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Children and Adolescents' Fitness Skill Level in Physical Activity: A Motivational Concern for Public Health Education

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Abstract: ***Background: Physical activity is a public health factor that relates to human movement patterns and structures of the musculoskeletal systems that requires the intake and expenditure of kilocalories for improved wellness and healthy lifestyle, which prevents cardiovascular related diseases, morbidity and mortality. Physical fitness is a well structured, organized and planned physical activity and education programme that involves circuit training, which requires the use of maximum volume of oxygen, the intake and expenditure of kilocalories by the musculoskeletal and cardiovascular systems for functional movement skills, fitness, health and wellness acquisition, which also helps prevent lifestyle related cardiovascular diseases, mortality and morbidity. This study only aimed at scoring the measured and evaluated factors under children and adolescents' fitness skill level in physical activity: a motivational concern for public health education. Methods: American Association for Health, Physical Education and Recreation (AAHPER) was adopted as survey instrument. The variables were analyzed using (IBM SPSSv.23) Statistics, with sampled participants of (N=122); mean and standard deviation (M±SD) age of (14.5±5.5)with a response rate of (100%), ranged from (9-20) years, selected using a process of simple random sampling method. Results: A significant difference was recorded regarding all tested variables with highest scores displayed as follows: under USS [Shuttle-Run-Test = (2.77±0.668);t value = 2.982 with 2 tailed sig. (.003) and Fifty-Yards-Dash-Test = (2.77±0.864); t value = 0.343 with 2 tailed sig. (.732)] and under TSS [Fifty-Yards-Dash-Test = (2.72±0.710); t value = 0.343 with 2 tailed sig. (.732)] in tables 2&5 respectively.The results were tested @ significance level p<0.05. Conclusion and Recommendation: From the findings, it was worthy to note that, the schools targeted for the study had all offered physical education as a subject and that the pupils already had ideas about physical fitness and wellness activities, which as a result, the researchers did not find it difficult to direct the required activities.It was recommended that; principals and teachers should always be in constant touch with their pupils by educating and encouraging them about the importance and relevance of physical health education as a subject in society.***

Keywords: Physical Activity, Physical Education, Physical Fitness and Public Health

1. Introduction

Physical activity can be expressed as a human kinetics or movement(s) produced or trajected by the musculoskeletal systems for functional movement skill, which when undertaken regularly for a prolonged period of time (PPT) from moderate to vigorous physical activities (MVPA) devoid of injuries to the tissues of the muscles, ligaments, tendons, joints and bones, improves physiological and psychological health and wellness, *Bebeley et al. (2017)*,and it is of significance to the holistic wellness and wellbeing of an individual, *Bebeley et al. (2017)*,which can be more positive, productive, effective, efficient, fruitful and functional if due attention and significant recognition is giving to the teaching and learning of health and physical education or literacy in schools, *Bebeley (2016); Bebeley et al. (2017)* and colleges to improve it literacy level, and by implication also includes physical activity, *Bebeley et al. (2017)*.Physical activity can also beexpressed as that aspect of public health education with determinant factors (i.e. personal, social and environmental) that deals with human kinetics of the musculoskeletal systems, which requires both energy or caloriein take and expenditure for improved and sustainable physiological and psychosocial fitness, wellness and healthy lifestyle, *Bebeley et al. (2017)*.The basic aerobic endurance training that will be somehow sufficient for children, adolescents, youths and adults for effective approach in the improvement of maximum volume of oxygen for sustainable physical education, physical activity, physical fitness, wellness and motor skill development referencing the advantages and self-efficacy, is by applying the endurance high intensity interval training, *Bebeley (2015)*, which can be implemented in schools (pre-schools, primary schools, junior high schools and senior high schools) and colleges especially undergraduates during physical education, physical fitness and wellness, and physical literacy lessons, thereby leading to the exposure of pupils as well as students to weight designed physical education programmes i.e. physical literacy, health and physical education literacy, *Bebeley (2016)* and nutrition education, by helping them improve their physical fitness, wellnessand motor skill level components that include speed, agility, reaction time and power, *Bebeley (2015)*, with regards sustainable future participation in physical activity, physical fitness, wellness and motor skills with special focus on the advantages (pros.),motive, behavioural regulation, self-efficacy and weekly leisure time spent on physical activity for better physical activity status during childhood, adolescent age, adulthood and old age, *Bebeley et al. (2017)*.

