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SOCIO-DEMOGRAPHIC AND PSYCHOLOGICAL DETERMINANTS OF LEISURE TIME PHYSICAL ACTIVITY AMONG ADOLESCENTS IN NIGERIA

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Abstract:
Despite the numerous benefits associated with leisure time physical activity (LTPA), it is quite worrisome that the habit of regularly engaging in LTPA is rare among Nigerians, especially among adolescents who are found in myriads of sedentary lifestyle behaviour as a result of technological and economical advancement. The present study examined socio-demographic and psychological determinants of LTPA among adolescents in Nigeria. A cross-sectional study was conducted and multistage sampling technique was employed to recruit 1200 adolescents (Male = 59.7%; Female = 40.3%; Age: 10-19years) from twelve secondary schools in Southwest States, Nigeria. Physical Activity Self-Efficacy for Adolescent (PASE), The Physical Activity and Leisure Motivation Scale (PALMS), Activity Questionnaire for Adults and Adolescents (AQuAA) and Self-developed Socio-demographic Questionnaire were used to collect the data. Data were analyzed using statistics of frequency count, percentages & Multiple Regression. The result of the study showed that socio-demographic ($F(8,1191) = 4.980$; $p < .05$; $R^2 = .28$) accounting for 28% of its variance and psychological factors ($F(2,1197) = 31014.342$, $p < .05$; $R^2 = .99$) accounting for 99% of its variance) were significant. Based on the findings,

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adolescents in Southwest states in Nigeria do not meet the World Health Organization recommendations on physical activity. Both socio-demographic and psychological factors significantly determined LTPA and these factors could be taken into account in the development of interventions to increase LTPA levels throughout the life course among adolescents in Nigeria.

Keywords: leisure-time physical activity, socio-demographic, motivation, self-efficacy, adolescents

1. Introduction

The recognising benefits of engaging in leisure time physical activity (LTPA) have become a strategic health importance which contribute to the growth and development of adolescents and thus attracted the attention of individuals, groups and world organizations. International agencies such as World Leisure Organization (WLO), World Tourism Organization (WTO), World Travel and Tourism Organization (WTTO), International Council for Physical Health Education, Recreation Sport and Dance (ICHPER.SD), World Health Organization (WHO), the European Union (EU), the United States Department of Health and Human Services (USDHHS) etc are actively involved in propagating physical leisure time activity programmes around the world because of its tremendous contributions to individuals and community development.

Physical inactivity is one of the most significant contributors to the global burden of disease (Lee et al. 2012). According to World Health Organisation (WHO) (2015), physical inactivity is the fourth leading global risk factor for mortality, causing about 3.2 million deceases. The lack of PA among adolescents is worrisome, as PA of adolescents has shown to track into adulthood, meaning that low PA levels persist to a certain extent from adolescence to adulthood (Telama 2009; Kjonniksen, Torsheim & Wold, 2008). Promotion of PA is thus important for all age groups, and most importantly for adolescents. Studies have shown that there are many children and adolescents who are relatively inactive and do not meet the required level of engaging in physical activity (de Moraes et al., 2013; Guthold et al., 2010). WHO (2018) reported that globally, more than 80% of the world's adolescent population is insufficiently physically active and 1 in 4 adults is not active enough. It is alarming and overwhelming with the menace upsurge of physical inactivity in most societies around the globe. The menace occurs not only in developed societies, but also in developing and under-developed societies (Muller, Khoo & Lambert, 2013; Hallal et al., 2012).

WHO (2014) reported that physical inactivity levels in Africa are generally consistent between different genders, ethnicities and income levels, while half of all the adults are inactive. In addition, Guthold et al. (2010) indicated that only 8% to 35% of African youth meet the recommendation level of engaging in physical activity for 60 minutes a day in at least 5 days in a week. A Plethora of studies have reported lower level

of participation in PA in Africa than Europe and other developed communities (Oyeyemi et al., 2016; Mukona et al., 2016; Micklesfield et al., 2014).

