

PHYSICAL ACTIVITY EPIDEMIOLOGY OF COLLEGE STUDENTS PHYSICAL EXERCISE SELF-EFFICACY: MOTIVATIONAL DRIVE FOR HEALTH EDUCATION PROMOTION

SAMUEL JOSEPH BEBELEY*, SAMUEL AUGUSTINE LAGGAO, CHRISTIAN GENDEMEH

Department of Human Kinetics and Health Education, School of Education, Njala University, Sierra Leone, WEST AFRICA.

**Email: bsaj2004@hotmail.co.uk*

How to cite this article: Bebeley, S.J., Laggao, S.A., & Gendeme, C. (December, 2018). Physical activity epidemiology of college students physical exercise self-efficacy: Motivational drive for health education promotion. Journal of Physical Education Research, Volume 5, Issue IV, 33-40.

Received: April 04, 2018

Accepted: December 02, 2018

ABSTRACT

Physical activity epidemiology should be a public health education promotion drive, which could be dealt with successfully with individual and group regular exercises under mild, moderate or vigorous physical exercise self-efficacy. Modeled transtheoretically, using macro & micro nutrients for prolonged healthiness and wellness of individual life i.e. social, physical, moral and intellectual wellness. This study aimed at scoring measured and evaluated physical activity epidemiology of college students physical exercise self-efficacy: motivational drive for health education promotion. Physical Exercise Self-Efficacy Scale Questionnaire (PESESQ) was the adopted research instrument. The variables were analyzed using IBM-SPSSv.23 Statistics, with a mean and standard deviation age of 28.5 ± 9.5 , response rate of 100% and with sampled participants of $N=500$, ranged from 19-38 years, using simple random sampling (SRS) method of selection. Significant differences were tested at $p < 0.05$, with highest scores recorded as follows: Under Workload: females (2.47 ± 0.690), Fatigue: females (2.40 ± 0.723), Tension: females (2.37 ± 0.744), Depression: females (2.35 ± 0.765) and Under Anxiety: females (2.33 ± 0.749). That a good number of the students (males > females) responded to physical exercise self-efficacy of physical activity epidemiology even under depression, followed by workload, fatigue, anxiety and tension. That evidence, was the transtheoretically modeled self-efficacy physical activity epidemiology for sustainable lifetime fitness and wellness. It was therefore, recommended that college administrators, clinicians and public health education promoters should jointly collaborate in motivating students to offer and accept modules relating to sustainable lifetime physical fitness and wellness for a healthy lifestyle.

Keywords: Health education, physical activity epidemiology and public health education.

1. INTRODUCTION

Physical activity epidemiology under public health education, is a prime factor in the preventive health drive regarding individual physical inactivity and sedentary behaviour in the world over, of which college students in Sierra Leone are of necessity. And it could pose a significant threat of obesity, cardiovascular related diseases, morbidity and mortality if not practiced regularly on a sustainable basis either under mild, moderate or vigorous physical activity. And it can be talked of in variety of patterns and structures in terms of sustainability with regards individual healthiness and wellness. Physical activity epidemiology under skill training development and workout could require basic aerobic endurance training for pediatrics, adolescents, youths, adults and geriatrics

Correspondence: Samuel Joseph Bebeley, Ph.D., Lecturer, Department of Human Kinetics and Health Education, Njala University, PMB Freetown, Sierra Leone, WEST AFRICA, Tell: +8618321992571, Email: bsaj2004@hotmail.co.uk.

for effective approach in the improvement of VO_2 max for sustainable physical activity and wellness development. And it could be implemented in schools and colleges especially amongst undergraduates, thereby propelling students to functional movement skills and screening, designed in physical health education and physical activity epidemiology for improving physical fitness and motor skill components of speed, agility, reaction time and power. Thereby, focusing on advantage (pros) decisions, motives, behavioural regulation, self-efficacy and weekly leisure time spent on physical activity as pediatrics, adolescents, adults and as geriatrics (Tucker, Bebeley, & Conteh, 2017b; Bebeley, Wu, & Liu, 2016cii; Bebeley, Wu, & Liu, 2016ciii; Bebeley, 2015). Physical activity epidemiology is a prime factor in the development of physical fitness and wellness. And it could be linked to a well-structured, organized, planned and technically executed wellness activities of circuit training, which requires VO_2 max and calorie utilization for healthy-lifestyle (Bebeley, Laggao, & Tucker, 2017bii; Bebeley, Liu, & Wu, 2017d; Bebeley, Liu, & Wu, 2017e; Bebeley, Wu, & Liu, 2017b)

