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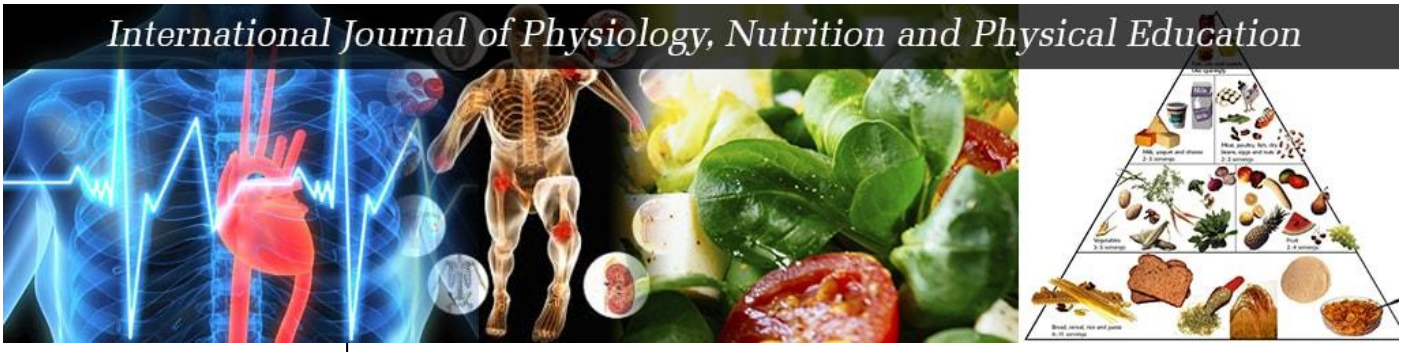

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Abstract
Using cross sectional descriptive survey, the study examined perceived teacher-related barriers that impeded teaching of physical education in public primary schools of six selected circuits in the Volta Region of Ghana. Multistage sampling was used to draw 172 teachers (males=97, females=75) from estimated population of 300 in the study area. The data collection instrument was self-structured questionnaire which was validated by means of expert consultation. Reliability of the instrument was ascertained using Chronbach alpha reliability coefficient. Pre-data analyses were performed to eliminate probable errors during data entering. Data analyses were performed using Statistical Package for Social Sciences (SPSS, version 17). The study found that five teacher-related barriers impeded effective teaching of PE in the public primary schools of the six selected circuits. These confirmed teacher-related barriers related to inadequate training in PE, negative perception about PE, lack of expertise for teaching PE, lack of interest for teaching PE, and high level of accountability for other subjects. From the study, high level of accountability for other subjects ranked the highest teacher-related barrier to effective teaching of PE while gender stereotyping ranked the least. Negative correlation was found between teacher-related barriers and the frequency at which PE lessons were taught in public primary schools.

Keywords: teacher-related barriers, public primary schools, physical activity, PE programme

1. Introduction
The role of the physical education (PE) teacher is critical to helping students acquire knowledge and skills necessary for fostering positive attitude to physical activity (PA) for health and wellbeing. Often, the job of the PE teacher involves helping students to find an activity that they can positively pursue (Lund & Kirk, 2019) [10], help students to discover fitness activities they enjoy (Pangrazi & Beighle, 2019) [17] and to "assist all learners to be increasingly involved in making decisions about their own learning" (Mitchell & Sutherland, 2020). In emphasizing the roles of teachers, Badrunnesha (2015) [2] indicates that teachers interact directly with learners and are responsible for executing the curriculum in the classrooms. However, the teaching of fundamental motor skills and fitness activities at early years of primary school education has been faced with impediments arising from the behaviours of teachers. According to Morgan and Hansen (2008) [13], teacher-related barriers to quality PE arise from the behaviours of teachers. Notably, some of the teacher-related barriers comprise lack of training, inability to plan safe lessons and low level of confidence in teaching the PE programme (De Corby *et al*., 2005; Morgan & Bourke, 2005) [6, 12].
The potential benefits of quality PE programme to primary-aged children have been established in literature (Morgan & Hansen, 2008) [13]. Studies indicate that physical inactivity is a leading risk factor for premature death from non-communicable diseases and that regular PA is associated with reduced risks of heart diseases, stroke, diabetes, breast and colon cancer, improved mental health and quality of life (Siedentop, 2004; WHO, 2010; WHO, 2018) [19, 21, 22]. Therefore, inability of the classroom teacher to provide quality PE programme at basic school level predisposes children to the risk of cardiovascular disease, colon and breast cancers, type 2 diabetes and osteoporosis. According to WHO (2019) [23], global progress to increase PA has been low largely due to lack of awareness and investment. However, studies suggest that PA is associated with enhanced cognitive function (Basso & Suzuki, 2017) [4]