Physical activity being a sub category of physical education (i.e. an education of the physical and through the physical approach), is an educational programme that teaches pupils and students, the physique of human kinetics/movements,

produced by the musculoskeletal systems, which when undertaken regularly from moderate to vigorous physical activity (MVPA) improves not only the physiological of the individual, but also the psychosocial health, *Bebeley et al. (2017)*, and the physical fitness and wellness (intellectual wellness, spiritual wellness, social wellness etc.) of the individual.Autonomy in self-determination to engage in physical activity for physical fitnessand wellness and for motor development rather than rewards and threats, will help improve greatly the motivational level of school pupils and college students in physical activity, physical fitness and motor development with respect to sustainable future participation growth in line with the advantages (pros.), motive, behavior regulation, self-efficacy and weekly leisure time spent on physical activity for better physical activity status regarding physical activity, *Bebeley et al. (2017)*, physical fitness and wellness and motor development. Therefore, a mandatory institution of a programme or course in physical literacy or education, fitness and wellness for all school pupils and college students before graduation will help improve and guarantee motivational level in physical activity, physical fitness and wellness and motor development, which is the most prominent factor that stimulate and maintain individuals' participation in physical activity, *Bebeley et al. (2017)*, fitness and wellness and motor development.And that by adopting and allotting enough time to the teaching and learning of physical literacy/education activities, *Laggao et al. (2017); Bebeley (2016); Bebeley et al. (2011)*, during and outside school or college hours, will help greatly with sustainable future participation in physical activity, *Bebeley et al. (2017)*, fitness and wellness and motor development. With regards attention, it is but very vital to give adequate attention to the teaching and learning of physical education activities, *Bebeley et al. (2017)*, conducting seminars, training workshops and holding focus group discussions amongst pupils and students in the areas of physical fitness and wellness, physical activity and or exercise, motor development, health education, *Bebeley (2016); Bebeley et al. (2011)*, knowledge about the none-usage of drugs like cigarette smoking, alcohol consumption and performance enhancing drugs as well as wellness literacy with respect to ageing, *Bebeley et al. (2016)*, for sustainable involvement and motivation in physical activity/fitness in schools and colleges, is of outmost importance for effective growth and development of physical activity for adolescents as well as adults, *Bebeley et al. (2017)*.

In determining the individuals' motivation for physical activity, physical fitness and wellness and motor development, health professionals and clinicians likephysical and public health educators, can use this knowledge to create awareness and develop effective and efficient intervention to motivate the general public especially children, adolescents and adults (young adults, middle-aged adults and older adults) to frequently and constantly engage in physical activity,*Bebeley et al. (2017)*, for better physical fitness and wellness and for motor development,practice the abstinence knowledge from eating disorders like anorexia nervosa, bulimia nervosa and binge eating disorders, *Bebeley et al. (2017)*, practice the knowledge about the non-usage of drugs like cigarette smoking, alcohol consumption and performance enhancing drugs, *Bebeley et al. (2016)*, practice the knowledge about abstinence from diseases associated with unsafe sexual practices like HIV/AIDS, syphilis and gonorrhea, *Bebeley et al. (2016)*, focus on knowledge about knowing and monitoring of vital signs like heart rate, blood pressure and body mass index, *Bebeley et al. (2017)*, and have knowledge about preventing sport injuries like a chilles tendinitis, runner's knee/patellofemoral pain syndrome and shin splints,*Bebeley et al. (2016)*, thereby not only increasing the advantages (pros.), motive, behavioural regulation, self-efficacy and weekly leisure time spent on physical activity for better physical activity status, but also help individuals, communities and the environment as a whole to reduce lifestyle-related illnesses, mortality and morbidity, *Bebeley et al. (2017)*.