Forming positive habits of participating in LTPA is an important way of recharging vitality and this requires not just the knowledge of the consequences of involvement or not, but also associate with the current status of physical activity of the present younger generation and the factors that determine it (Lo et al., 2015). There are numerous factors that determine level of participation in LTPA. These include demographic, economic, psychological, social, environmental, administrative, ecological, organisational and cultural. This research focused on socio-demographic and psychological factors.

Socio-demographic factors play a crucial and immense role in engaging in LTPA. Studies have found that socio-demographic factors that influence participation in LTPA includes age, gender, education level, socioeconomic status, parental support, peers and friends (Payne, Townsend & Foster, 2013; Oyeyemi et al., 2016; Fitzgerald, Fitzgerald & Aherne, 2012; McMinn et al., 2008; Loucaides, 2009; Shokrvash et al., 2013). Payne et al. (2013) proved that along with the increasing pupils' age, their participation in active forms of recreation declines, and this occurs majorly among girls. A study by Marques et al. (2015) examined the link between socio-demographic factors and engagement in the recommended PA level for Portuguese adults revealed that age was not significantly related with PA.

Gender is another important factor that determines participation in LTPA. A study carried out by Lubowiecki-Vikuk and Biernat (2017) showed that as for girls, the risk of lack of movement was more than 1.4 times higher than among boys. As revealed by Jandric (2010) that the difference in social role of boys and girls lead to a different participation and understanding towards PA participation, the author further showed that boys were more likely to be physically active than girls, because girls recorded significantly fewer activities involving games than the boys did. Considering lifestyle as a whole includes religious aspects which could determine participation in LTPA. It has been shown that religiosity/spirituality is associated longevity of life suggesting a protective influence on healthy population with 18% reduced risk of mortality (Chida et al. 2009). Nagel and Sgoutas-Emch (2007) identified a significant positive association between religious involvement (spiritual experience, praying and church attendance) and physical activity in adolescents as well as a negative correlation with alcohol consumption. Benjamins (2012) found that there is a stronger influence of one's religious belief on health promotion behaviour, which is associated with physical activity involvement, but not diet.

Ethnicity/race has been studied to contribute to the determinant and demonstration of LTPA behaviour. Evaluation of National Health Interview Survey (NHIS) in 2007 found significant differences in PA across different racial groups (Saffer, Dave & Grossman 2011). Adegoke and Oyeyemi (2011) showed that ethnicity was partly associated with high prevalence of physical inactivity. The study further showed that participants who belong to the Hausa ethnic group reported the highest prevalence of

physical inactivity and they were more likely to be physically inactive and less likely to be moderately active than their counterparts from other ethnic groups.

Level of education and socioeconomic status of parents are two factors that go together to determine LTPA lifestyle and participation of adolescents among different individuals and communities. A study by Marques et al., (2015) among Portuguese found that educational levels were not associated with meeting PA recommendations for men, but were for women. Similarly, Shibata, Oka, Nakamura, Muraoka (2009) results found that for men and women despite the variance in cultural practices, the most educated among women were more likely to engage and attain the recommended PA level. However, this was not seen among men counterparts. On the other part, socio-economic status (SES) of parents is crucial to participation of children and adolescents in LTPA. Rimmer et al. (2002) highlighted likely reasons for low participation in PA among low SES individuals. First, these individuals live in communities with fewer recreational facilities or park, lack enough funds to purchase home exercise equipment, lack social support or to lead a physically active lifestyle, and also lack understanding about the health benefits of activity. Marques et al., (2015) showed that higher SES adults are more likely to follow preventive programs and health-promoting behaviour, whether due to greater motivation or access to resources. Dias-da-Costa, et al., (2005) revealed that SES is a significant correlate of PA. The authors added that men who belong to high SES and women that belong to middle SES were linked to meeting the recommendation of participating in PA.