mental health (Powell *et al*., 2019) [18] and that teachers should possess indispensable characteristics and competences such as passion, self-confidence, discipline (Abas, 2016) [1] and be able to provide engaging experiences for all young people in PE (Tinning, 2007) [20]. For these reasons, it is essential for the PE teacher to be involved in direct instruction of PA skills such as hopping, stepping, skipping, kicking, dribbling, weight lifting and others to help learners develop physical potential through the creation of movement opportunities in school curriculum. During early years of primary school education, the PE teacher should be able to teach children a variety of motor skills and fitness activities enshrined in the PE curriculum. Naturally, primary-aged children are physically active and intellectually capable of benefiting from instruction in PE and are highly motivated and enthusiastic about learning. Notably, diverse expectations and the roles of teachers in the public primary schools lead to difficulty in meeting PE curricular targets. Hence, this study sought to examine perceived teacher-related barriers that impeded teaching of PE, determine the ranking order of magnitude in which these barriers impeded PE lessons and to explore the relationship between these teacher-related barriers and the frequency at which PE lessons were taught in the public primary schools of six selected circuits in the Volta Region of Ghana.

1.1 Research Questions

The following questions guided the study

1. What are the teacher-related barriers to effective teaching of PE in the public primary schools?
2. What is the order of magnitude by which teacher-related barriers impede teaching of PE in the public primary schools?
3. What is the relationship between teacher-related barriers and the frequency at which PE lessons are taught in the public primary schools?

2. Methods

2.1 Research Design

Cross-sectional survey was used for the study. This design (cross-sectional survey) involved data gathering at a single point in time from a sample of pre-determined population. The data we gathered possessed a description of relative characteristics of the general population involved in the study. The use of cross-sectional design for the study was important in collecting data speedily and accurately among pre-determined population of teachers.

2.3 Target Population

The target population was trained teachers teaching in the public primary schools of the six selected circuits in the Volta Region, Ghana. The age distribution of study participants ranged from a minimum of 20 to a maximum of 57 years. All subjects for the study were employees of Ghana Education Service (GES) who could read, write and speak english language. The estimated target population for the study was 300 teachers (males=183 females=117) from the six selected circuits.

2.4 Sampling

Multistage sampling technique yielded a sample of 172 subjects (97 male teachers and 75 female teachers) out of estimated population of 300 teachers in the study area. Precisely, in the first stage of the sampling process, we constructed northern, central and southern strata based on the geographical areas of the circuits involved in the study. In the second phase of the multistage sampling technique, simple random sampling of balloting was used to select one district from each of the three strata. Within each district, two circuits were randomly selected. In all, two circuits each from Kadjebi district, Ho West district and Akatsi North district were sampled from the northern, central and southern geographical areas of Volta Region respectively. The third stage of the sampling process involved total population sampling in which all teachers in schools within the selected circuits were given opportunity to be part of the study. The total population sampling at this stage was due to the small numbers of teachers for which each primary school was estimated to have six classroom teachers. Moreover, only six to 10 primary schools were in each circuit selected for the study. Generally, schools that were clustered had more than six teachers while few schools mostly in deprived areas had less than six. The use of multistage sampling in this study allowed us to employ a combination of sampling procedures to get a representative sample of teachers spread over the three geographical areas involved the study.

2.5 Data Collection

The instrument for data collection was self-designed questionnaire. The items of the questionnaire were developed based on research questions and guided by the information gathered from the literature in relation to the barriers that impeded the teaching of PE. The validity of the self-structured questionnaire was ascertained by means of expert consultation involving three university lecturers, all of whom were professors with considerable experience in educational and social research. Cronbach's alpha reliability coefficient was used to determine internal consistency of the items of data collection instrument. According to literature, Cronbach's alpha reliability of 0.70 or higher is traditionally acceptable for a set of questions in a survey (Gay, Mills, Airasian, 2009) [7]. In the current study, the data collection instrument produced .08 Cronbach's alpha reliability coefficient.