Finally, motivation can be expressed as the science of psychology that deals with the internal process or approach (intrinsic motivation) and as an external process or approach (extrinsic motivation) that possesses both the factors of nature i.e. inborn tendencies (tendencies acquired by an individual before birth – innate abilities) and nurture i.e. environmental tendencies (tendencies acquired by an individual after birth in an environment),*Bebeley et al. (2017)*, that has the ability, power, focus, intellect and potential to initiates, ignites, guides, maintains goal-oriented physical activity, physical fitness, physical education, wellness and explain behaviours that involves the holistic forces i.e. emotional force, social force and cognitive force that activate the behavioural direction of an individual desires, needsand actions, which in includes the psychomotor learning (i.e. the physique such as physical activity, fitness, education), affective learning (i.e. the moral such as abstinence, adherence) and cognitive learning (i.e. the intelligence quotient such as knowledge acquisition), *Bebeley et al. (2017).*

This study only aimed at scoring the measured and evaluated factors under children and adolescents' fitness skill level in physical activity: a motivational concern for public health education in maintaining healthy lifestyle, wellness, fitness, motor development and reducing cardiovascular related diseases, mortality and morbidity amongst children, adolescents and youths, cased at University Secondary School and Taiama Secondary School in Moyamba District, Sierra Leone.

2. Methodology

Respondents

The survey was carried outonsampled participants of five hundred (**N=122**),with a mean and standard deviation (**M±SD**) age of (**14.5±5.5**)with **100%** response rate,age rangedfrom nine to twenty(**9-20)**years,selected mainlyfrom amongst the Junior Secondary School (**JSS**)pupils, from the level of JSS I to JSS III of two selected Secondary Schools, through aprocess or a mechanism calledsimple random sampling (**SRS**) method or technique.

Instrumentation

The research instrument adopted for the surveyinclude: a mat and other comfortable surfaces for the pupils, stopwatch

for timing the **Bent-Knee-Sit-Ups-Test**, *AAHPER (1976);* a floor space sufficiently large to allow acceptable traction, stop watches accurate to a tenth of a second, two wooden blocks (2"x2"x4") per test station for **Shuttle-Run-Test**, *AAHPER(1976);*a tape measured at least 10 feet long and a masking tape, mat/sand, a rectangular space for **Standing-Long-Jump-Test**, *AAHPER (1976)*and a stopwatch accurate to one-tenth second with split timer, a test course or suitable length to ensure safe stopping after the sprintfor**50-Yards-Dash-Test**, *AAHPER (1976).*

Procedure

The sampled participants were each tested and evaluated on their respective school campuses using the practical field approach, in principle with the instructions provided for by the survey instrument, using tablets, computers and smart phones installed with census survey entry (**CSEntry**) and census survey processing (**CSPro.**) application software respectively.

Analysis

Descriptive Statistics, Frequency Test, Analysis of Variance (**ANOVA**) Test and Independent Samples Test from **IBM SPSSv.23** Statistics were used to compute, analyze and compare the findings of the survey using a significant value of ***P<0.05***.

3. Results

In the presentation of data, it is evidenced that there were differences in the mean and standard deviation interpretations of demographics, slated by Sex (1.46±0.504), Age (3.08±0.781), Religion (1.28±0.452), Region (1.39±0.822) and Educational Level (2.02±0.826) with respect to (**USS**) and Sex (1.51±0.504), Age (3.15±0.703), Religion (1.31±0.467), Region (1.26±0.545) and Educational Level (2.02±0.806) for (**TSS**) respectively, as referenced in table 1.