The rate and frequency at which an individual participates in LTPA is essential to personal well-being. World Health Organization (WHO) recommends that children and youth aged 5–17years should accumulate at least 60min of moderate-to-vigorous-intensity PA daily (WHO, 2017b). Ndagire, Muyonga and Nakimbugwe (2019) study found inadequate levels of PA being reported among children and adolescent students in Uganda. A study conducted by Liu and Dai (2017) revealed that on average, the amount of physical activity in Chinese university students is very low, and male students involved in more PA than their female counterparts. Oyeyemi et al., (2016) showed that school is being the most common context for Nigerian adolescents' physical activity. Sedibe et al. (2014) in a qualitative study revealed that school is a common and an important outlet for South African adolescents to engage in physical activity. Wojtyła et al. (2011) demonstrated that participation in PA among Polish youths is only limited to physical education classes.

Number of children in the family and parental influence has been found to determine LTPA participation as this play a great role in actualizing and meeting the recommendation of WHO about PA. Duncan et al. (2004) found that children who had older siblings were more likely to spend time in moderate-intensity PA, while this is in contrast to the study conducted by Wang and Qi (2016) who found that there was no significant difference in MVPA time between adolescents living with one sibling and those without any siblings. Bagley, Salmon and Crawford (2006) indicated that girls with more siblings spent more minutes per day in PA compared with girls without siblings.

Davison (2004) reported that siblings influenced PA behaviour of children and adolescents. Moreover, parental influences such as support and modelling have been identified as significant factor for PA participation in children and adolescents (Sallis, Prochaska & Taylor, 2000). Longitudinal study by Kahn et al. (2008) found that mother's PA was associated with both male and female adolescents' participation in PA. In their meta-analysis, Yao and Rhodes (2015) concluded that the relationship between father-son was higher than that of mother-son modelling, while the same occurred between mother-daughter and father-daughter. Aljayyousi et al (2019) indicated that some students highlighted that their families give priority to work, personal commitments and academic achievement over involvement in PA. They added that father spend long hours at work and the mother would take care of family members and doing housework, which negatively impacted physical activity time and choices.

Psychological factors have been found to influence and determine involvement and participation of adolescents in LTPA. Different psychological factors help an individual to belief in oneself, values to participate in LTPA as a result of personal gains and development. Psychological factors that encourage the younger generation to develop interest and habit of being physically active is crucial to their personal wellbeing. According to the theory of motivation by Deci and Ryan (1985), an individual's attitude is a result of an internal or external motivation or lack of it. An individual becomes motivated either internally or externally in high or low levels or do not really become motivated and they resulted quitting the activity. Cagla et al. (2009) explained that understanding the factors that motivate people to participate in LTPA is important to encourage persistence in physical activity participation which is advantageous to the development of physical and psychological well-being. According to Chiu and Kayat (2010), the motivation for physical activity was found to be the largest contributor or effect on the frequency and magnitude of participation in LTPA among undergraduates at local public universities. Besides, Andrea (2012) in Jonathan (2016) findings on frequency of physical activity and the time spent in physical activity was found to be positively related to intrinsic motivation, integrated regulation, and identified regulation. In their study, Ajibua, Olorunsola and Bewaji (2013) found that most respondents maintained that they participated in LTPA because of personal motivation/interest. Biddle and Mutrie (2008) found that the common motives for participating in PA among children and youths were fun, skill development affiliation, fitness, success and challenge, while the motives for adults change across stages of their lifecycles.

Self-efficacy as a psychological construct is a central component of the social cognitive theory (Bandura, 1997), which refers to a person's belief in his/her ability to execute behaviours necessary to achieve desired outcomes. Studies have indicated that self-efficacy to overcome barriers to physical activity is a significant predictor of adolescents' physical activity participation (Allison, Dwyer & Makin, 1999; Petosa et al., 2005). The findings by Chiu and Kayat (2010) indicated that high self-efficacy and motivation for physical activity would likely increase the rate of participation in leisure time physical activities among undergraduate students. In other words, the higher

students' beliefs in self-efficacy for physical activity, the more frequent their participation in LTPA. Hagger, Chatzisarantis and Biddle (2002) showed moderate correlations between self-efficacy and physical activity participation among both young and older people. Liu, and Dai (2017) found that vigorous PA significantly correlated with self-efficacy to overcome social environment barriers and responsibility barriers in female students.