Week days were mainly used for distribution of questionnaire. Respondents were advised to complete the questionnaire during break periods (first and second breaks) to avoid interference with instructional hours. Respondents were also allowed to complete the items in the house and submit them to data collection coordinators (school heads or designated teachers) within one week of administration. In all, 172 subjects (97 males and 75 females) correctly filled the questionnaire which was used in the analyses.

The study also involved acquisition of ethical clearance with ID number UCCIRB/CES/2016/14 from the Institutional Review Board (IRB), University of Cape Coast (UCC). Introduction letter was obtained from the head of Health, Physical Education and Recreation (HPER) department of UCC. Research assistants were given brief training prior to data collection in each of the data collection sites. In all, four research assistants were trained to administer and manage questionnaire for the study. Subjects were also briefed on the exercise which aimed at collecting accurate, valid and reliable responses. Subjects were encouraged to do independent work as there were no wrong answers to questions answered honestly.

2.6 Analyses

Pre-data analyses were performed to screen and clean data from errors that probably happened during data entering. Statistical Package for Social Sciences (SPSS, version 17)

was utilized in the data analyses process. Boxplots were generated to ensure absence of significant outliers during parametric analyses of data. Histograms were also generated for visual inspection and to ensure that variables were approximately normally distributed. Specifically, descriptive statistics were used to analyze research question one and two while Pearson's product-moment correlation coefficient was used to determine the relationship between variables in research question three.

3. Results

3.1 Demographic Characteristics of Subjects

Generally, analyses of data involved 172 subjects. Descriptive analysis of demographic data revealed that the age distribution of study participants ranged from 20 to 57 years. Of this range, subjects who were 30 years [n=27, (13.4%)] of age were more than any other age group that participated in the study, followed by 28 years group [n=20 (11.16%)] and 29 years group [n=18 (10.5%)] respectively. Table 1 presents the analysis of age distribution of study participants.

Table 1: Age distribution of study participants

Age	Frequency	Valid Percent	Cumulative Percent
20.00	1	.6	.6
21.00	1	.6	1.2
22.00	1	.6	1.7
23.00	1	.6	2.3
24.00	3	1.7	4.1
25.00	9	5.2	9.3
26.00	6	3.5	12.8
27.00	6	3.5	16.3
28.00	20	11.6	27.9
29.00	18	10.5	38.4
30.00	23	13.4	51.7
31.00	8	4.7	56.4
32.00	6	3.5	59.9
33.00	6	3.5	63.4
34.00	7	4.1	67.4
35.00	9	5.2	72.7
36.00	5	2.9	75.6
37.00	5	2.9	78.5
38.00	3	1.7	80.2
39.00	2	1.2	81.4
40.00	5	2.9	84.3
41.00	3	1.7	86.0
42.00	2	1.2	87.2
43.00	1	.6	87.8
44.00	1	.6	88.4
45.00	2	1.2	89.5
46.00	1	.6	90.1
48.00	2	1.2	91.3
49.00	2	1.2	92.4
50.00	3	1.7	94.2
51.00	1	.6	94.8
52.00	3	1.7	96.5
53.00	1	.6	97.1
54.00	1	.6	97.7
55.00	2	1.2	98.8
57.00	2	1.2	100.0
Total	172	100.0	

According to data on gender distribution of study participants, male teachers (n=97) were 56%, while female teachers (n=75) were 44%. Figure 1 presents analyses of gender distribution of subjects.