Table 1: Demographic Mean Interpretation of Data Between Schools (N=122)

School		Descriptive Statistics Frequency				
		Sex	*Age*	*Religion*	*Region*	*Educational Level*
USS Njala	n	61	61	61	61	61
	Mean	1.49	3.08	1.28	1.39	2.02
	Std. Deviation	.504	.781	.452	.822	.826
TSS Taiama	n	61	61	61	61	61
	Mean	1.51	3.15	1.31	1.26	2.02
	Std. Deviation	.504	.703	.467	.545	.806
Total	n	122	122	122	122	122
	Mean	1.50	3.11	1.30	1.33	2.02
	Std. Deviation	.502	.741	.458	.698	.813

However, Physical Fitness Test results also showed similar differences in mean and standard deviation interpretations by Schools with respect to Bend-Knee-Sit-Ups-Test (2.64±1.001), Shuttle-Run-Test (2.77±0.668), Standing-Long-Jump-Test (2.56±0.827) and Fifty-Yards-Dash-Test (2.77±0.864) for (**USS**) and Bend-Knee-Sit-Ups-Test (2.49±0.924), Shuttle-Run-Test (2.41±0.668), Standing-Long-Jump-Test (2.62±0.687) and Fifty-Yards-Dash-Test (2.72±0.710) for (**TSS**) respectively, as referenced in tables 2, 3 and 4.

Table 2: Physical Fitness Test Mean Interpretation of Data Between Schools (N=122)

School		Descriptive Statistics Frequency			
		Bend-Knee-Sit-Ups-Test	*Shuttle-Run-Test*	*Standing-Long-Jump-Test*	*Fifty-Yards-Dash-Test*
USS	n	61	61	61	61
	Mean	2.64	2.77	2.56	2.77
	Std. Dev.	1.001	.668	.827	.864
TSS	n	61	61	61	61
	Mean	2.49	2.41	2.62	2.72
	Std. Dev.	.924	.668	.687	.710
Total	n	122	122	122	122
	Mean	2.57	2.59	2.59	2.75
	Std. Dev.	.962	.689	.758	.788

Table 3: T-Test of Group Statistics for Physical Fitness Test Between Schools (N=122)

Physical Fitness Scale	School	T-Test of Group Statistics			
		n	*Mean*	*Standard Deviation*	*Standard Error Mean*
Bend-Knee-Sit-Ups-Test	USS	61	2.64	1.001	.128
	TSS	61	2.49	.924	.118
Shuttle-Run-Test	USS	61	2.77	.668	.086
	TSS	61	2.41	.668	.085
Standing-Long-Jump-Test	USS	61	2.56	.827	.106
	TSS	61	2.62	.687	.088
Fifty-Yards-Dash-Test	USS	61	2.77	.864	.111
	TSS	61	2.72	.710	.091

Table 4: Descriptive Statistics Test Between Schools for Physical Fitness Test (N=122)

Physical Fitness Scale	School	Descriptive Statistics Test				
		n	*Mean*	*Standard Deviation*	*95% CI Mean*	
					Lower	*Upper*
Bend-Knee-Sit-Ups-Test	USS	61	2.64	1.001	2.38	2.90
	TSS	61	2.49	.924	2.26	2.73
Shuttle-Run-Test	USS	61	2.77	.668	2.60	2.94
	TSS	61	2.41	.668	2.24	2.58
Standing-Long-Jump-Test	USS	61	2.56	.827	2.35	2.77
	TSS	61	2.62	.687	2.45	2.80
Fifty-Yards-Dash-Test	USS	61	2.77	.864	2.55	2.99
	TSS	61	2.72	.710	2.54	2.90
Note: CI = Confidence Interval						

T test (t) score for Bend-Knee-Sit-Ups was 0.846 with significance 2-tailed sig. 2-tailed of(0.399) having F-value of (0.716±0.399), Shuttle-Run (t) score was (2.982) with sig. 2-tailed of (0.003) having F-value of (8.892±0.003), Standing-Long-Jump (t) score was (-0.476) with sig. 2-tailed (-0.066) having F-value of (0.227±0.635) and Fifty-Yards-Dash (t) score is (0.343) with sig. 2-tailed (-0.732) having F-value of (0.118±0.732), but with all having the same df of 120, as referenced in tables 5 and 6.

