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Epidemiological Surveillanceof College StudentsPhysical Activity Motivation

Samuel Joseph Bebeley (PhD)*, Henry Joe Tucker[1], Michael Conteh[2]
**Health Education & Behavioural Science Unit, Department of Human Kinetics/Biokinetics& Health Education, School of Education, Njala University, Sierra Leone.*
[1]Health Education & Behavioural Science Unit, Department of Human Kinetics/Biokinetics& Health Education, School of Education, Njala University, Sierra Leone.
[2]Health Education & Behavioural Science Unit, Department of Human Kinetics/Biokinetics & Health Education, School of Education, Njala University, Sierra Leone.
Corresponding Author: Samuel Joseph Bebeley

ABSTRACT
Keywords: *Physical Activity, Epidemiology, Functional Human Movement, Health, Wellness*
Background: *Functional Human Movement Deficiency (FHMD)in Sierra Leone is more common amongst college students compared to school going pupils.Hence the need for physical activity epidemiology as a young and emergence scientific discipline geared towards the monitoring and evaluation of functional human movement deficiency (FHMD). This study aimed at scoring measured, and evaluatedepidemiologicalsurveillance of college students'physical activity motivationin Sierra Leone.*
Methods: *Behavioural Regulation in ExerciseQuestionnaire* ***(BREQ),*** *Physical Activity Motives Questionnaire* ***(PAMQ)****, Decisional Balance Questionnaire* ***(DBQ)*** *and Physical Exercise Self-Efficacy Questionnaire* ***(PESEQ)*** *were the adopted research instruments. The variables wereanalyzed using****IBM-SPSSv.23*** *Statistics, with a mean and standard deviation ageof* ***28.5±9.5****, response rate of****100%****and with sampled participantsof* ***N=500,*** *rangedfrom 1****9-38****years,usingsimple random sampling (****SRS****) method of selection.*
Results: *The significant differences were tested at****P<0.05****, with highest scores recorded as follows:under behavioural regulation in exercise (BRE) by sex and marital, males (257.03) and singles (252.01) scored highest for* ***External Regulation.****Also, behavioural motivation in exercise (BME) by sex and marital, females (260.84) and couples (257.54) scored highest for* ***Intrinsic Motivation.***
Conclusion and Recommendation: *Thata significant recordbetweensexes (females and males)and maritals (single and married) was setin response to all the variables monitored and evaluated under intrinsic motivation for physical activity, with females and married couples scoring highest.Therefore, strongly agreed and recommended was about the relevance of autonomy physical activity (APA) over heteronomy physical activity (HPA) in the course of obtaining sustainable development in lifetime physical movement (LPM) of humans regarding healthy lifestyle.*

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I. Introduction

In Sierra Leone, college students according to Bebeley et al., make up a significant portion of the national population index (NPI), and that majority (both males & females) adheres to physical inactivity lifestyle when compared to school going pupils (i.e. primary, junior and senior high schoolspupils respectively),of which the latter are more into physical activity lifestyle varying from low, moderateand vigorous activities.[8][23][28]Therefore, it is but worth looking into certain factors under physical activity epidemiologicalsurveillanceregarding physical inactivity lifestyle of college studentsespecially in state colleges and universities, which include but not limited to deficiencies of social quotient (SQ), emotional quotient (EQ), intelligence quotient (IQ), and also non-communicable diseases (NCDs) such as obesity, high blood pressure, diabetes (Type II), insomnia, alzheimer and post-traumatic stress disorders (PTSD).[8][23][28]In addressing physical inactivity (Sedentary lifestyle) of college studentsas socio-economic and socio-political issuesin Sierra Leone for holistic and sustainable development of the soundness of the mind and of the body, the following fundamentals must be prioritized under the preventive health care chain (PHCC) with special reference and consideration to health and nutritioneducation (HNE) and mass communication (MC) under community outreach programmes:

Conception, birth and death (CBD) under developmental psychology in the discipline of Public Health Education and MassCommunication cannot be underestimated in dealing with issues under preventive health

care chain (PHCC) relating to the smooth and stress free existence of individuals within communities and in their respective environment of varying degrees of societal class, which according to Bebeley, et al., will create the enabling environment for proper planning, quality implementation and execution, monitoring,evaluation,timely intervention, advocacy and policy development forfunctional human movement (FHM)frequency lifestyle amongst college students, which is a key component in the discipline of health education and nutrition.[29]