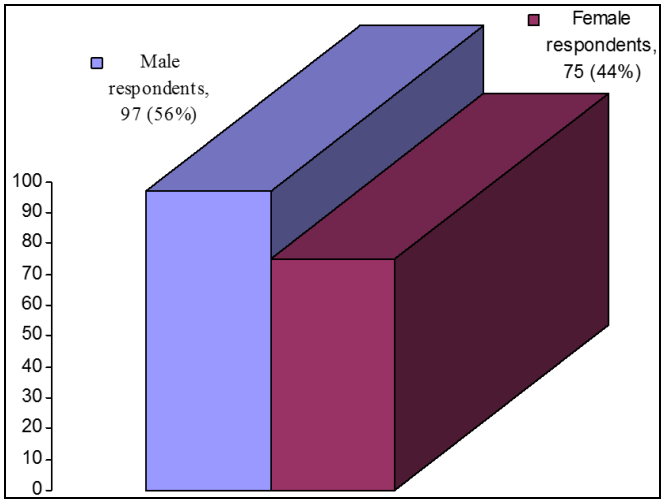

Fig 1: Gender distribution of study participants

Notably, all the respondents (n=172) were teachers of various classes. According to demographic data, the number of teachers who taught primary 1, 2 and 3 were 28 (16%), 26 (15%), and 24 (14%) respectively. It was also observed that primary 5 teachers [n=34 (20%)] were more than any other class teachers that participated in the study, followed by teachers in primary 4 [n=31 (18%)] and 6 [n=29 (17%)] respectively. Figure 2 presents demographic analysis of data based on the number of teachers who participated in the study.

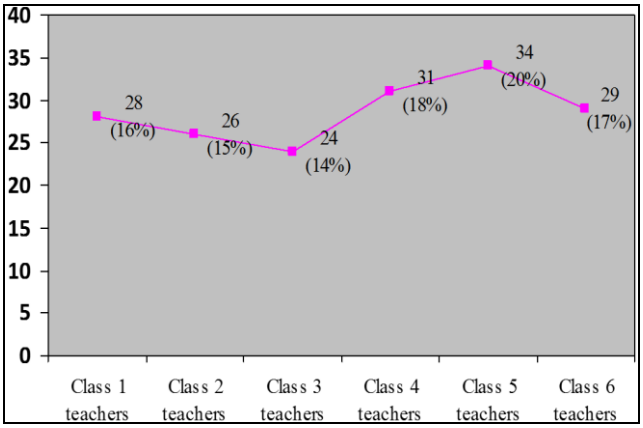

Fig 2: Class distribution of study participants

Analysis of geographical composition of subjects revealed that 55 teachers (32%) from two circuits in Kadjebi District of the Northern Volta participated in the study, while the number of teachers from two circuits in Ho West District of the Central Volta and two circuits in Akatsi North of Southern Volta were 56 (33%) and 61 (35%) respectively. Figure 3 presents geographical composition of subjects for the study.

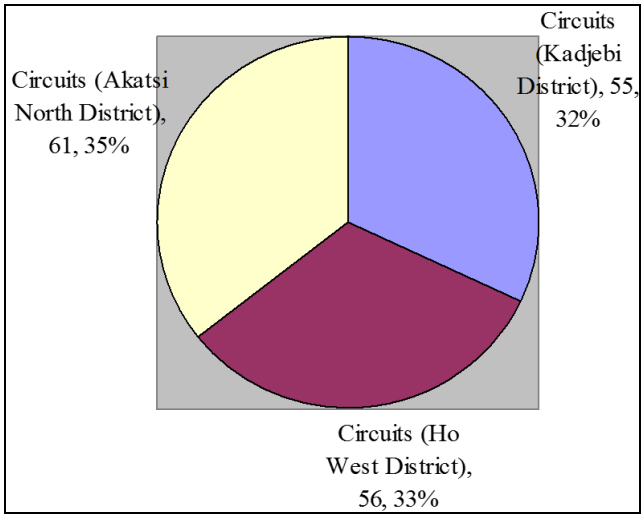

Fig 3: Geographical compositions of subjects

3.2 Teacher-Related Barriers to Effective Teaching of PE in Public Primary Schools

Descriptive analyses were run to determine whether respondents agree that the barriers for investigation actually impeded effective teaching of PE in their schools. Out of 12 teacher-related barriers investigated, most of the respondents agreed that five of the barriers impeded teaching of PE programme in public primary schools. The mean of each confirmed barrier was higher than the grand mean of 2.67. To calculate the grand mean, item means were summed and divided by the number of items that made up the scale of institutional barriers. The mean of each item was compared with the grand mean to examine whether most of the respondents actually agreed that the barrier for investigation really hindered effective teaching of PE in the public primary schools. According to agreement theory of truth, when most people agree on an issue, it is probably true (Ogah, 2013) [15]. In related studies, Onyekwere *et al.* (2014) [16]; Odo and Samuel (2014) [14] used grand mean to make similar decisions. Precisely, the study revealed that teacher-related barriers that impeded the teaching of PE in public primary schools were: inadequate training in PE (3.03±0.81), negative perception about PE (2.71±0.95), lack of expertise for teaching PE (2.97±0.95), lack of interest for teaching PE (2.72±0.83) and high level of accountability for other subjects (3.05±0.92). However, the means of seven items: dislike for PE (2.50±0.99), lack of time (2.51±0.88), lack of teaching confidence in PE (2.61±0.76), inability to plan PE lessons (2.41±0.86), gender stereotyping (2.38±0.84), difficulty in providing safely planned PE lessons (2.44±0.77) and low importance for teaching PE (2.66±0.86) were less than the grand mean of 2.67 and could not be confirmed as teacher-related barriers that hindered effective teaching of PE in the primary schools. Table 2 presents results of the teacher-related barriers to effective teaching of PE in public primary schools.

