AN INVESTIGATION INTO PARTICIPATION IN PHYSICAL ACTIVITY AMONG STUDENT TEACHERS AT EDUCATION DEGREE COLLEGES IN UPPER MYANMAR

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Abstract

The purpose of this study is to investigate the participation in physical activities among student teachers at Education Degree Colleges in Upper Myanmar. In this study, five hundred student teachers participated. "International Physical Activity Questionnaire (IPAQ)" developed by Craig et al., (2003) was modified. For the reliabilities of questionnaires, the Kuder-Richardson coefficient (KR-20) was 0.912 for "International Physical Activity Questionnaire (IPAQ)". In data analysis, Descriptive Statistics, One-Way Analysis of Variance (ANOVA), Independent Samples *t* Test were conducted. According to data analysis, it was found that the mean value for "Participation in Physical Activities" was at moderate level. The finding of this study indicated that there were statistically significant differences in student teachers' in physical activities according to gender, grade and specialization. Moreover, qualitative findings support the results of quantitative study. It was hoped that the findings of this study will be helpful to student teachers in reflecting upon their participation in physical activities.

Keywords: light physical activity, moderate physical activity, vigorous physical activity

Introduction

Physical activity is defined as "any bodily movement produced by skeletal muscles that requires energy expenditure" (Caspersen et al., 1985). This means that physical activity can be undertaken in many different ways, such as organized physical activities (e.g., handball and football), but also as transport (e.g., cycling and walking) and part of domestic tasks (e.g., cleaning and carrying). Exercise and/or training refers to a subset of physical activity that is planned and structured to maintain or improve physical fitness (Caspersen et al., 1985).

Lack of physical activity in the community has caused a wide range of health problems, including obesity, heart disease, eating disorders, and depression (Magdaleno, 2009). The decrease in movement behavior commonly occurs to university students since there is no physical education subject except for students in the physical education major. The physical activity study by Young et al. (2015, as cited in Suherman 2019), showed that the majority of the students did not participate in regular physical activity. This condition should be a warning since this period should be a productive period for the students to do various activities and fulfill task demands. This condition is influenced by a lack of knowledge about health-related fitness (Sultoni et al., 2017 as cited in Suherman, 2019) and other barriers to physical activity (Jajat et al., 2017, as cited in Suherman, 2019). Participation in physical activity can improve psychological health and help prevent mental health disorders. Mental health is not only related to mental disorders but also to psychological well-being conditions where individuals are aware of their own abilities and potentials (Babic et al., 2014, as cited in Suherman, 2019). Physical activity (PA) has a very important meaning for everyone; it is one of the ways to health, and there are a lot of different activities for us to choose from. It can be costly or it can be free of charge. If everyone is involved in physical activity, the problem of overweight and obesity may be avoided. Physical activity is important for health and longevity (Ali, 2018).

General Objective

To investigate the participation in physical activities among student teachers at Education Degree Colleges in Upper Myanmar.

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Specific Objectives

1. To find out the levels of student teachers' participation in physical activities at selected Education Degree Colleges in Upper Myanmar;
2. To analyze the differences in student teachers' participation in physical activities according to their gender
3. To investigate the differences in student teachers' participation in physical activities according to their grade, and
4. To analyze the differences in student teachers' participation in physical activities according to their specialization.

Research Questions

1. What are the levels of student teachers' participation in physical activities at selected Education Degree Colleges in Upper Myanmar?
2. Are there any differences in student teachers' participation in physical activities according to their gender?
3. Are there any differences in student teachers' participation in physical activities according to their grade?
4. Are there any differences in student teachers' participation in physical activities according to their specialization?

Theoretical Framework

According to South Dakota State University Extension Health & Physical Activity Field Specialist (SDSU, 2022), physical activity of all kinds can be performed in a variety of intensities, ranging between light, moderate, and vigorous (high) intensity.

According to (South Dakota State University Extension Health & Physical Activity Field Specialist (SDSU), 2022), low-intensity activities require the least amount of effort compared to moderate and high-intensity activities. METS are a convenient and standard method for describing the absolute intensity of physical activities. One MET, or metabolic equivalent, is the amount of oxygen consumed while sitting at rest. Thus, an activity classified as 2 METS would be equal to 2 times the amount of oxygen consumed while sitting at rest (1 MET). The definition of low-intensity activity is an activity that is classified as < 3 METS. Some examples of low-physical activities include walking slowly (i.e., shopping, walking around the office), sitting at computer, making the bed, eating, preparing food, and washing dishes.

