

Physical Exercise Self-Efficacy for College Students' Level of Motivation in Physical Activity

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Abstract: *Background:* Physical activity is 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 calorie intake and expenditure for improved and sustainable physiological and psychosocial fitness, wellness and healthy lifestyle. This study only aimed at scoring the measured and evaluated factors under physical exercise self-efficacy (PESE) for college students' level of motivation in physical activity. *Methods:* Physical Exercise Self-Efficacy Scale Questionnaire (PESESQ) was adopted as survey instrument. The variables were analyzed using IBM SPSS v.23 Statistics, with sampled participants of N=500; mean and standard deviation (M±SD) age of 28.5±9.5 ranged from 19-38 years with a response rate of 100% undergraduate students, selected using a simple random sampling method. *Results:* A significant difference was recorded and displayed regarding all scored and tested variables in the results with "when I am busy" scored highest [F = 9.540 with sig. (.002), t = -3.089 with 2-tailed sig. (.002)] and "when I feel tense" scored lowest [F = .013 with sig. (.909), t = .114 with 2-tailed sig. (.909)], in tables 5&6 respectively. The results were scored and tested @ significance level of p<0.05. *Conclusion and Recommendation:* In conclusion, the greater majority of the overall participants responded more to "I can manage to carry out my exercise intentions even when I am busy" under physical exercise self-efficacy, meaning amidst all busy schedules including study pressure, respondents were determined to engage in physical activity. Recommendation was made that, a mandatory course or programme in health and physical education or literacy be instituted to help educate the barriers of self-efficacy regarding physical activity for all college students before graduation to help maximize the level of motivation in physical activity.

Keywords: Physical Education, Self-Efficacy, Motivation and Physical Activity

1. Introduction

Physical activity being a sub category of physical education (i.e. an education of the physical and through the physical approach for the holistic development of an individual, which include the cognitive, affective and psychomotor respectively), is an educational programme that teaches pupils and students, the physique of human kinetics, produced by the musculoskeletal systems, which when undertaken regularly from moderate to vigorous physical activity (MVPA) improves not only the physiological, but also the psychosocial health, Bebeley et al. (2017). Physical activity can also be expressed as a human kinetics or movement(s) produced or trajectory by the musculoskeletal systems, 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 wellbeing of an individual, Bebeley et al. (2017), which can be more productive, effective and efficient if due attention is given to the teaching and learning of health and physical education in schools, Bebeley (2016) and colleges to improve its literacy level, and by implication also includes physical activity, Bebeley et al. (2017).

However, the basic aerobic endurance training (BAET) that will be somehow sufficient for children, adolescents and adults for effective approach in the improvement of maximum volume of oxygen for sustainable physical activity referencing the advantages and self-efficacy, is by applying the endurance high intensity interval training,

Bebeley (2015), which can be implemented in schools and colleges during physical education and literacy lessons, thereby leading to the exposure of pupils and 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 motor fitness level components that include speed, agility, reaction time and power, Bebeley (2015), with regards sustainable future participation in physical activity with special focus on the advantages (pros.) and self-efficacy during adulthood and old age, Bebeley et al. (2017). 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). With regards attention, it is but 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, activity and or exercise, health education, Bebeley (2016), knowledge about the non-usage of drugs, Bebeley et al. (2016) and wellness literacy with respect to ageing for sustainable involvement and motivation in physical activity in schools and colleges, is of utmost importance for effective growth and development of physical activity for adolescents as well as adults, Bebeley et al. (2017).