Physical activity epidemiology being an essential element in health extension, if practiced regularly with the required utilization of kilocalories from macro and micro nutrients, will greatly help individuals in maintaining a healthy lifestyle, decreasing obesity and cardiovascular related diseases, morbidity and mortality (Bebeley, Laggao, & Conteh, 2018b; Bebeley, Conteh, & Gendemeh, 2018; Bebeley, Conteh, & Laggao, 2018a; Tucker, Bebeley, & Conteh, 2018). Physical activity epidemiology under wellness acquisition, could be linked to physical activity and public health education with determinant factors (personal, social & environmental), that could deal with human movements of musculoskeletal systems and calorie utilization for improved sustainable physiological fitness, psychosocial wellness and a healthy-lifestyle (Bebeley et al., 2017b; Tucker, Bebeley, & Laggao, 2017a.; Tucker et al., 2017b.). And that physical activity devoid of sedentary behaviour could be expressed as human movements trajected by musculoskeletal systems, which when undertaken regularly from mild, moderate, to vigorous, devoid of injuries to tissues of muscles, ligaments, tendons, joints and bones, could improve physiological and psychological health. And it is of significance to the holistic wellness of individuals, and could be more positive, productive, effective, efficient, fruitful and functional if due diligence and significant recognition is accorded the teaching and learning of physical health education and physical activity epidemiology in schools and colleges to improve physical activity literacy level (Bebeley & Laggao, 2011; Bebeley, 2016a,b,c,d).

Physical activity epidemiology representing a young scientific discipline as an emergence from physical health education (education of and through the physical) is an educational system that enlightens students about the physique of human movements. And it is produced by musculoskeletal systems, and when undertaken regularly from mild, moderate, to vigorous, improves not only the physiological, but also the psychosocial health and wellness (intellectual, spiritual and social) of individuals (Bebeley et al., 2017bii; Tucker et al., 2017a,b; Bebeley et al., 2018b). Physical activity epidemiology favoured by autonomy in self-determination for wellness and motor fitness skill development rather than heteronomy, rewards, threats and coarse, could help improve greatly motivational level of individuals in physical activity, wellness and motor fitness skill development. Especially with respect to sustainable growth alongside advantages (pros.), motive, behavioural regulation, self-efficacy and weekly leisure time spent on physical activity. And it could be complemented by mandatory institution of programmes, seminars, workshops, discussions, adopting and allotting enough time to teaching & learning of physical health education and physical activity epidemiology before graduation to guarantee motivation in sustainable physical activity development as one of the fundamentals for pediatrics, adolescents, youths as well as adults i.e. young, geriatrics and the aged (Bebeley & Laggao, 2011; Bebeley, Wu, & Liu, 2017g; Bebeley et al. 2016a,b,c,d).

Motivation as a prime factor in sustainability of physical activity, could be linked to the science of psychology that deals with internal process (intrinsic motivation) and external process

(extrinsic motivation), with factors of nature i.e. inborn tendencies acquired by individuals before birth – innate abilities and nurture i.e. environmental tendencies acquired by individuals after birth that could have the ability, power, focus, intellect and potential to initiate, ignite, guide, maintain goal-oriented physical activity and explain behaviours that involve holistic forces (emotional, social and cognitive) that activate behavioural direction of individual desires, needs and actions, including psychomotor learning (physique i.e. physical activity), affective learning (moral i.e. abstinence) and cognitive learning (intelligence quotient i.e. knowledge acquisition) (Bebeley et al., 2017e; Bebeley et al., 2017b; Tucker et al., 2017a,b).