Table 2: Teacher-related barriers to effective teaching of PE in public primary schools

Statement	Frequency and Percentages				Mean	SD	Decision
	SA f(%)	A f(%)	D f(%)	SD f(%)			
Dislike for PE	36(21)	40(23)	70(41)	26(15)	2.50	0.99	Unconfirmed barrier
Lack of time for teaching PE	23(13)	64(37)	63(37)	22(13)	2.51	0.88	Unconfirmed Barrier
Inadequate training in PE	52(30)	81(47)	32(19)	7(4)	3.03	0.81	Confirmed Barrier
Lack of teaching confidence in PE	18(11)	81(47)	62(36)	11(6)	2.61	0.76	Unconfirmed barrier
Inability to plan for PE lessons	21(12)	51(30)	78(45)	22(13)	2.41	0.86	Unconfirmed barrier
Negative perception of PE	41(24)	60(35)	52(30)	19(11)	2.71	0.95	Confirmed barrier
Lack of expertise for teaching PE	58(34)	61(36)	43(25)	10(6)	2.97	0.91	Confirmed barrier
Gender stereotyping in teaching PE	17(10)	55(32)	77(45)	23(13)	2.38	0.84	Unconfirmed barrier
Difficulty in providing safely planned lessons	16(9)	57(33)	86(50)	13(8)	2.44	0.77	Unconfirmed barrier
Low importance for teaching PE	27(16)	77(45)	51(30)	17(10)	2.66	0.86	Unconfirmed barrier
Lack of interest for teaching PE	31(18)	73(42)	57(33)	11(6)	2.72	0.83	Confirmed barrier
High level of accountability for other subjects	65(38)	62(36)	33(19)	12(7)	3.05	0.92	Confirmed barrier

Grand mean 2.67

Note: SA = strongly agree, A= agreed, D = disagree, SD = strongly disagreed

3.2 Order of Magnitude by which Teacher-Related Barriers Impeded the Teaching of PE in Public Primary Schools

From the means of teacher-related barriers, the order of magnitude by which these barriers impeded effective teaching of PE in the public primary schools is as follows:

High level of accountability for other subjects	3.05
Inadequate training in PE	3.03
Lack of expertise for teaching PE	2.97
Lack of interest for teaching PE	2.72
Negative perception of PE	2.71
Low importance for teaching PE	2.66
Lack of teaching confidence in PE	2.61
Lack of time for teaching PE	2.51
Dislike for PE	2.50
Difficulty in providing safely planned lessons	2.44
Inability to plan for PE lessons	2.41
Gender stereotyping in teaching PE	2.38

2.3 Relationship between Teacher-Related Barriers and the Frequency at which PE Lessons were taught in the Public Primary Schools

Pearson's product-moment correlation revealed that there was a negative correlation between perceived teacher-related barriers and the frequency at which PE lessons were taught. However, this correlation was not statistically significant (r=-.135, n=172, p=.078). Negative correlation in this study means that high level of scores in one variable is associated with low level of scores in the other variable or vice versa. Therefore, an increase in institutional barriers is associated with a decrease in the frequency at which PE lessons are taught in the public primary schools. Table 4 presents the results of the relationship between teacher-related barriers and the frequency at which PE lessons were taught in the public primary schools.

