Effects of Teacher-Led Personal-Training and Sustained Participation in Physical Exercise among Undergraduate Students in a Private University in, Ogun State, Nigeria

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Abstract: **The importance of regular physical activity/Exercise (PA/PE) has significant contributions to one's health and sense of well-being. It has been found to help in maintenance of a healthy body weight. The lifelong carriage positive effect of regular involvement in physical activity/exercises (PA/PE) helps the latter gait at old age. Active sustained participation have been found to impact positively academic activities, However, voluntary participation has been noted and continuous low even among undergraduates male and females collegiate (Emily, Leigh, Ross 2003). This prevailing low or no involvement in PA/PE is increasing at an alarming rate because only few adopt voluntarily physical exercise as a means of promoting general wellness and well-being. Due to the above, the objective of this study was to identify the relationship between teachers-led physical activity and uptake of voluntary personal training to improve Sustained Participation in Physical Activities among undergraduates in a private University in Ogun State, Nigeria.**

Materials and Methods: The study was cross-sectional and it adopted an arm quasi experimental research design involving 600 undergraduates who completed the questionnaire at the pre and post intervention that assessed their physical activity practices and behaviour.

The results showed that participant's mean age was 17±2.45 years, and their ages ranged from 15 to 22 years. Female students 379(65.2%) were slightly more than their male counterpart. The planned relaxation and the ties with teachers 241(40.2%) was rated as sometimes which is quite indicative of teachers tendency to induce free participation. This was found significant Pvalue=0.000 (R-.164). Multiple regression correlation coefficient, indicating the relationship between the predictor variable (teacher led) and students' involvement in physical activities is 0.152. The adjusted R square is 0.201, this means that the predictor variables accounted for 20.1% variation in students involvement in physical activities. This relationship was further ascertained using multiple regression and ANOVA $F_{(2,597)} = 7.040$; $P<0.05$. This indicated that there was a significant linear relationship between the predictor variable and students involvements in physical activities.

In conclusion therefore Teacher-led PAPE had a strong correlation with the levels of physical activity performance. Therefore it is recommended that an all-encompassing physical exercise driven program/course should be included as part of general courses for students at all levels in tertiary institutions.

Keywords: **Teacher Led, undergraduate students, Sustained Physical Activity, Physical Exercise, and Training to Improve/increase participation in PE**

I. INTRODUCTION

The lifelong positive effect of regular involvement in physical activity/exercises (PA/PE) has been empirically established. According to WHO (2003); Parvaneh, Shamsaddin, Tanya, David, Fazloalha, & Anoshirvan (2008), regular physical activity/exercise has beneficial effects on overall general well-being. It has been found to promote long term general well-being. Regular and active involvement in physical exercises has been found to be associated with better physical and psychological health and older adults who are physically active throughout the period of early years of adolescents into adulthood are likely to provide better quality of life into old age (USDHHS, 1996). Physical inactivity is a major health risk indicator and despite the fact that regular physical activity (PA) has a beneficial effect on overall health (Parvaneh, Shamsaddin, Tanya, David, Fazloalha, and Anoshirvan, 2008), as well as important in reducing the problems of obesity and Type II diabetes and other cardio-vascular diseases, hypertension, genetic and lifestyle related disease among youths and other world population (i.e young and adult). However, despite the fact that regular physical activity and physical fitness have significant contributions to one's health, sense of well-being, and maintenance of a healthy body weight, physical activity/physical exercise (PA/PE) rates tend to decline precipitously among adolescents during the high school years and this had been consistently reduced among undergraduate and college male and females

(Emily, Leigh, Ross 2003) this phenomenon does not only affect the youth but also prominent among adults. According to Centre for Disease Control and Prevention (CDC), 2012), only few adopt physical exercise as a means of promoting general wellbeing.