In determining individual motivation for physical activity epidemiology (PAE) and motor fitness skill development, health professionals i.e. clinicians, public health educators, physical activity epidemiologists, exercise physiologists, kinesiologists and health extension workers, could link this knowledge to make informed judgement and promote awareness, develop effective and efficient initiatives that could motivate the populace especially pediatrics, adolescents, youths, adults & geriatrics to frequently and constantly practice physical activity for improved wellness, sound mind and healthy body (Bebeley et al., 2017e; Bebeley et al., 2017b; Tucker et al., 2018). And also by adhering to health education principles of practicing abstinence from: Eating Disorders (Anorexia Nervosa, Bulimia Nervosa and Binge Eating Disorders), Non-Usage of Drugs (Cigarette Smoking, Alcohol Consumption and Performance Enhancing Drugs), Diseases Associated with Unsafe Sexual Practices (HIV/AIDS, Syphilis and Gonorrhea) (Bebeley, Laggao, & Tucker, 2017b; Bebeley et al., 2016c; Bebeley, Wu, & Liu, 2016c) And also, by understanding about: Knowing and Monitoring of Vital Signs (Heart Rate, Blood Pressure & Body Mass Index), Cardiovascular Diseases of the Heart (Dilated Cardiomyopathy, Hypertensive Heart Disease & Pulmonary Heart Disease), Preventing Sport Injuries (Achilles Tendinitis, Runner's Knee/Patellofemoral Pain Syndrome and Shin Splints), Health Literacy level of Asthma (due Environmental, Physical and Medical Conditions), Health Literacy level of Muscle Atrophy (due Physical, Medical and Exercise Factors), Contraindications of Muscle Weakness (due Central Fatigue, Peripheral Fatigue and Lactic Acid), Health Education Literacy level of Stress (due Cognitive, Emotional and Physical Factors), Physical Education Literacy level (due Developmental, Humanistic and Fitness Factors), Measurement level of (VO_2 max Consumption), Effects of (Physical Education Programme on Motor Fitness), and Physical Literacy level (due Locomotor-&Body, Sending and Receiving Skills), (Bebeley et al., 2017b; Bebeley, Laggao, & Tucker, 2017c; Bebeley et al., 2016c; Bebeley, 2016a,b,c,d; Bebeley, Laggao, & Tucker, 2017a; Bebeley, 2015; Bebeley & Laggao, 2011; Laggao, Bebeley, & Tucker, 2017) which not only increase advantages (pros.), motive, behavioural regulation, self-efficacy and weekly leisure time spent on physical activity, but also help individuals, communities, environment and the public to control and reduce obesity, lifestyle-related diseases, morbidity and mortality (Bebeley et al., 2016c; Bebeley et al., 2016c; Bebeley, Wu, & Liu, 2017c; Bebeley et al., 2017b; Bebeley et al., 2018a; Bebeley, Liu, & Wu, 2017f).

This study aimed at scoring measured and evaluated physical activity epidemiology of college students physical exercise self-efficacy: motivational drive for health education promotion, aiming at reducing cardiovascular related diseases and mortality amongst college students, based in Sierra Leone i.e. Njala University and Eastern Polytechnic.

2. METHODS AND MATERIALS

2.1 Respondents

The research sampled participants of N=500, with a mean and standard deviation age of 28.5 ± 9.5 with a response rate of 100% and with an age range of 19-38 years, selected using a process of simple random sampling (SRS) method, mainly amongst undergraduates students from two tertiary institutions.

2.2 Instrumentation

Physical Exercise Self-Efficacy Scale Questionnaire (PESESQ) was the adopted research instrument, with evidence of validity supported by a moderate correlation with exercise intention ($r=0.33$) and physical activity behaviour ($r=0.39$) at a 6-month follow-up (Schwarzer & Renner, 2005).

2.3 Procedure

The testing and scoring of research participants were done individually on campus following procedural instructions provided for by the research instrument, through census survey entry and processing (CSEntry & CSPro) system software application installed in tablets, smart phones and computers.

2.4 Analysis

Analysis of Variance (ANOVA) test, Chi-Square test, descriptive statistics test, t-test and partial correlations test from IBM-SPSSv.23 statistics were used to compute, analyze and compare research findings with Cronbach's Alpha Reliability (0.931) at significant value $p<0.05$.

3. RESULTS

Key differences observed in descriptive statistics of physical exercise self-efficacy by sex, were recorded with under workload scoring highest geometric and arithmetic mean of males [(2.03) & (2.18±0.748)] and females [(2.35) & (2.47±0.690)] in tables 1&2.