Nonetheless, autonomy in self-determination rather than rewards and threats, will help improve greatly the motivational level of college students in physical

activity with respect to sustainable future participation growth in line with the advantages (pros.) and self-efficacy regarding physical activity, *Bebeley et al. (2017)*. Therefore, a mandatory institution of a programme or course in physical literacy or education for all college students before graduation will help improve and guarantee motivational level in physical activity, which is the most prominent factor that stimulate and maintain individuals' participation in physical activity, *Bebeley et al. (2017)*. And by determining the individuals' motivation for physical activity, health professionals and clinicians like physical and public health educators, can use this knowledge to create awareness and develop effective and efficient intervention to motivate the general public to frequently and constantly engage in physical activity, *Bebeley et al. (2017)*, practice the abstinence knowledge from eating disorders, *Bebeley et al. (2017)*, practice the knowledge about the non-usage of drugs, *Bebeley et al. (2016)*, practice the knowledge about abstinence from diseases associated with unsafe sexual practices, *Bebeley et al. (2016)*, focus on knowledge about knowing and monitoring of vital signs, *Bebeley et al. (2017)*, and have knowledge about preventing sport injuries, *Bebeley et al. (2016)*, thereby not only increasing the advantages (pros.) and self-efficacy of physical activity, but also help individuals, communities and the environment as a whole to reduce lifestyle-related illnesses, *Bebeley et al. (2017)*, mortality and morbidity.

This study only aimed at scoring the measured and evaluated factors under physical exercise self-efficacy (PESE) for college students' level of motivation [which is the process or approach that deals with internal or intrinsic motivation and external or extrinsic motivation that possesses both the factors of nature i.e. inborn tendencies and nurture i.e. environmental tendencies that has the ability and potential to initiates, ignites, guides, maintains goal-oriented physical activity 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, needs and actions, which in includes the psychomotor learning (i.e. the physique such as physical activity), affective learning (i.e. the moral such as abstinence) and cognitive learning (i.e. the intelligence quotient such as knowledge)] in physical activity because of its public health education role of maintaining healthy lifestyle, fitness, wellness, and by reducing and preventing cardiovascular related diseases, mortality and morbidity amongst college students based in the South and East of Sierra Leone, West of Africa.

2. Methodology

Survey Participants

The survey was carried out on sampled participants of five hundred (N=500), with a mean and standard deviation (M±SD) age of 28.5±9.5 ranged from 19-38 years, selected mainly from among undergraduate students from both Njala University (NU) and Eastern Polytechnic (EP) with 100% response rate, using the process of simple random sampling method.

Survey Instrument

The Physical Exercise Self-Efficacy Scale Questionnaire (PESESQ) was the research instrument, which has been used in research to assess self-efficacy and exercise, *Schwarzer et al. (2005)*, with good item-total correlations ranged from (r=0.4 to 0.76) and with excellent internal consistency of (Cronbach's alpha=0.88). Validity was supported by a moderate correlation with exercise intention (r=0.33) and physical activity behaviour (r=0.39) at a 6-month follow-up.

Data Collection Procedure

The sampled participants were each interviewed and questioned on their respective college campuses within the study scope of location, using the on-the-spot face-to-face method for measurement and evaluation, in adherence to the instructions provided for by the research instrument, applying the census survey entry (CSEntry) and census survey processing (CSPro.) application software respectively, using computers, tablets and smart phones.

Data Analysis

Descriptive Statistics, Cross Tabulation, Pearson Chi-Square Test, Analysis of Variance (ANOVA) and Independent Samples Test from IBM SPSS v.23 Statistics were used to compute, analyze and compare the findings of the survey using a significant value of P<0.05.

3. Results

The demographic mean and standard deviation (M±SD) values of both weight and height by institution were recorded in descending order i.e. weight (69.05±10.908) and height (6.23±0.596) of participants from Eastern Polytechnic (EP) and weight (62.04±13.497) and height (6.07±0.552) of participants from Njala University (NU) respectively. With all scored factors measured and evaluated under physical exercise self-efficacy scale (PESES), "Even if I feel depressed" appeared to have the highest score values and percentages of the response "(very certain)". And "Even when I am busy" appeared with lowest scores and percentages of the response "(very certain)", as slated in table 1 accordingly.