Consequently, the prevailing low or no involvement in PA/PE is increasing at an alarming rate (Barr-Anderson, Daheia, Melissa, Laska, Sara, Veblen-Mortenson, Kian, Farbakhsh, Bonnie, Dudovitz, 2012). Surprisingly, despite overwhelming efforts and evidences describing the benefits of an active lifestyle, PAPE still decreases with gender and age among adolescents in many western and developing countries including Nigeria (Amusa, 1990). This is more pertinent since over the last two decades, the number of higher education students in Nigerian Universities has steadily increased at the tertiary level alone, the number of students has grown from below 15,000 in 1970 to approximately 1.2 million as at 2015 (Clark & Ausukuya, 2013). If this trend of inactivity is not abated now, the next generation may suffer a life style related diseases burden as projected by WHO (2008; 2012) that by 2020, microbial related diseases will be low, while diseases relating to lifestyle (such as diabetes, high blood pressure, and obesity) will be on the increase. This will affect this vast population and the disease burden of the nation by year 2020. Hence, the call for the promotion of healthy life style through physical exercises among both sexes in Nigeria especially among the adolescent (Amuchie, 1983; Amusa 1986; Randy, Ola, Lou, and Calvin, 1993; Paul and Walton, 2002), so as to sustain a long age 'carriage over effect' to old age.

The United States Department of Health and Human Services (USDHHS), (1996) shows that physical activity levels decline as students' progress through educational levels. Bray & Born (2004) identifies a decline in vigorous physical activity in the transition from high school to the first year in college (Gordon, 2012). The same trend continued through the university days as one in five adolescent engage in high levels of activity, but one in four are largely inactive (USDHHS, 1996). Subsequently, low participation or dwindling involvements in PA/PE in higher institution were linked to low self-efficacy, lack of social support from the significant others such as the teacher, parents husband or wife, in general the family of the college student, low self-esteem, and lack of proper health promotion and education on the debilitating effects of inactivity, CDC (2007: 2010). Hence, there is a need for an important psychological construct that can determine and influence behavioural patterns of an individual. And some novel scholars have shown a positive relationship between an individual's choice of performance and the leader's imports such as significant others like the teachers, parents, guardians' husband or wife and friends.

The teacher assumes a strategic position to watch, for deviations from normal, counsel, create a good rapport among students. The teacher has the leadership qualities that could be employed to involve same-age peers to motivate their classmates to initiate, continue, and sustain a positive behaviour towards active involvement in physical exercises. (Barr-Anderson, Melissa, Laska, Veblen-Mortenson, Farbakhsh, Dudovitz, and Story, 2012).Teacher led physical exercises could constitute an educational intervention which is not only capable of improving ones physical fitness, but also capable of creating the habits necessary for the development of the individual's personality and self-efficacy (Michael, Booth, Neville, Adrian, Ornella & Eva Leslie 2000). Hence, the study investigated effect of teacher-led physical exercise program and physical activity behaviour among undergraduates.

Over the last two decades, the number of students in Nigerian Universities has steadily increased. Hence, they spend large amounts of time at school and the school environment as conditioned by the teacher can have a powerful influence on their physical activity behaviour (Rowland, 1999). Regular, moderate-intensity physical activity (for example, jogging, side way brisk walking, cycling, gymnastics and some forms of house and garden work) have a key role in the promotion of good health and the prevention of disease Xie, Spruijt-Metz, liu, Xia & Gong (2005). Physical activity decreases with age and among adolescents in many Western and developing countries, including Nigeria. Hence, decline in physical activity involvement among the youth calls for intervention. As a result of the gap in research on how to maximize the effectiveness of programs to foster individual exercise initiating and adherence, there is, therefore, the need to explore teacher-led induced physical exercise. Therefore, the researcher's intention was to determine whether teacher-led involvement in physical exercise program could enhance, improve, increase a sustained daily involvement in physical exercises among undergraduate students of Babcock University Ilishan Remo, Ogun State. Nigeria.

II. METHODOLOGY

The research design was a one arm quasi with control, experimental research design. It investigated the effect of intervention on treatment group and to compare it with control group. The experimental group were treated or given a teacher-led training program while the control group were not exposed to any treatment.