Table 1: Descriptive statistics – physical exercise self-efficacy by sex (N=500)

Physical Exercise Self-Efficacy		Descriptive Statistics Test				
		Under Anxiety	Under Depression	Under Tension	Under Fatigue	Under Workload
Males	N	392	392	392	392	392
	%	78.4	78.4	78.4	78.4	78.4
	Mean	1.89	1.85	1.92	1.94	2.03
Females	N	108	108	108	108	108
	%	21.6	21.6	21.6	21.6	21.6
	Mean	2.18	2.19	2.22	2.26	2.35

Table 2: Descriptive statistics - physical exercise self-efficacy by sex (N=500)

Physical Exercise Self-Efficacy		Descriptive Statistics Test				
		<i>n</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>95%-CI-Mean</i>	
Under Anxiety	Males	392	2.05	.759	1.97	2.12
	Females	108	2.33	.749	2.19	2.48
Under Depression	Males	392	2.02	.772	1.94	2.09
	Females	108	2.35	.765	2.21	2.50
Under Tension	Males	392	2.09	.782	2.01	2.16
	Females	108	2.37	.744	2.23	2.51
Under Fatigue	Males	392	2.09	.753	2.02	2.17
	Females	108	2.40	.723	2.26	2.54
Under Workload	Males	392	2.18	.748	2.11	2.26
	Females	108	2.47	.690	2.34	2.60

Note: CI=Confidence Interval

Significant differences observed in ANOVA test (with high frequencies in depression & fatigue) and Chi-Square tests of physical exercise self-efficacy by sex were recorded as follows: Depression $F_{(1,498)} = 15.918$, and Fatigue $F_{(1,498)} = 14.026$, significant only at 0.05 level, and that all variables recorded positive correlations result in tables 3, 4 & 5.

Table 3: One-way analysis of variance - physical exercise self-efficacy by sex (N=500)

Physical Exercise Self-Efficacy		Analysis of Variance Test			
		Sum of Squares	Mean Square	F	Sig.
Sex	Under Anxiety	6.995	6.995	12.215	.001
	Under Depression	9.445	9.445	15.918	<.001
	Under Tension	6.812	6.812	11.374	.001
	Under Fatigue	7.813	7.813	14.026	<.001
	Under Workload	7.050	7.050	13.018	<.001

Note: $df_1=1$; $df_2=498$

Table 4: Pearson Chi-Square - physical exercise self-efficacy by sex (N=500)

Physical Exercise Self-Efficacy		Pearson Chi-Square Tests		
		Chi-Square	df	Sig.
Sex	Under Anxiety	12.651	2	.001*
	Under Depression	18.448	2	<.001*
	Under Tension	11.837	2	.003*
	Under Fatigue	15.351	2	<.001*
	Under Workload	13.819	2	.001*

*Chi-square statistic is significant at .05 level.

Table 5: Partial correlations test – physical exercise self-efficacy by sex (N=500)

Physical Exercise Self-Efficacy			Partial Correlations Test				
			Under Anxiety	Under Depression	Under Tension	Under Fatigue	Under Workload
Sex	Under Anxiety	Correlation	1				
		Sig. (2-tailed)	.				
	Under Depression	Correlation	.782	1			
		Sig. (2-tailed)	<.001	.			
	Under Tension	Correlation	.789	.799	1		
		Sig. (2-tailed)	<.001	<.001	.		
	Under Fatigue	Correlation	.679	.685	.730	1	
		Sig. (2-tailed)	<.001	<.001	<.001	.	
	Under Workload	Correlation	.644	.676	.701	.731	1
		Sig. (2-tailed)	<.001	<.001	<.001	<.001	.

4. DISCUSSION

Physical activity epidemiology of college students physical exercise self-efficacy that is transtheoretically based (i.e. barrier self-efficacy), is that aspect of modelling design to evaluate physical activity epidemiology (PAE) gearing towards sustainable development of lifetime physical fitness and wellness barrier self-efficacy amongst college students referencing undergraduate students from both Njala University (NU) and Eastern Polytechnic (EP) in the South and East of the Republic of Sierra Leone (Bebeley et al. 2017e).