Table 4: Relationship between perceived teacher-related barriers and the frequency at which PE lessons were taught in the public primary

Variable		Frequency of PE lessons
Perceived teacher-related barriers	Pearson correlation	-.135*
	Sig. (2-tailed)	.078
	N	172

*Significant at the 0.05 level (2-tailed)

3. Discussion

The study found that five teacher-related barriers impeded effective teaching of PE in the public primary schools of the six selected circuits involved in the study. These confirmed teacher-related barriers were inadequate training in PE, negative perception about PE, lack of expertise for teaching PE, lack of interest for teaching PE and high level of accountability for other subjects. However, the study could not confirm seven barriers as impeding teaching of PE in the public primary schools of the six selected circuits. These unconfirmed teacher-related barriers were**:** dislike for PE, lack of time, lack of teaching confidence in PE, inability to plan PE lessons, gender stereotyping, difficulty in providing safely planned PE lessons, and low importance for teaching PE. According to previous primary school studies, teacher-related factors that impeded teaching and learning of PE included possession of low level of teacher confidence, lack of interest in teaching PE, inability to provide safely planned and structured lessons, negative experiences with PE programme, lack of training, and lack of knowledge/expertise to provide quality PE programme (Barroso *et al*. 2005; De Corby *et al*. 2005) [3, 6]. With several reported impediments to teaching the PE programme in schools, the time is ripe for teachers of PE to be equipped with skills necessary to overcome these barriers and be able to plan and implement quality PE programmes for children. The school PE programme should aim at providing children with physical activity opportunities for self-expression and social interaction in a variety of health enhancing activities that promote physical fitness.

In the current study, high level of accountability ranked the highest teacher-related barrier to effective teaching of PE in the primary schools while gender stereotyping ranked the least. Classroom teachers in the primary schools of Ghana are mandated to teach prescribed subjects including PE as indicated on school time table by the Ghana Education Service (GES). Unfortunately, most primary school teachers are only held accountable for few subjects such as English, maths, and science and not PE. Even though "Problems with the delivery of primary school PE appear to be similar around the world" (Morgan & Hansen, 2008, p.375) [13], teachers must know what to do in order to provide engaging experiences for all young people in PE (Tinning, 2007) [20]. Hallinger *et al*. (2014) [8] advocate high quality teaching in which teachers and schools are held accountable for learning outcomes. With an understanding of the impact of PE programme on the development of children, teachers of PE should be regularly held accountable in a way that will help children to stay physically active through high level participation in appropriately selected activities for health and wellbeing. Increase in in the incidence of obesity and overweight conditions among children (Hardman, 2008) [9], requires heads of institutions, teachers, parents and policy makers to collaborate efforts to develop and implement quality daily PE programme in a conducive learning environment.

The study found a negative correlation between teacher-related barriers and the frequency at which PE lessons were taught. In this situation, high levels of teacher-related barriers were associated with low levels of frequency of PE lessons. This means that an increase in teacher-related barriers caused a decrease in the frequency at which PE lessons were taught in the public primary schools. The rebuilding of PE environment is urgent (Cai & Zhang, 2017) [5] at this time that physical activity in the school PE programme is noted to have association with enhanced cognitive and physical function across life span. Therefore, it is incumbent upon teachers at the primary school level to be well prepared to create positive learning environment to promote the potential of the PE programme.

4. Conclusions

Based on the findings of this study, inadequate training in PE, negative perception about PE, lack of expertise for teaching PE, lack of interest for teaching PE and high level of accountability for other subjects were the main teacher-related barriers to effective teaching of PE in the public primary schools involved in the study. In order of magnitude, high level of accountability for other subjects ranked the highest teacher-related barrier to effective teaching of PE in the primary schools of the sampled districts in Volta Region, Ghana. The second highest threat was inadequate training in PE which was followed by lack of expertise for teaching PE, lack of interest for teaching PE, negative perception of PE, low importance for teaching PE, lack of teaching confidence in PE, lack of time for teaching PE, dislike for PE, difficulty in providing safely planned lessons, inability to plan for PE lessons, and ends with gender stereotyping in teaching PE. Increase in teacher-related barriers caused a decrease in the frequency at which PE lessons were taught in the public primary schools.

5. Recommendation

Regular workshops should be organized for teachers to enable them increase the frequency of teaching PE programme in public primary schools. More PE teachers should be considered for professional development opportunities relevant for teaching PE content at the basic school level. There should be expansion for professional development through support and mentoring during pre-service education of teachers for primary schools where teaching and learning of PE is compulsory.

6. Limitations

This study was basically a preliminary study for a full scale one with representative sample of the entire Volta Region, Ghana. The report was based on 2017 data source. Nevertheless, data were thoroughly cleaned and processes supervised by an expert in research.

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