Training Techniques

The training of students' participants by the teacher was for six weeks. The steps involved a 10 minutes teacher-Led interactive section on certain debilitating effects of disease such as diabetes, high blood pressure and obesity and their effect, before taking part in example-like home based 10 to 20 minutes physical Exercise, making a total of (30minutes in all). Each days PAPE scheduled was at convenience (i.e. from 6.00am to 6.30am). The Control Group (TL-C) were not exposed to the intervention training that is, they were not exposed to the Teacher-led Physical Activity Training and the Health Quality training for Hypertension, Cardiovascular related Disease, Diabetes, and Obesity, but participated in the

designed Physical activities without teacher training intervention.

A baseline data were collected on both the experimental and control groups. The experimental group was given the teacher led 20 minutes training package for six weeks. A post intervention data was collected for both groups. The instruments used to collect data were pretested for the collation of data at the baseline and post-test measures. The 60 questionnaires used for the pre-test were subjected to a test retest reliability test which gave Cronbach's Alpha of 0.737 and this confirmed its high degree of reliability. The data collected was treated using Statistical Products and Service Solution (SPSS) version 21, a statistical package developed by the U.S. Center for Disease Control and Prevention and WHO, was used to facilitate data entry and analysis.

Program duration

The program considered the time frame in a semester to be about 3 months hence the total duration for the training was 6weeks only one and half month.to create a lifestyle of lifelong fitness regime.

Population

The populations for the study were volunteered freshmen of Private University Undergraduate. Hence a purposive sampling was used to categorize them into a one arm experimental and control group.

III. RESULTS

Actual age was used and the age range was in a cluster of fifteen (15) years old to 21 years old formed the category of the students in study. It implies that undergraduate students of nowadays falls mostly within the age range of 16 to 19 years in which are expected of any serious student to be at the university by this age period. Female students were more involved in the study since, majority 379(65.2%) of the respondents were females and they were slightly more than the male counterpart 221 (36.8%).

Knowledge of the respondents on PAPE

Table one (1) below showed that majority of the respondents had increased adequate knowledge about involvement in physical exercise as an avenue for health promotion. The respondents' knowledge about the importance and values of physical exercise was better in the post test result.

Table: 1: Showing the knowledge of the respondents about physical exercise as a means of health promotion

Items	Strongly agreed		Agreed		Do not know		Disagree		Strongly Disagree	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
One cannot get arteriosclerosis (thickening and hardening of the walls of the arteries), by not taking part in PAPE	44 (7.3)	33 (5.5%)	170 (28.3%)	254 (42.3%)	343 (57.2%)	201 (33.5%)	29 (4.8%)	63 (10.5%)	14 (2.3%)	49 (8.2%)
One can get heart diseases if one does not take part in physical exercises	104 (17.3%)	134 (22.3)	318 (53.0%)	266 (44.3%)	106 (17.7%)	131 (21.8)	65 (10.8%)	37 (6.2)	7 (1.1%)	32 (5.3)
One can get obesity (fatness) if one does not take part in physical exercises	151 (25.2%)	18731.2	335 (55.8%)	298 (49.7%)	79 (13.2%)	15 (2.5%)	35 (5.8%)	100 (16.7%)	2 (0.3%)	O
One can get hypertension (high blood pressure) if one does not take part in physical exercises	90 (15.0%)	161 (26.8)	330 (55.0%)	282 (47.0%)	128 (21.3%)	50 (8.3)	50 (8.3%)	107 (17.8)		0
One can get pains in the joint (arthritis/rheumatism) if one does not take part in physical exercises.	93 (15.5%)	77 (12.8%)	240 (40.0%)	346 (57.7%)	181 (30.2%)	99 (16.5%)	40 (6.7%)	72 (12.0)	45 (7.5%)	6 (1.0)

The respondents' knowledge about the importance and values of physical exercise was followed by an increase in the table below. The table below showed that majority of the respondents' had adequate knowledge about importance and values of physical exercise. Hence, it was observed that a very reasonable number of respondents indicated that physical exercise played a great role in enhancing the health and academic growth of an undergraduate students, as they put it that Physical exercises can improve students' concentration in class even though the response at Post intervention was a little bit low yet many 370(61.7) still held on to the fact that it does helped academic improvement. This shows that the freshmen are aware that involvement in physical exercise could positively enhance their overall health status.