Physical literacy, communication, dialogue and education is one key medium under community outreach programmes, of which functional human movement (FHM) lifestyle can be propagatedespecially to college students in Sierra Leone. This according to Bebeley, et al. isa professional training for not only carrier advancement personalities in sport (national and international), fitness (speed, agility, power, reaction time etc.), and aesthetics,but also a way of increasing individual step counts per day for wellness of the mind and of the body, which, however, requires insome cases maximum volume of oxygen (VO_2 max) andbasic aerobic endurance for pediatrics, adolescents, youths, young and old adults and geriatrics, which serves as a bench mark in archiving sustainable development of physical activity for college students and adolescents in Sierra Leone.[8][23][28]

Global attention has been drawn to physical activity epidemiology, whichaccording to Bebeley, et al., physical activity epidemiology is been considered as a fundamentalblock in monitoring, surveillance and evaluating physical inactivity lifestyle (PIL)of individuals for sustainable development of functional human movement (FHM) and wellness literacy quotient (WLQ).Therefore, for pediatrics, adolescents, young and old adults and geriatrics to spontaneously respondto sustainable functional human movement (FHM), the narrative has to be shifted towards (a). Physical activity benefits for soundness and wellness of the body and of the mind,(b). Physical activity self-decisionfor soundness and wellness of the body and of the mind, (c). Physical activity motivationfor soundness and wellness of the body and of the mind, (d). Physical activity regulationfor soundness and wellness of the body and of the mind, (e). Self-efficacy for physical activity and leisure time spent on functionalhuman movement (FHM),[8][23][28]which serves as an essential element and a determinant bench mark for personal, social & environmental factorsin health andnutrition education and extension, consideringkilocalorieutilization, with the aim of mainstreaming socio-physiological,and socio-psychological wellness lifestyle.[8][7][23][28]

Pedagogical and adapted physical activity according to Bebeley, et al.,favoured by autonomy(intrinsic motivation) rather than heteronomy (extrinsic motivation) in self-determination for functional human movement (FHM), wellness, soundness and motor fitness skill development, is representingan imaginary scientific discipline (ISD) as anemergence from physical literacy, dialogue, communication, and education (education of and through the physical), which is an educational system that brightensand keep in line the minds of pediatrics, adolescents, youths, adults, geriatrics, paraplegics and the agedabout the physique offunctional human movements (FHM), health and nutrition education.[6][8][23][28]

Physical activity motivation (PAM)in Sierra Leone, is drastically low especially amongst college students, witch according to Bebeley, et al., in determining individual physical activity motivation (PAM) for sustainability, professionals such as clinicians, public health educators,health and nutrition educators, physical educators, physical activity epidemiologists,exercise physiologists, kinesiologistsand health extension workers, must be seeing helpingto motivatethrough mass communication for informed judgement and awareness raising in:physical activity practices,[8]therapeutic nutrition education,[11]drugs education,[18]sexeducation,[20]surveillance of vitals,[12]cardiovascular diseases education[13]andremedial,[17]surveillance of healtheducation,[1][2][3]muscle education,[4]surveillance of physical education,[9][10]surveillance of oxygen consumption,[5]surveillance of physical literacy,[24]surveillance ofstudents' physical activity,[14][15][19][21][22]and surveillance of adolescents physical activity,[25][26][27]which geared towards the control and reduction of functional human movement (FHM) deficiencyof kyphosis, scoliosis, lordosis, kyphos-scoliosis, kyphos-lordosis etc. amongst all societal class.[8][23][28]

This study aimed at scoring measuredand evaluated epidemiological surveillance of college students'physical activity motivation in Sierra Leone,aiming atpreventing and reducing behavioural health risk factors of functional human movement deficiency (FHMD)for wellnessof the mind and of the body.

II. Materials And Methods

Respondents

The researchsampled participantsof **N=500**,witha mean and standard deviationageof **28.5±9.5**with a **100%**response rateandwith 1**9-38** years age range,selected using a process of simple random sampling **(SRS)** method, mainlyamongstundergraduates'students from two tertiary institutions.

Instrumentation

Behavioural Regulation in Exercise Questionnaire **(BREQ),** Physical Activity Motives Questionnaire **(PAMQ)**, Decisional Balance Questionnaire **(DBQ)** and Physical Exercise Self-Efficacy Questionnaire **(PESEQ)** werethe

adopted research instruments, with evidences of Cronbach's Alpha Reliability of **(0.648),** (**0.945**), (**0.592**)and **(0.931)** respectivelywhich were previously used by Bebeley et al. (2018).[16][28]

Procedure

The testing and scoring of research participants were done individually oncampusfollowingprocedural instructions provided for by the research instrument, throughcensus survey entry (**CSEntry**) and census survey processing **CSPro**) systemssoftware application installed ontablets, smart phones and computers accordingly.