Table 1: Frequency of Descriptive Statistics for Physical Exercise Self-Efficacy (N=500)

Physical Exercise Self-Efficacy Scale (PESES)	Frequency Distribution Responses					
	Very Certain	%	Fairly Certain	%	Not Certain	%
<i>I can manage to carry out my exercise intentions even:</i>						
When I have worries and problems	122	24.4	202	40.4	176	35.2
If I feel depressed	132	26.4	191	38.2	177	35.4
When I feel tense	121	24.2	184	36.8	195	39.0
When I am tired	109	21.8	202	40.4	189	37.8
When I am busy	92	18.4	193	38.6	215	43.0

Comparative scored factors measured and evaluated under physical exercise self-efficacy scale (PESES) by institution, Eastern Polytechnic (EP) respondents recorded higher with physical exercise self-efficacy compared to Njala University

(NU) respondents for the response “(very certain)” with no significant value at level of $p < 0.05$ in the Pearson χ^2 test, slated in tables 2 and 3 respectively.

Table 2: Crosstabulation for Physical Exercise Self-Efficacy by Institution (N=500)

Physical Exercise Self-Efficacy Scale (PESES)	Njala University			Eastern Polytechnic		
	Very Certain	Fairly Certain	Not Certain	Very Certain	Fairly Certain	Not Certain
<i>I can manage to carry out my exercise intentions even:</i>						
When I have worries and problems	44	127	79	78	75	97
If I feel depressed	45	123	82	87	68	95
When I feel tense	47	118	85	74	66	110
When I am tired	45	121	84	64	81	105
When I am busy	49	116	85	43	77	130

Table 3: Pearson Chi-Square Statistics for Physical Exercise Self-Efficacy (N=500)

Physical Exercise Self-Efficacy Scale (PESES)	Pearson Chi-Square Test		
	Chi-square	df.	Sig.
<i>I can manage to carry out my exercise intentions even:</i>			
When I have worries and problems	24.702	2	$\leq .001^*$
If I feel depressed	30.156	2	$\leq .001^*$
When I feel tense	23.926	2	$\leq .001^*$
When I am tired	13.566	2	.001*
When I am busy	17.691	2	$\leq .001^*$

* The Chi-square statistics is significant at 0.05 levels.

Furthermore, in a comparative mean for physical exercise self-efficacy scale (PESES) by institution, Eastern Polytechnic (EP) scored higher mean in total compared to Njala University (NU). Also with analysis of variance (ANOVA) and independent samples test for physical

exercise self-efficacy (PESE) by institution, the highest scores were recorded as follows: [F = 9.540 with sig. (.002), t = .114 with 2-tailed sig. (.909)], followed by [F = 2.762 with sig. (.097), t = 1.662 with 2-tailed sig. (.097)], as slated in tables 4,5 and 6 respectively.

Table 4: Comparative Mean for Physical Exercise Self-Efficacy by Institution (N=500)

Physical Exercise Self-Efficacy (PESES)	Njala University (n=250)		Eastern Polytechnic (n=250)	
	Mean	SD	Mean	SD
<i>I can manage to carry out my exercise intentions even:</i>				
When I have worries and problems	2.14	.689	2.08	.835
If I feel depressed	2.15	.699	2.03	.854
When I feel tense	2.15	.712	2.14	.847
When I am tired	2.16	.703	2.16	.807
When I am busy	2.14	.719	2.35	.757

Table 5: Analysis of Variance for Physical Exercise Self-Efficacy (N=500)

Physical Exercise Self-Efficacy Scale (PESES)	Analysis of Variance (ANOVA)				
	Sum of Squares	df	Mean Square	F	Sig.
<i>I can manage to carry out my exercise intentions even:</i>					
When I have worries and problems	.512	1	.512	.874	.350
If I feel depressed	1.682	1	1.682	2.762	.097
When I feel tense	.008	1	.008	.013	.909
When I am tired	.008	1	.008	.014	.906
When I am busy	5.202	1	5.202	9.540	.002