Nigeria is the most populous country in sub-Sahara Africa with highest number of youths aged between 10-24years (Population Reference Bureau, 2021). Physical inactivity related Non-Communicable Diseases (NCDs) morbidity and mortalities among adolescents escalate on daily basis in the country. The adolescents in Nigeria especially those in secondary schools who are supposed to be active and participate freely in LTPA are only focused and concentrated on sedentary leisure lifestyle activities and shy away from LTPAs such as walking, running, cycling, swimming, playing table tennis, volleyball, football, etc. They embraced such activities as playing video games, watching television, surfing and playing internet games, playing computer games among others. These occur due to the influx of advanced technological devices, availability and easy accessibility to these devices with little or no control and supervisions on the usage. The total immersion in these sedentary-related leisure time activities has caused drastic decline in LTPA of adolescents which in turn could lead to increase in overweight, obesity, risk of cardiovascular diseases, high blood pressure, osteoporosis, anxiety, depression, low self-esteem, etc. Moreover, most adolescents in secondary schools in Nigeria are only limited to participate in physical activity exercises conducted in schools and during physical education classes due to the organised environment in schools which cannot satisfy meeting the recommendation guidelines of PA for adolescents. There is the need for these adolescents to involve in regular, moderate to vigorous LTPA after school in order to meet the recommended physical activity level, avoid sedentary lifestyle and promote healthy living.

A plethora of studies have been conducted on physical activities and LTPA with different population groups and professions in Nigeria. Examples include quantification of LTPA among university students; and perceived motives for participation in LTPA among tertiary institution employees (Ajibua & Dominic, 2018; Ajibua, et al., 2014); psychosocial correlate of PA participation among university students (Awotidebe et al, 2014); pattern and associated factors of PA among adolescents (Oyeyemi et al., 2016); prevalence and correlates of LTPA among adults in urban settings (Akarolo-Anthony & Adebamowo, 2014); PA and outdoor leisure time physical exercise among adults (Chigbu et al, 2020). From these studies, there are varying results on the levels of participation in LTPA. Also, most of these studies focused on the adolescents in university and adults in various professions in the community. Yet no studies have reported meeting the recommendation guidelines for PA in different population groups. From the foregoing, it can be deduced that the level of LTPA was not given maximum consideration especially among adolescents in secondary schools in Nigeria. Despite the lack of evidence and varying data on physical activity level and LTPA of general population in Nigeria, there

is dearth of studies on LTPA of adolescents in secondary schools in Nigeria and factors that could determine their participation. Therefore, understanding the socio-demographic and psychological determinants of LTPA at the earliest stages of life is crucial for targeted interventions tailored to increase participation levels throughout the life course among adolescents in Nigeria. Hence, this study was aimed at investigating socio-demographic and psychological determinants of LTPA among adolescents in Southwest States, Nigeria.

2. Methods

2.1 Participants

One thousand two hundred (1200) secondary school students of Southwest States, Nigeria participated in this cross-sectional survey (59.7% boys and 40.3% girls). The age range was between 9 and 19years. Multi-stage sampling technique was employed to select the participants. The participants were from Junior secondary school 1-3 and Senior secondary school 1-3 (JSS1 = 11%, JSS2 = 24.1%, JSS3 = 16.5%, SSS1 =12.3%, SSS2 = 26% and SSS3 = 10.1%) from three different Southwest (Oyo, Ondo and Osun) States in Nigeria. The participants' ethnicity was (Yoruba 65%, Igbo 28% and Hausa 6.2%), the residence (urban 45.4%, sub-urban 39.9% and rural 14.7%) areas.

Southwest region is one of the six geo-political zones in Nigeria. The six geo-political zones are North-Central (Middle Belt), North-East, North-West, South-East, South-South and South-West. Each zone comprises 6 states. The six (6) Southwest states are Oyo, Ogun, Lagos, Ondo, Osun and Ekiti. The ethnic group in this Southwest region is majorly Yoruba tribe with many dialects in each state. Three (3) states out of six (6) Southwest States were selected for this study. The selected states were Oyo, Osun and Ondo. Participants were selected from Four (4) secondary schools in each state totaling twelve (12) different secondary schools represented in this study. Both government and private secondary school students were represented in the study.