Analysis

An inferential Statistics of Non-Parametric Testsusing the example of Mann Whitney UStatistical Test of Mean Rank from **IBM-SPSSv.23** Statistics were used to compute the data, analyze data and compare the research findings at significant value of**P<0.05.**

III. Results

A notable difference observed in Mann Whitney U Test statistics of behavioural regulation in exercise (BRE)by sex and marital, males (257.03) and singles (252.01) scored highest for **External Regulation**. Also,behavioural motivation in exercise (BME) by sex and marital, females (260.84) and couples (257.54) scored highest for **Intrinsic Motivation** as in tables 1&2.

Table 1: Mann-Whitney U Test – Behavioural Regulation in Exercise (N=500)

Behavioural Regulation in Exercise		**Mean Rank of Mann-Whitney U Statistics Test**			
		External Regulation	*Introjected Regulation*	*Identified Regulation*	*Intrinsic Motivation*
Sex	M(n=392)	257.03	243.73	239.90	247.65
	F(n=108)	226.81	275.09	288.98	260.84
	P(2-tailed)	**0.022**	**0.030**	**0.001**	**0.351**
Marital	S(n=431)	252.01	251.67	250.78	249.37
	M(n=69)	241.05	243.20	248.78	257.54
	P(2-tailed)	**0.487**	**0.624**	**0.909**	**0.628**

Table 2: Mann-Whitney U Test – Behavioural Regulation in Exercise (N=500)

Behavioural Regulation in Exercise		**Mean Rank of Mann-Whitney U Statistics Test**	
		Intrinsic Motivation	*Extrinsic Motivation*
Sex	M(n=392)	247.65	244.03
	F(n=108)	260.84	273.97
	P(2-tailed)	**0.351**	**0.053**
Marital	S(n=431)	249.37	252.77
	M(n=69)	257.54	236.35
	P(2-tailed)	**0.628**	**0.373**

A significant difference observed in Mann Whitney U Test statistics of physical activity motives (PAM) by sex and marital, females (277.87) and couples (257.35) scored highest for **Enjoyment Motives**. Also, physical activity motivation (PAM) by sex and marital, females (289.73) and singles (252.77) scored highest for **Intrinsic Motivation** as in tables 3&4.

Table 3: Mann-Whitney U Test – Physical Activity Motives (N=500)

Physical Activity Motives		**Mean Rank of Mann-Whitney U Statistics Test**				
		Enjoyment Motives	*Competence Motives*	*Appearance Motives*	*Fitness Motives*	*Social Motives*
Sex	M(n=392)	242.96	240.34	239.10	236.12	249.11
	F(n=108)	277.87	287.37	291.86	302.70	255.53
	P(2-tailed)	**0.011**	**0.002**	**0.001**	**<.001**	**0.668**
Marital	S(n=431)	249.40	248.55	247.74	250.86	248.38
	M(n=69)	257.35	262.66	267.75	248.24	263.75
	P(2-tailed)	**0.628**	**0.430**	**0.270**	**0.874**	**0.389**

Table 4: Mann-Whitney U Test – Physical Activity Motives (N=500)

Physical Activity Motives		Mean Rank of Mann-Whitney U Statistics Test	
		Intrinsic Motivation	*Extrinsic Motivation*
Sex	M(n=392)	239.69	237.93
	F(n=108)	289.73	296.11
	P(2-tailed)	**0.001**	**<.001**
Marital	S(n=431)	248.22	247.88
	M(n=69)	264.75	266.84
	P(2-tailed)	**0.371**	**0.306**

A justifiable difference observed in Mann Whitney U Test statistics of physical activity decisions(PAD) by sex and marital, females (303.67) and singles (250.80) scored highest for **WellnessAdvantage**. Also, physical exerciseself-efficacy (PESE) by sex and marital, females (291.00) and couples (259.89) scored highest for **Under Anxiety**as in tables 5&6.

