of 7.17 ± 0.75cm. Urban preschool children exhibit less flexibility in forward bending than their suburban counterparts.

The study by author Lam Thi Tuyet Thuy, published in 2008, compares the physical condition of preschool boys and girls aged 4-5.

Table 4. Physical condition of 4-5-year-old boys and girls in preschools, Ho Chi Minh City

Test	Boys (n=205)				Girls (n=195)			
	$\overline{X}$	S	ε	C_v	$\overline{X}$	S	ε	C_v
Running 10m fast (sec)	3.89	0.20	0.01	5.09	4.20	0.33	0.01	7.83
Jumping on the spot (cm)	54.48	12.92	0.03	23.72	62.57	11.76	0.03	18.79
Hit and catch the ball with two hands (times per minute)	16.02	1.57	0.01	9.79	16.06	1.41	0.01	8.81
Throw the sandbag far with the dominant hand (m)	2.44	0.33	0.02	13.34	2.44	0.29	0.02	11.97
Sit and bend forward (cm)	7.31	0.72	0.01	9.87	6.85	0.74	0.02	10.82

In Table 4, the results indicate:

- Running 10m fast(sec):The 10-meter running time for 4-5-year-old boys in Ho Chi Minh City is 3.89 ± 0.20 seconds, while that for girls is 4.20 ± 0.33 seconds. According to research by Lam Thi Tuyet Thuy (2008), 4-5-year-old preschool children in urban areas in the central region have recorded times of 3.22 ± 0.23 seconds for boys and 3.16 ± 0.37 seconds for girls. This indicates that 4-5-year-old preschool children in Ho Chi Minh City have slower running times than boys and girls in the central region.

- Jumping on the spot (cm): The average long jump performance of 4-5-year-old boys in Ho Chi Minh City is 54.48 ± 12.92 cm; for girls, it is 62.57 ± 8.55 cm. In comparison, the long jump performance for boys in the central region is 84.12 ± 11.55 cm, and for girls, it's 81.65 ± 12.97 cm (Lam Thi Tuyet Thuy, 2008). Therefore, 4-5-year-old preschool children in Ho Chi Minh City have a lower long jump performance compared to their counterparts in the central region for both boys and girls.

- Hit and catch the ball with two hands (times per minute): In Ho Chi Minh City, 4-5-year-old boys achieve an average of 16.02 ± 1.57 balls/minute in hitting and catching the ball with two hands, while girls achieve an average of 16.06 ± 1.41 balls/minute. In comparison, 4-5-year-old preschool children in the central region achieve 9.12 ± 5.89 balls/minute for boys and 9.99 ± 4.51 balls/minute for girls (Lam Thi Tuyet Thuy, 2008). The statistics show that boys and girls in the same age group in Ho Chi Minh City perform better in hitting and catching the ball with two hands.

- Throw the sandbag far with the dominant hand (m): The long throw performance with the dominant hand for 4-5-year-old boys in Ho Chi Minh City is 2.33 ± 0.33m, and for girls, it is 2.44 ± 0.29m. In comparison, for 4-5-year-old preschool children in the central region, the performance is 4.58 ± 0.59m for boys and 5.62 ± 0.47m for girls (Lam Thi Tuyet Thuy, 2008). Therefore, boys and girls in the 4-5-year-old age group from Ho Chi Minh City demonstrate poorer performance in throwing than their counterparts in the central region.

Sit and bend forward (cm): The average forward-bending sitting height of 4-5-year-old boys in Ho Chi Minh City is 7.31 ± 0.72cm; for girls, it is 6.85 ± 0.74cm. In comparison, the measurements for 4-5-year-old urban preschool children in the central region are 2.04 ± 1.85cm for boys and 1.77 ± 1.64cm for girls (Lam Thi Tuyet Thuy, 2008). This indicates that the 4-5-year-old preschool children in Ho Chi Minh City have better measurements for both boys and girls.

CONCLUSION

The article has identified five physical fitness assessment tests for 4-5-year-old preschool children in Ho Chi Minh City. These tests aim to ensure reliability ($r \geq 0.8$) and includeRunning 10m fast (seconds), Jumping on the spot (centimeters), Hit and catch the ball with two hands (times per minute), Throw the sandbag far with the dominant hand (meters), Sit and bend forward (centimeters). The research suggests inner-city children in Ho Chi Minh City may have weaker physical fitness than suburban and Central region children. This difference could be due to various factors such as living conditions, nutrition, obesity, excessive use of technology, and sedentary behavior, which may all contribute to the lower physical fitness levels observed in inner-city children.

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