2.2 Measures

Socio-demographic information of age (between 9 and 19years), gender (male and female), religion (Christianity, Islam, Traditional and Others), ethnicity (Yoruba, Igbo and Hausa), parent's level of education (No formal education, primary, secondary, OND/NCE, B.Sc/HND, postgraduate and others), parent's socioeconomic status (higher, middle and lower), frequency of participation in LTPA (regular, periodic and sporadic), number of children in the family and family supports (father, mother, both parents, siblings and friends) were measured.

To measure psychological variables, Motivation of physical leisure time of the participants was assessed using original adapted 'The Physical Activity and Leisure Motivation Scale' (PALMS) developed by Zach, Bar-Eli, Morris and Moore (2012), which was found to yield sound psychometric properties. The PALMS questionnaire consists of forty (40) items rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly

agree). It has six subscales of mastery, physical condition, affiliation, psychological condition, appearance, family and friends' expectations, health professionals' and employers' expectations, enjoyment, and competition/ego. The reported internal consistencies of the subscales were between .63 and .96 on Cronbach's alpha scale. Self-efficacy of the participants was assessed using eight (8) items Physical Activity Self-Efficacy for Adolescent developed by Dishman, Hales, Sallis, Saunders, Dunn, Bedimo-Rung & Ring (2010). The 5-point Likert scale ranged from 1 (strongly disagree) to 5 (strongly agree). The reported internal consistency of the scale was 0.82 on Cronbach's alpha scale. Activity Questionnaire for Adults and Adolescents (AQuAA) developed by Chinapaw et al. (2009) was used to measure LTPA of the participants. This questionnaire, that includes questions about frequency and duration of a range of physical activities, has shown to be fairly to moderately reliable.

2.3 Procedure

Permission to conduct the study was obtained from the Local Authority on Secondary School Education and the school principals of various schools. Students participated in the study voluntarily after directions and instructions from the school authorities. Prior to answering the questionnaire, participants were instructed to respond to the questions individually and as honestly as possible and were told that there were no right or wrong answers. The survey was carried out during free periods on class timetable in order not to interfere with the normal school and classroom activities. Participants completed the questionnaire in about 20 minutes with the help of the researchers and assistants who guided the participants.

2.4 Data Analyses

Descriptive statistics of frequency and percentages were conducted to summarise participants' characteristics. Also, an inferential statistic of regression at 5% alpha level was carried out to determine socio-demographic (age, gender, religion, ethnicity, parent's level of education, socioeconomic status, frequency of participation in LTPA, number of children and family supports) and psychological variables (self-efficacy and motivation). All statistical analyses were performed using IBM SPSS Statistics 22.0 (IBM Corp., Armonk, USA).

3. Results

Table 1 shows the demographic characteristics of the respondents (males 716 (59.7%); females 484 (40.3%). Age ranged between 10 and 11years constituted 50 (4.2%), 12 and 13 years 477(39.8%), 14 and 15 years 459(38.3%), 16-17years 178 (14.8%) and between 18 and19years constituted 36(3.0%). The classes of respondents represented were [JSS1 132 (11%); JSS2 289 (24.1%); JSS3 198 (16.5%); SSS1 148 (12.3%); SSS2 312 (26%); SSS3 121 (10.1%)]. Religion practiced by the respondents [Christianity 836 (69.7%); Islam 331 (27.6%); Traditional 27 (2.3%); Others 6 (.5%)]. The ethnicity of the respondents were

[Yoruba 785 (65.4%); Igbo 341 (28.4%); Hausa 74 (6.2%)]. The parents' education levels of the respondents [No formal education 173 (14.4%); Primary school 214 (17.8%); Secondary school 268 (22.2%); Ordinary National Diploma/Nigeria College of Education (OND/NCE) 182 (15.2%); Bachelor Degree/Higher Diploma Degree (BSc/HND 318 (26.5%); Postgraduate 45 (3.8%)]. The parental socio-economic status [Lower 629(52.4%); Middle 443(36.9%); Higher 128(10.7%)].