Table 2: Respondents' knowledge about the importance and values of physical exercise

		PRE TEST			POST TEST		
S/No	The Statement	True	False	Don't know	True	False	Don't know
1.	Physical exercises can help build and maintain healthy bones	571(95.2%)	2(.4%)	27(4.5%)	589(98.2%)	11(1.8%)	-
2.	Physical exercises can help build muscles.	590(98.3%)	9(1.5%)	1(.2%)	600(100%)	-	-

3.	Physical exercises can be used to reduce body fat	580(96.7%)	13(2.2%)	6(1.0%)	551(92.9%)	35(5.8%)	8(1.3%)
4.	Physical exercises can help prevent or delay the development of high blood pressure	355(59.2%)	73(12.2%)	172(28.7%)	468(78.0%)	23(3.8%)	109(18.2%)
5.	Physical exercises can relieve tension or anxiety.	431(71.8%)	52(8.7%)	114(19.0%)	431(71.8)	49(8.2%)	120(20.0%)
6.	Physical exercises/ physical activities can create opportunity for people to make more friends.	405(67.5%)	64(10.7%)	131(21.8%)	476(79.3%)	42(7.0%)	82(13.7%)
7.	Physical exercises can improve students' concentration in class.	406(67.7%)	85(14.2%)	109 (18.2%)	370(61.7%)	100(16.7%)	130(21.7%)
8.	Physical exercises can prevent boredom.	427(71.2%)	128(21.3%)	45(7.5%)	580(96.7%)	20(3.3%)	-
9.	Physical exercises can improve the ability of one's body to fight diseases	499(83.2%)	67(11.2%)	33(5.5%)	453(75.5%)	68(10.8%)	82(13.7%)

Social-Relationship between Teacher led and participation in PAPE

Table 3 and figure 1 are showing the dimensions of social ties and social relationship with the teachers that could affect or impact voluntary active participation in PAPE. The strength of social ties with classroom teacher was on the very

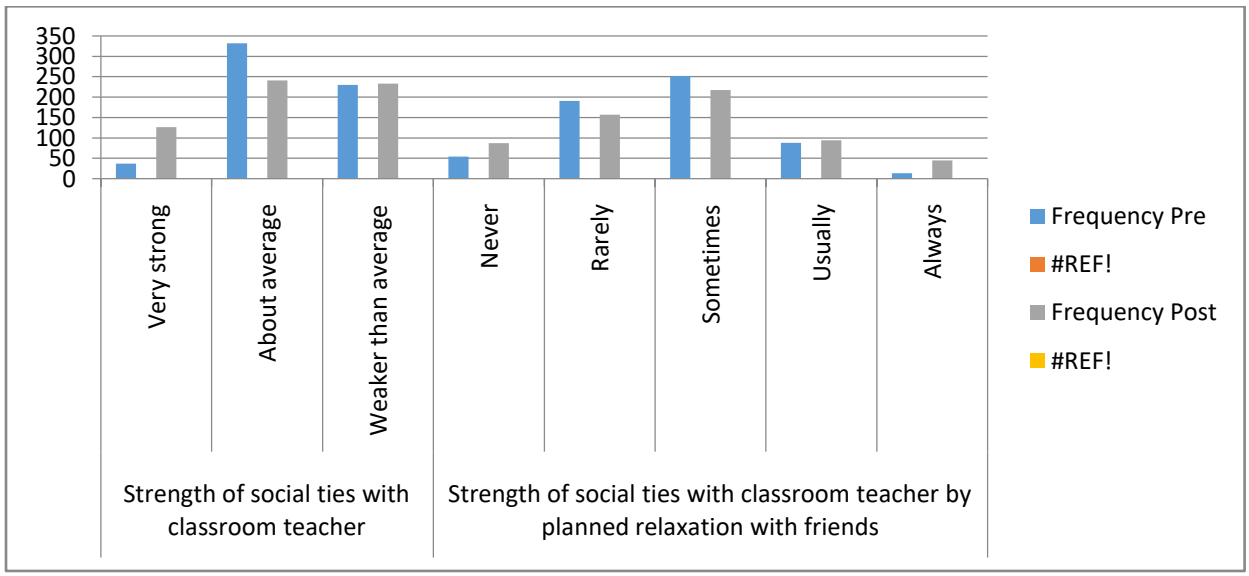
Strong ties, though the tie with the teacher was low 6.2% at pre and but there was increase in the teacher relationship ties at 126(21%) which was high at post. The planned relaxation and the ties with teachers 241(40.2%) was rated as sometime which is quite indicative of teachers tendency (table 3 below). However school work 321 (53.5%) may be adduced as the reasons for low participation.