Table 5: Mann-Whitney U Test – Physical Activity Decisions (N=500)

Physical Activity Decisions		Mean Rank of Mann-Whitney U Statistics Test			
		Wellness Advantage	*Fitness Advantage*	*Psych Disadvantage*	*Stress Disadvantage*
Sex	M(n=392)	235.85	238.26	257.40	255.88
	F(n=108)	303.67	294.93	225.44	230.98
	P(2-tailed)	**<.001**	**<.001**	**0.018**	**0.071**
Marital	S(n=431)	250.80	250.63	251.84	251.09
	M(n=69)	248.62	249.66	242.16	246.82
	P(2-tailed)	**0.891**	**0.953**	**0.550**	**0.795**

Table 6: Mann-Whitney U Test – Physical Exercise Self-Efficacy (N=500)

Physical Exercise Self-Efficacy		Mean Rank of Mann-Whitney U Statistics Test				
		Under Anxiety	*Under Depression*	*Under Tension*	*Under Fatigue*	*Under Workload*
Sex	M(n=392)	239.34	237.77	239.75	238.54	239.02
	F(n=108)	291.00	296.70	289.51	293.89	292.17
	P(2-tailed)	**<.001**	**<.001**	**0.001**	**<.001**	**<.001**
Marital	S(n=431)	249.00	249.69	250.13	247.17	249.31
	M(n=69)	259.89	255.53	252.83	271.29	257.93
	P(2-tailed)	**0.534**	**0.740**	**0.878**	**0.167**	**0.619**

IV. Discussion

Epidemiologicalsurveillance of college students'physical activity motivation (PAM) in Sierra Leone, is thatnon-communicable disease (NCD) componentof health and nutrition education that is geared towardsthe monitoring, measurement and evaluation (MME)of physicalinactivity(PI) i.e. sedentary behaviouramongst college students. Therefore, based on all factorial variables evaluated, physical activityunder behavioural regulation in exercise (BRE):epidemiological surveillance of college students'physical activitymotivation shows that, moremales (M)and singles (S)dophysical activity (PA) of external regulationscompared to their female and couplecounterparts, who were more into physical activity (PA) of intrinsic motivation, whichtherefore,supportsthe need for epidemiological surveillance of physical inactivity amongst college students, leading tosound wellnessof themind and of the body.[28][29]

Physical activity under physical activity motives (PAM): epidemiological surveillance of college students' physical activity motivation shows that, more females (F)and couples i.e. married (M)are more into enjoyment physical activity (EPA) motive compared to their male (M)and single(S) counterparts, which therefore, supports the need for epidemiological surveillance of physical activity amongst college students, leading to sound wellness of the mind and of the body.[28][29]

Physical activity under physical activity decision (PAD): epidemiological surveillance of college students' physical activity motivationshows that, more females (F)and singles (S)are more into wellness advantage physical activity (WAPA)compared to their male (M)and couplei.e. married (M) counterparts,which therefore, supports the need for epidemiological surveillance of physical activity amongst college students, leading to sound wellness of the mind and of the body.[28][29]

Physical activity under physical exercise self-efficacy (PESE): epidemiological surveillance of college students' physical activity motivationshows that, more females (F) and couplesi.e. married (M) are more into anxiety physical exercise(APE) compared to their male (M)and single(S) counterparts, which therefore, supports

the need for epidemiological surveillance of physical activity amongst college students, leading to sound wellness of the mind and of the body.[28][29]

V. Conclusion And Recommendation

Conclusively therefore, is that, majority ofthe students (males andsingles),responded more to Extrinsic Motivation ofPhysical Activity (EMPA), showingappreciableStatus for Heteronomous Physical Activity (HPA). And also, good number of the students (females and married couples), responded more to Intrinsic Motivation of Physical Activity (IMPA), showing appreciable Status for Autonomous Physical Activity (APA). Which therefore, justifies the relevance of Self and Force DrivenMotivation for Health and Nutrition Education Promotion (HNEP) and Functional Human Movement Deficiency (FHMD) reduction and or minimization i.e. Epidemiological Surveillance, that is Self or Forcefully Determined and Transtheoretically capturedto minimizedeficiencyin functional human movement (FHM) amongst college students in Sierra Leone.

It was strongly agreed and recommended that,professionals including health administrators, health nutrition educators, health economists, health extension workers, and health education promoters in the preventive health care chain (PHCC), shouldbe seen asresponsiblerole modelsin making logical conclusions and informed implicationsabout epidemiological surveillance of physical activity amongst college students leading to sound wellness of the mind and of the body. Also, strongly agreed and recommended was about the relevance ofautonomy physical activity (APA) over heteronomy physical activity (HPA) in the course of obtainingsustainabledevelopment in lifetime physical movement (LPM) of humans, which is serves as asupport base for a youngemerging scientific disciplinei.e.physical activity epidemiology,that caters forthe preventionand reductionofnon-communicable diseases (NCDs) or non-infectious diseases (NIDs) such as obesity, kyphosis, lordosis, scoliosis, etc. for sound wellnessof the mind and of the body, gearing towards healthy lifestyle of all societal levels.

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Conflict of Interests:

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

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