Table 1: Demographic characteristics of the respondents

Items	Characteristics	n (%)
Gender		
	Male	716 (59.7)
	Female	484 (40.3)
Age		
	10-11 years	50 (4.2)
	12-13years	477 (39.8)
	14-15 years	459 (38.3)
	16-17 years	178 (14.8)
	18-19years	36 (3.0)
Class		
	JSS1	132 (11.0)
	JSS2	289 (24.1)
	JSS3	198 (16.5)
	SSS1	148 (12.3)
	SSS2	312 (26.0)
	SSS3	121 (10.1)
Religion		
	Christianity	836 (69.7)
	Islam	331 (27.6)
	Traditional	27 (2.3)
	Others	6 (.5)
Ethnicity		
	Yoruba	785 (65.4)
	Igbo	341 (28.4)
	Hausa	74 (6.2)
Parents' education level		
	No formal education	173 (14.4)
	Primary school	214 (17.8)
	Secondary school	268 (22.3)
	OND/NCE	182 (15.2)
	BSc/HND	318 (26.5)
	Postgraduate	45 (3.8)
Parental SES		
	Lower	629 (52.4)
	Middle	443 (36.9)
	Higher	128 (10.7)

3.1 Test of Hypotheses

Hypothesis 1: There is no significant joint contribution of socio-demographic variables on LTPA among adolescents in Southwest States, Nigeria.

Table 2: Regression table showing the joint contribution of socio-demographic variables on LTPA among adolescents in Southwest States, Nigeria

R = .280 Multiple R = .432 Multiple R^2 adjustment = .326 Standard Error Estimate = 10.75913 Analysis of Variance					
Model	**Sum of square**	**Df**	**Mean square**	**F**	**P**
Regression	4612.274	8	576.534	4.980	.000
Residual	137868.825	1191	115.759		
Total	142481.099	1199			

Table 2 reveals that the joint contribution of Socio-demographic variables on LTPA among adolescents in Southwest States, Nigeria is significant ($F(8,1191) = 4.980$, $p < .05$). The independent variable also yielded a coefficient of multiple regression (R) of .280 meaning that about 28% of the variation is accounted for by the independent variables. Therefore, the null hypothesis is rejected.

Hypothesis 2: There is no significant relative contribution of socio-demographic variables on LTPA among adolescents in Southwest States, Nigeria

Table 3: Regression table showing relative contribution of socio-demographic variables (age, gender, religion, ethnicity, parent's level of education, socioeconomic status, frequency of participation, number of children and family supports) on LTPA among adolescents in Southwest States, Nigeria

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	67.776	2.375		28.539	.000
	Age	.273	.360	.022	.760	.448
	Gender	.401	.672	.018	.597	.551
	Religion	1.651	.617	.083	2.675	.005
	Ethnicity	.360	.517	.023	.697	.486
	Parents' level of education	.980	.283	.103	3.466	.001
	Parents SES	1.464	.504	.109	2.906	.004
	Frequency of participation in LTPA	.309	.533	.020	.579	.562
	No of children in your family	1.496	.396	.128	3.776	.000
	Family support	.130	.289	.013	1.449	.654
a. Dependent Variable: LTPA						

Table 3 shows for each socio-demographic variable, the unstandardised regression weight (ß), the standardized error of estimate (SEß), the standardized coefficient, the t-ratio and the level at which the t-ratio is significant. The table revealed that number of children in the family has the highest contribution of 13% (ß =. 128, t = 3.776, $p < 0.05$) followed by parental socio-economic status with the contribution of 11% (ß = .109, t = 2.906, $p < 0.04$) followed by parents' level of education with the contribution of 10.3% (ß = .103, t = 3.446, $p < 0.01$) followed by religion with the contribution of 8.3% (ß = .083, t = 2.675, $p < 0.05$) followed by ethnicity with the contribution of 2.3% (ß = .023, t = 0.677, $p > 0.05$) followed by age with the contribution of 2.2% (ß = .022, t = 0.760, $p > 0.05$) followed by the frequency of participation in leisure time physical activity with the contribution of 2% (ß = .020, t = 0.579, $p > 0.05$) while gender has the least contribution of 2% (ß = .018, t = 0.597, $p > 0.05$). Therefore, the null hypothesis is rejected.