Table 3: Showing respondents feeling towards teacher led Participation in planned Physical exercise with classroom teacher and their social ties

		Pre Freq	Pre Percentage	Post Freq	Post Percentage
Strength of social ties with classroom teacher	About average	332	55.3%	241	40.2%
	Weaker than average	230	38.3%	233	38.8%
Reason for not participating in PE	My school work			321	53.5
	I don't have interest			86	14.3
	I don't know the value of participating			26	4.3
	It is not necessary			46	7.7
	No response			121	20.2

Figure 1, below showed the dimension of social ties and social relationship that could affect participation behaviour of students. The tie was very strong 126(21%) at post with teacher and a planned relaxation with teacher and the ties with the friends 252(42%) was rated as sometime which is quite indicative of peer tendency and influence.

Figure 1: Showing respondents feeling towards teacher led Participation in Physical exercise with classroom teacher and their social ties and planned PE with friend (peer)



The research tested the hypothesis that stated that there is no significant difference in participants' involvement in physical activity before and After Teacher-led intervention (table 4 below).

Table 4: Pearson Correlation Summary showingrelationship of level of BU undergraduate students' involvement in physical activity before and after teacher-led

		Student Behaviour/Teacher led Activities	Involvement in physical activity
Involvement in physical activity	Pearson Correlation	.[a]	.[a]
	Sig. (2-tailed)	.	
	N	0	0
Teacher led	Pearson Correlation	-.247**	.[a]
	Sig. (2-tailed)	.000	.
	N	600	0
Involvement in physical activity	Pearson Correlation	.[a]	.[a]
	Sig. (2-tailed)	.	.
	N	0	0
Teacher led	Pearson Correlation	1	-.164**
	Sig. (2-tailed)		.000
	N	600	600

The table 5 below shows multiple regression correlation coefficient, indicating the relationship between the predictor variable (teacher-led) and students' involvement in physical activities was 0.152. The adjusted R square is 0.201, this suggested that the predictor variables accounted for 20.1% variation in student's involvement in physical activities. Also, a further analysis, using multiple regression showed that the relationship was significant ANOVA $F_{(2,597)} = 7.040$; $P<0.05$. This indicated that there was significant linear relationship between the predictor variable and students involvement in physical activities. Hence, the null hypothesis which states that there is no significant difference in participants' involvement in physical activity before and after teacher-led intervention was rejected.

Table 5: Regression Summary Showing Composite effect of Teacher led training on students' involvement in physical activities?