Physical exercise self-efficacy under depression: college students physical activity epidemiology shows that, greater majority of respondents do physical activity even when they are suffering from depression, which is about maintaining physical wellness and soundness as a motivational drive for sound mind and healthy body (Bebeley et al. 2017e). Physical exercise self-

efficacy under fatigue: college students physical activity epidemiology shows that, majority of respondents do physical activity even when they are under the influence of tiredness, which focuses on maintaining physical wellness and soundness as a motivational drive for sound mind and healthy body (Bebeley et al. 2017e).

Physical exercise self-efficacy under workload: college students physical activity epidemiology shows that, some respondents do physical activity even when they are under work pressure, which focuses on maintaining physical wellness and soundness as a motivational drive for sound mind and healthy body (Bebeley et al. 2017e). Physical exercise self-efficacy under anxiety: college students physical activity epidemiology shows that, some respondents do physical activity even when they are suffering from anxiety, which focuses on maintaining physical wellness and soundness as a motivational drive for sound mind and healthy body (Bebeley et al. 2017e). And physical exercise self-efficacy under tension: college students physical activity epidemiology shows that, some respondents also do physical activity even when they are tensioned and or pressured by domestic activities, social activities, personal activities, academic activities and religious activities, which focuses on maintaining physical wellness and soundness, environmental wellness and soundness and a balance in healthiness as a motivational drive for sound mind and healthy body of individual life (Bebeley et al. 2017e).

5. CONCLUSION

That majority of the students (males > females), responded to doing physical activity even under the influence of a depressed condition, followed by fatigue condition, workload condition, anxiety condition and tension condition, which focuses on the display of evidence regarding college students physical activity epidemiology of exercise self-efficacy that has to deal with a motivational drive for health education promotion, that is transtheoretically modeled for soundness, healthiness and wellness of the mind and of the body.

It was however recommended by the researchers that, college administrators, clinicians, physical activity epidemiologists, exercise physiologists, kinesiologists, health extension workers, physiotherapists, health economists, public health and health education promoters, should jointly cajole college students especially undergraduates students to autonomously take part in sustainable development of lifetime physical activity through physical activity epidemiology and physical activity for health, that caters for the prevention of none communicable diseases (NCDs) such as obesity, cardiovascular related diseases, morbidity and mortality for a healthy lifestyle.

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. REFERENCES

- Bebeley, S.J. & Laggao, S.A. (2011). Effects of six-month physical education programme on motor fitness of primary school pupils in Sierra Leone. *Journal of Nigeria Association for Physical, Health Education, Recreation, Sport and Dance*, 2(1), 100-106.
- Bebeley, S.J. (2015). An investigation into the measurement level of maximum volume of oxygen consumption using cooper 12-minutes run-test. *Journal of Exercise Science and Physiotherapy*, 11(2), 65-75.
- Bebeley, S.J. (2016a). Adolescents' knowledge about the contraindications of muscle weakness due central fatigue, peripheral fatigue and lactic acid as health education strategy in lifestyle management. *PARIPEX-Indian Journal of Research*, 5(4), 2-4