Hypothesis 3: There is no significant joint contribution of psychological variables on LTPA among adolescents in Southwest States, Nigeria.

Table 4: Regression table showing joint contribution of psychological variables (self-efficacy and motivation) on LTPA among adolescents in Southwest States, Nigeria

R = .990 Multiple R = .981 Multiple R^2 adjustment = .981 Standard Error Estimate = 1.50118 Analysis of Variance					
Model	**Sum of square**	**Df**	**Mean square**	**F**	**P**
Regression	139783.621	2	69891.811	31014.342	.000
Residual	2697.478	1197	2.254		
Total	142481.099	1199			

Table 4 reveals that the joint contribution of psychological variables (self-efficacy and motivation) on leisure time physical activity among Southwest States is significant ($F(2,1197) = 31014.342$, $p < .05$). The independent variable also yielded a coefficient of multiple regression (R) of .990 meaning that about 99% of the variation is accounted for by the independent variables. Therefore, the hypothesis is rejected.

Hypothesis 4: There is no significant relative contribution of psychological variables on LTPA among adolescents in Southwest States, Nigeria.

Table 5: Regression table showing the relative contribution of psychological variables (self-efficacy and motivation) on LTPA among adolescents in Southwest States, Nigeria

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	2.214	.296		7.485	.000
	Motivation	.116	.000	.990	249.054	.000
	Self-efficacy	.002	.006	.651	21.289	.013

Table 5 shows for each psychological variable, the unstandardised regression weight (**ß),** the standardized error of estimate (SEß), the standardized coefficient, the t-ratio and the level at which the t-ratio is significant. The table reveals that motivation has the highest contribution of 99.0% (ß = .990, t = 249.054, $p < 0.05$), while self-efficacy has the least contribution of 65.1% (ß = .651, t = 21.289, $p < 0.05$). Thus, the hypothesis is rejected.

4. Discussion

This study examined socio-demographic and psychological determinants of LTPA among adolescents in Southwest, Nigeria. Both socio-demographic and psychological factors significantly determined LTPA in the study. Nine socio-demographic factors of (age, gender, religion, ethnicity, parent's level of education, parent's SES, frequency of participation, number of children in the family and Family support) were examined and only four factors of (religion, parent's level of education, parent's SES and number of children) are significant to LTPA participation, while five factors of (age, gender, ethnicity, frequency of participation and family support) were not significant.

The findings in relation to the age of the participants in this study is in agreement with the study conducted by Marques et al. (2015) which examined the link between socio-demographic factors and engagement in the recommended PA level for Portuguese adults revealed that age was not significantly related with PA. Payne, Townsend and Foster (2013) proved that along with the increasing pupils' age, their participation in active forms of recreation declines, particularly among girls. The findings of this study indicated that gender had the least contribution to LTPA of the participants. This corroborates with the study of Jandric (2010) who revealed that the difference in social role of boys and girls lead to a different participation and understanding towards PA participation, the author further showed that boys were more likely to be physically active than girls, because girls recorded significantly fewer activities involving games than the boys did. While Lubowiecki-Vikuk and Biernat (2017) showed that as for girls, the risk of lack of movement was more than 1.4 times higher than among boys.

This study showed that religion significantly determined LTPA among adolescents. This could be attributed to greater number of participants who were Christians who perform different roles in church and perform such activities as singing, dancing, clapping and some acrobatic displays in few churches, while the Muslim counterparts are found of demonstrating flexibility-related activities as bending and squatting when praying. The finding is in accordance with the study of Nagel & Sgoutas-Emch (2007) and Benjamins (2012) that identified stronger influence of religious beliefs on health behaviour that is associated with physical activity, but not diet and alcohol consumption. Ethnicity was not a significant determinant of LTPA among adolescents. This is supported by Adegoke and Oyeyemi (2011) who showed that ethnicity was partly associated with high prevalence of physical inactivity. The authors added that participants who belong to the Hausa ethnic group reported the highest prevalence of physical inactivity, while estimates from the 2007 National Health Interview Survey

(NHIS) indicated significant differences in PA across racial groups in which 33.8% of Whites, 23.8% of Hispanics and 23.2% of Blacks engage in regular leisure PA (Saffer, Dave & Grossman, 2011).