Table 6: Independent Samples Test for Physical Exercise Self-Efficacy (N=500)

Physical Exercise Self-Efficacy Scale (PESES)	Equal Variances Assumed					
	t	df	Sig. (2-tailed)	Mean Diff.	95% CI	
					Lower	Upper
<i>I can manage to carry out my exercise intentions even:</i>						
When I have worries and problems	.935	498	.350	.064	-.070	.198
If I feel depressed	1.662	498	.097	.116	-.021	.253
When I feel tense	.114	498	.909	.008	-.130	.146
When I am tired	-.118	498	.906	-.008	-.141	.125
When I am busy	-3.089	498	.002	-.204	-.334	-.074

4. Discussion

In a comparative mean for physical exercise self-efficacy (PESE) by institution (mostly from Njala University), participants responded more positively with higher scores to physical exercise self-efficacy scale (PESES), showing a positive signal of overcoming obstacles to engage in physical activity with respect to college students' physical activity (PA) in the constructs of the transtheoretical model of exercise and self-efficacy at the time of the evaluation process, which according to *Leenders et al. (2002)* report, is the belief or confidence that one can overcome obstacles and or barriers to participate in exercise or physical activity (PA). Also, as reported by *Buckworth et al. (2002)*, research has consistently shown self-efficacy to be the strongest predictor of exercise behaviour. However, *Cardinal et al. (2004)* stated that, barrier self-efficacy relates to a person's situation specific self-confidence in the face of barriers and or obstacles.

With regards institution [mostly from the Eastern Polytechnic (EP) in the Eastern part of Sierra Leone], participants responded also to physical exercise self-efficacy scale though with lower or minimal values compared to their counterpart(s) at Njala University (NU) in the Southern part of Sierra Leone, indicating low level of perceived confidence and ability with regards regular and or frequent participation in physical activity at the time of the evaluation process, which according to *Leenders et al. (2002)*, individuals with low perceived confidence in their ability to exercise or take part in physical activity are more likely to be inactive compared to those with high levels of perceived confidence. *Cardinal et al. (2004)* in their cross-cultural comparison study of American and Finnish college students' exercise behaviours reported that, American students rated themselves higher on barrier self-efficacy (i.e. indication of higher level of confidence and ability for participation in physical activity) than did the Finnish students.

5. Conclusion and Recommendation

With regards all scored factors measured and evaluated under physical exercise self-efficacy scale (PESES), it was concluded that all the students' respondents within the study scope who participated in the survey process mostly from Njala University, responded more positively with higher scores to physical activity self-efficacy with respect to college students and physical activity, and in the constructs of the transtheoretical model and exercise. As observed also in the findings, it was however concluded that some (i.e. minority) of the students' respondents in the survey process mostly from the Eastern Polytechnic, responded also to physical activity self-efficacy though with lower values compared to their counterpart(s).

Overall, when looked at the aggregate responses of the students' respondents interviewed or questioned especially with the Pearson Chi-Square Test scores and the test values in the Equal Variances Assumed respectively, it was concluded that greater majority of the respondents interviewed or questioned from both Njala University and Eastern Polytechnic clearly responded more in favour of the certainty that "(I can manage to carry out my exercise

intensions even when I am busy)" followed by another certainty that "(I can manage to carry out my exercise intensions even if I feel depressed)" under physical exercise self-efficacy scale as compared to its counterpart(s) (i.e. even when I have worries and problems; even when I feel tense; and even when I feel tired respectively).

It was however recommended that, a mandatory course or programme in health and physical education or literacy be instituted in schools and colleges to help educate the barriers of self-efficacy regarding physical activity and the public health benefits associated with physical activity for pupils and students especially in the junior high schools, senior high schools and college undergraduates before graduation to help maximize motivational level in physical activity.

6. Acknowledgement

The authors express thanks and appreciation to all staff and students of the two selected tertiary institutions, whose immense co-operation rendered this study to fruition.

7. Conflict of Interests

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

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