R= 0.152 R square = 0.023 Adjusted R square =0.201					
Model	Sum of square	Df	Means square	F	Sig.
Regression	231.822	2	115.911	7.040	.001
Residual	9829.243	597	16.464		
Total	10061.065	599			

The study considered the second hypothesis (2) that stated that there is no significant difference in University freshmen, or undergraduate students' continued involvement in physical activity at baseline and after teacher led PE training. The table 6 below shows that multiple regression correlation coefficient indicating the relationship between the predictor variable (teacher led) and teacher led was

0.345. The adjusted R square was 0.116, and this revealed that the predictor variable accounted for 11.6% variation in the students' involvement. Also, it was also further ascertained using multiple regression ANOVA $F_{(2,597)} = 40.410$; $P<0.05$. This indicated there is significant linear relationship between the predictor variable and continued participation in PAPE. Therefore, the null hypothesis which states that there is no significant difference in BU freshmen undergraduate behaviour and continued and sustained involvement in physical activity at baseline and after teacher led only PE training was rejected (Table 6).

Table 6: Regression Summary Showing Composite effect of Teacher led and support on students sustained participation behavior

R= 0.345 R square = 0.119 Adjusted R square =0.116					
Model	Sum of square	Df	Means square	F	Sig.
Regression	2242.859	2	1121.429	40.410	.000
Residual	16567.340	597	27.751		
Total	18810.198	599			

The Relative Contribution of Teacher led and voluntary Participation in PA/PE

Table 7, shows that the predictor variables, teacher led (β= 0.206, $t(600) = -5.299$; $p < 0.05$)and voluntary Participation in PAPE were found to have significant relative contribution towards students' participation.

Table 7: Coefficients Summary Showing relative contribution of teacher led and peer support and voluntary Participation in PAPE

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	25.820	.866		29.800	.000
	Teacher led	-1.422	.268	.206	-5.299	.000
a. Dependent Variable: Students' participation and sustained Voluntary participation						

IV. DISCUSSION

The study was designed to find out the impact of teacher-led sustained physical exercise on undergraduates behavour on the involvement in physical activity among Babcock University undergraduate freshmen. The study investigated the composite contribution of teacher led on student's behavior to adopt a sustained and continuous involvement

(active lifestyle) through their involvement in physical activities even after the intervention.

It was revealed that teacher-led physical exercise program had significant contribution to the participants' adoption or developed a self-sustained participation in PE. This corroborated the assertion of Michael et al (2000) that a well-planned driven activity has a strong association with physical activity participation. Hence, teacher-led program motivated students to be more involved in physical exercises.

Subsequently, the result showed that multiple regression correlation coefficient indicated significant relationship between the predictor variable (teacher led support) and students' involvement in physical activities. This corroborated with the findings of Barr-Anderson et al (2012) that teacher has the leadership qualities that could be employed to involve same-age (peers) to motivate their classmates to initiate, continue, and sustain a positive behaviour towards active involvement in physical exercises.

V. CONCLUSIONS

The result showed that the predictor variables, teacher led **(***β*= 0.385, *t*(600) = -5.842; $p < 0.05$) were found to have significant relative contribution towards students to decision of involvement in physical activities, since results revealed that most of the freshmen have decided to be engaging in PE. This indicated that there is significant linear relationship between the predictor variables (Teacher led/driven PA/PE) and students' involvement in physical activities (table 7). The Significance P= .000 showed the impact of the teacher increase the respondents involvement in PE before and after the program. The showed significant difference of p< 0.000 showed to be active is better than living a sedentary life.

Applications in Sports

Based on the outcome of this study, school administrators and policy makers should note that enormous contributions of teacher led training played a very significant role in determining the students' involvement in sustained physical activities. Also, the study generated information that can be used to design an appropriate policy framework for implementing effective sustained physical exercise in tertiary institutions and stimulating policy formulation or facilitating necessary curricular review, aimed at promoting young persons' participation in physical activities for the purpose of maintaining good health status.

VI. RECOMMENDATIONS

Based on the findings of this study, the following recommendations are given;

1. Approval should not be given by government to all levels of educational institutions without adequate provisions for sports equipment and facilities.
2. An all-encompassing physical exercise driven program/course should be included as part of general courses for students at all levels in tertiary institutions.
3. There should be purposeful shedding of credit load (unit) of lecturers to accommodate their active involvement as physical fitness instructors in planning, organisation, supervision and execution of physical exercise among undergraduate students.

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