- Bebeley, S.J. (2016b). Adolescents' health literacy level of muscle atrophy due physical, medical and exercise factors. *PARIPEX-Indian Journal of Research* 5(5), 7-9
- Bebeley, S.J. (2016c). Adolescents' health literacy level of asthma due environmental, physical and medical conditions. *PARIPEX-Indian Journal of Research*, 5(6), 7-9.
- Bebeley, S.J. (2016d). Adolescents' health education literacy level of stress due cognitive, emotional and physical factors. *PARIPEX-Indian Journal of Research*, 5(7), 19-21.
- Bebeley, S.J., Conteh, M. & Gendemeh, C. (2018). Physical activity amongst college students: motivational requisite for public health education of behavioural regulation in exercise. *International Journal of Scientific Research*, 7(3), 254-256.
- Bebeley, S.J., Conteh, M. & Laggao, S.A. (2018a). Physical activity motive of college students: factorial motivation for health extension workers. *Journal of Physical Education Research*, 5(3), 1-7.
- Bebeley, S.J., Laggao, S.A. & Conteh, M. (2018b). Understanding college students physical activity decision: motivational focus for physical activity epidemiology. *International Journal of Scientific Research*, 7(10), 38-40.
- Bebeley, S.J., Laggao, S.A. & Tucker, H.J. (2017a). Adolescents' physical education literacy level due developmental, humanistic and fitness factors. *IOSR Journal of Sports and Physical Education*, 4(2), 15-18.
- Bebeley, S.J., Laggao, S.A. & Tucker, H.J. (2017bi). Athletes abstinence knowledge from eating disorders as health education method in decreasing unhealthy ageing with reference to physical & mental health. *Journal of Exercise Science & Physiotherapy*, 13(1), 8-22.
- Bebeley, S.J., Laggao, S.A. & Tucker, H.J. (2017bii). Knowledge of university athletes about knowing and monitoring of vital signs as preventive strategy in reducing early and unsuccessful ageing. *Journal of Exercise Science and Physiotherapy*, 13(1), 31-52.
- Bebeley, S.J., Laggao, S.A. & Tucker, H.J. (2017c). Pupils' knowledge level about the contraindications of cardiovascular diseases of the heart as health education strategy in preventive health. *Journal of Exercise Science & Physiotherapy*, 13(2), 1-12.
- Bebeley, S.J., Liu, Y. & Wu, Y. (2017d). Decisional balance scale for college students' level of motivation in physical activity. *Global Journal for Research Analysis*, 6(7), 453-455.
- Bebeley, S.J., Liu, Y., & Wu, Y. (2017e). Physical exercise self-efficacy for college students' level of motivation in physical activity. *International Journal of Science and Research*, 6(8), 81-85.
- Bebeley, S.J., Liu, Y., & Wu, Y. (2017f). Weekly leisure time exercise for college students' level of motivation in physical activity: a concern for physical and public health education. *International Journal of Scientific Research*, 6(9), 651-654.
- Bebeley, S.J., Wu, Y. & Liu, Y. (2016ci). Athletes' knowledge about preventing sports injuries as prime prevention strategies in slowing ageing process. *Journal of Exercise Science and Physiotherapy*, 12(1), 25-37.
- Bebeley, S.J., Wu, Y. & Liu, Y. (2016cii). Knowledge of Njala campus athletes about abstinence from diseases associated with unsafe sexual practices aimed as primary prevention strategy in minimizing the process of ageing. *Journal of Exercise Science and Physiotherapy*, 12(1), 42-56.
- Bebeley, S.J., Wu, Y. & Liu, Y. (2016ciii). Athletes' knowledge about the non-usage of drugs as prime prevention strategies in slowing ageing process. *Journal of Exercise Science and Physiotherapy*, 12(1), 57-68.
- Bebeley, S.J., Wu, Y. & Liu, Y. (2017b). Motives for physical activity for college students' level of motivation in physical activity. *International Journal of Science and Research*, 6(5), 2377-2382.

- Bebeley, S.J., Wu, Y. & Liu, Y. (2017c). Behavioural regulation in exercise for college students' level of motivation in physical activity. *International Journal of Scientific Research*, 6(6), 580-583.
- Bebeley, S.J., Wu, Y. & Liu, Y. (2017g). Motivational level of college students' in physical activity: a concern for public health education. *International Journal of Science and Research*, 6(10), 816-821.
- Laggao, S.A., Bebeley, S.J. & Tucker, H.J. (2017). Adolescents' physical literacy level due locomotor-&-body, sending and receiving skills. *PARIPEX-Indian Journal of Research*, 6(1), 255-257.
- Schwarzer, R. & Renner, B. (2005). Health-specific self-efficacy scales. Available online at: <http://userpage.fu-berlin.de/~health/healsself.pdf>.
- Tucker, H.J., Bebeley, S.J. & Conteh, M. (2017b). Motor skill level of children and adolescents motivation in physical activity: a major concern for public health and physical education. *International Journal of Science and Research*, 6(12), 482-486.
- Tucker, H.J., Bebeley, S.J. & Conteh, M. (2018). Physical activity and motor fitness skill level of children and adolescents: a motivational factor for health and physical education. *International Journal of Science and Research*, 7(1), 895-899.
- Tucker, H.J., Bebeley, S.J. & Laggao, S.A. (2017a). Children and adolescents' fitness skill level in physical activity: a motivational concern for public health education. *International Journal of Science and Research*, 6(11), 18-22.