Table 5: Independent Samples Test (Equality of Means) for Physical FitnessTest (N=122)

Physical Fitness Scale	Equal Variances Assumed T-Test					
	t	*df*	*Sig. (2-tailed)*	*Mean Difference*	*95% CI Mean*	
					Lower	*Upper*
USS and TSS Combined						
Bend-Knee-Sit-	.846	120	.399	.148	-.198	.493

Ups-Test						
Shuttle-Run-Test	2.982	120	.003	.361	.121	.600
Standing-Long-Jump-Test	-.476	120	.635	-.066	-.338	.207
Fifty-Yards-Dash-Test	.343	120	.732	.049	-.234	.333
Note: CI = Confidence Interval						

Table 6: Analysis of Variance (ANOVA) Test by School for Physical Fitness Test (N=122)

Physical Fitness Scale	Analysis of Variance (ANOVA)				
	Sum of Squares	*df*	*Mean Square*	*F*	*Sig.*
USS and TSS Combined					
Bend-Knee-Sit-Ups-Test	.664	1	.664	.716	.399
Shuttle-Run-Test	3.967	1	3.967	8.892	.003
Standing-Long-Jump-Test	.131	1	.131	.227	.635
Fifty-Yards-Dash-Test	.074	1	.074	.118	.732

4. Discussion of Results

The four measured and evaluated variables in this research i.e. physical fitness and wellness are all components of physical fitness (speed, agility, reaction time and power). In similar research, *Bebeley et al. (2011)*, explains about physical education program on motor fitness of primary school pupils in Sierra Leone with respect to speed, agility, reaction time and power.

The level of speed of the participants, which was tested using Fifty-Yards-Dash had a positive skewedness, which as a component of physical fitness and wellness, is required for excellence performance in almost all sporting activities or competitions (athletics, swimming, games and sports etc.), fitness mobilization, physical activity improvement and motor development by every sport woman or man, *Bebeley et al. (2011).*

Agility, which was also tested using Standing-Long-Jump, indicates improved performance among participants with a positive skewed result, which is also an important component of physical fitness in many sporting events or competition, and it is the maneuverability of the body and its parts for accuracy, which isfundamental to good performance in practically all courts and field sport children need to function effectively, *Bebeley et al. (2011).*

Reaction Time, which was tested using Shuttle-Run, which according to the outcome of the results shows an average level of improved performance. It is a physical fitness component skill related, which is one of the requirements to win in sport and is as vital as other components like endurance and speed especially in speed oriented events, *Bebeley et al. (2011).* This is an indication that children with good reaction time have tendency to excel in many sports especially speed oriented ones, *Bebeley et al. (2011).*

And finally, power, which was tested using Bend-Knee-Sit-Ups, was another elemental component of physical fitnesstest results, which had a little improved performance by the participants. However, an early development of motor fitness for children, adolescents and youths is very essential for motivating them into doing sport and other fitness activities, which can either be recreational or competitive and a good physical education programme is a sure way to this goal, *Bebeley et al. (2011).*

5. Conclusion and Recommendation

From findings, it was worthy to note that, the schools targeted for the study had all offered physical education and the pupils had an idea about physical fitness activities and education programmes. It was evident, as the researchers did not find it difficult to direct the activities. Sooner the activities were described, the pupils were able to catch up. The only issue was naming the activities and the technicalities involved but the pupils were able to do well.

It was also evident that the schools targeted were not conducting practical lessons for the pupils, as they were very much impressed about the activities they were engaged in, which in fact led to those that were not chosen due to simple sampling method for the exercise were very much weary in seeing their peers performing activities of that nature.

Based on the discussion of the findings and conclusion thereafter, it was recommended that, principals should always be in constant touch with their pupils by educating and encouraging them about the importance and relevance of physical health education as a subject in society. Also that, teachers should be role models and encourage the pupils to treat the subject with all the seriousness it deserves, and that sensitizations about negative perception of the subject should also be a watchword on the part of those teachers as they have a greater influence on the pupils.

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7. Conflict of Interests

The authors declared no conflict of interests regarding the publication of this manuscript.

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