Parents' level of education significantly determined LTPA among adolescents. This finding could be attributed to the participant's parent's awareness and campaigns on benefits associated with LTPA they listened to, watched on television and read about from various sources such as media and their places of work. This is supported by the study of Shibata et al. (2009); Marques et al. (2015)] in Japan and Portugal respectively, they showed that the most educated were more likely to attain the recommended PA levels. Furthermore, the study found that parent's SES was a significant determinant of LTPA. This coincides with the findings of Marques et al., (2015); Dias-da-Costa, et al., (2005) that higher and middle SES adults are more likely to follow preventive programmes and health-promoting behaviour, whether due to greater motivation or access to resources.

Moreover, frequency of participation was not a significant determinant of LTPA among adolescents. This could be attributed to the fact that most of the participants did not participate in LTPA outside the four walls of the school. This corroborates with the study of Ndagire, Muyonga and Nakimbugwe (2019) in Uganda and Liu & Dai (2017) in China, who showed the inadequate and low levels of PA, while the female students engaged in less physical activity than male students. The findings of this study is not surprising, because most of the adolescents are yet to attain the recommendations made by WHO for children and youth aged 5–17years to accumulate at least 60min of MVPA daily. In addition, the number of children in the family is a significant factor that determines LTPA. This finding could be linked with the presence of more children in the family as some many families have an average of four children. Similarly, the studies of Davison (2004), Bagley, Salmon and Crawford (1998) reported that siblings influenced PA behaviour of children and found that girls with siblings spent more minutes per day in PA compared with girls without siblings. In contrast, Wang & Qi (2016) revealed that there was no significant difference in MVPA time between adolescents living with one sibling and those without siblings.

Findings on family support was not significant. This could be said that some parents give priority to high academic involvement and achievement without considering the crucial role that LTPA could play in enhancing children's mental ability. This is similar to the study conducted by Aljayyousi et al. (2019) who found that some students mentioned that their families give priority to work, personal and family commitments, and academic achievement over physical activity. Yao and Rhodes (2015) concluded that the relationship between father–son PA modeling was higher than mother–son PA modeling, yet the findings were similar for the relationship between mother–daughter and father–daughter PA modeling. The parental style towards female was usually more restricted and tends to shape with sedentary activity.

The findings indicated that psychological indices of motivation and self-efficacy determined LTPA among adolescents. The study further revealed that motivation has the

highest contribution of 99%, while self-efficacy has 65.1%. This could be attributed to the interest, enjoyment, fun, happiness, skill mastery and having good time with friends. Similarly, Ajibua, Olorunsola and Bewaji (2013); Andrea in Jonathan (2016) who indicated that the motivation for physical activity was found to be the largest contributor or effect on the frequency and magnitude of participation in LTPA among students. Reasons for participation in LTPA were personal motivation/interest, integrated regulation, and identified regulation, while Biddle and Mutrie (2008) reported that for children and youth, common motives were fun, skill development, affiliation, fitness, success and challenge; whereas for adults, motives change across stages of the lifecycle. The findings on self-efficacy coincides with the study carried out by Chiu and Kayat (2010) indicated that high self-efficacy and motivation for physical activity would likely increase the rate of participation in LTPA among undergraduate students. (Hagger, Chatzisarantis & Biddle, 2002; Liu, & Dai, 2017) showed significant and moderate correlations between self-efficacy and physical activity participation among both young and older people.

5. Conclusion

The study demonstrated that the level of participation in LTPA was very low compared to WHO's recommendations of MVPA for the adolescents. The study further demonstrated that socio-demographic and psychological factors significantly determined LTPA among adolescents in Southwest, Nigeria. The findings suggest that socio-demographic and psychological factors could be the important factors to take into account in the designing and development of effective interventions to increase LTPA levels throughout the life course among adolescents in Southwest, Nigeria. More research on this topic is warranted.

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Declaration of Conflicting Interests

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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