Moderate intensity activities are defined as activities ranging between 3 and < 6 METS. These activities require more oxygen consumption than light activities. Some examples of moderate physical activities include sweeping the floor, walking briskly, slow dancing, vacuuming, washing windows, and shooting a basketball (South Dakota State University Extension Health & Physical Activity Field Specialist SDSU, 2022). In accordance with Centers for Disease Control (CDC, 1999) guidelines- Moderate activity includes walking at a moderate or brisk pace of 3 to 4.5 mph on a level surface inside or outside, walking downstairs or down a hill, racewalking—less than 5 mph, bicycling 5 to 9 mph, level terrain, or with few hills, stationary bicycling—using moderate effort, aerobic dancing—high impact, yoga, gymnastics, getting up and down from the floor, jumping on a trampoline, weight training and bodybuilding using free weights, disco dance, table tennis—competitive, tennis—doubles, basketball—shooting baskets, volleyball—competitive, playing frisbee, badminton, playing on school playground equipment, moving about, swinging, or climbing, playing hopscotch, singing while actively moving about—as on stage or in church, gardening and yard work: raking the lawn, bagging grass or leaves, digging, hoeing, light shoveling (less than 10 lbs per minute), or weeding while standing or bending, planting trees, trimming shrubs and trees, hauling branches, stacking wood, moderate housework: scrubbing the floor or heavy housework: moving or pushing heavy bathtub while on

hands and knees, hanging laundry on a clothesline, sweeping an outdoor area, cleaning out the garage, washing windows, moving light furniture, packing or household items away, actively playing with children—walking, running, or climbing while playing with children, etc.

High-intensity activities are defined (South Dakota State University Extension Health & Physical Activity Field Specialist SDSU, 2022) as activities ≥ 6 METS. Vigorous activities require the highest amount of oxygen consumption to complete the activity. Examples of vigorous physical activities include running (5 mph), swimming, shoveling, soccer, jumping rope, and carrying heavy loads (i.e., bricks). According to Centers for Disease Control (CDC, 1999) guidelines, vigorous physical activity involves racewalking and aerobic walking—5 mph or faster, jogging or running, bicycling more than 10 mph, aerobic dancing—high impact, step aerobics, teaching an aerobic dance class, jumping rope, performing jumping jack, tennis—singles, football game, basketball game, etc.

Definition of Key Term

Physical activity: physical activity is generally defined as "any bodily movement produced by skeletal muscles that results in energy expenditure" (Caspersen, Powell, & Christenson, 1985).

Light physical activity: an activity that is classified as < 3 METS. Some examples of light physical activities include walking slowly (i.e., shopping, walking around the office), sitting at computer, making the bed, eating, preparing food, and washing dishes (SDSU, 2022).

Moderate physical activity: an activity that is defined as activity ranging between 3 and < 6 METS. These activities require more oxygen consumption than light activities. Some examples of moderate physical activities include sweeping the floor, walking briskly, slow dancing, vacuuming, washing windows, and shooting a basketball (SDSU, 2022).

Vigorous physical activity: an activity that is defined as activity ≥ 6 METS. Vigorous activities require the highest amount of oxygen consumption to complete the activity. Examples of vigorous physical activities include running (5 mph), soccer, jumping rope, racewalking and aerobic walking—5 mph or faster, jogging or running, bicycling more than 10 mph, aerobic dancing—high impact, step aerobics, teaching an aerobic dance class, performing jumping jack, tennis—singles, football game, basketball game, etc. (Centers for Disease Control CDC, 1999).

Methodology

Population and Sample: Out of 13 education colleges, 5 education colleges from Upper Myanmar were randomly selected in order to obtain the representative sample. Although there were 4721 student teachers at 13 Education Degree Colleges in Upper Myanmar, 500 student teachers were selected using a simple random sampling method. In qualitative study, interview checklists and interview questions were conducted. Out of 500, 30 student teachers were selected as participants in qualitative study.

Instruments: In order to investigate student teachers' participation in physical activities, the "International Physical Activity Questionnaire (IPAQ)" includes 3 dimensions, such as (1) light physical activities, (2) moderate physical activities, and (3) vigorous physical activities. This questionnaire consists of 22 items: 5 items for light physical activities, 9 items for moderate physical activities, and 8 items for vigorous physical activities. In this questionnaire Yes/No questions were also used. This questionnaire also included demographic data which were composed of gender, age, and specialization. 22 interview checklists were investigated and three

interview questions were also included in qualitative study. After the main study was conducted, the Kuder-Richardson coefficient (KR- 20) was 0.912 for the "International Physical Activity Questionnaire (IPAQ)".

Findings

Quantitative Findings

Research Question (1): What are the levels of student teachers' participation in physical activities at selected Education Degree Colleges in Upper Myanmar?

Table 1. Mean Values and Standard Deviations of Student Teachers' Participation in Physical Activities at Selected Education Degree Colleges (N=500)

Variable	N	Mean	SD	Remark
Student Teachers' Participation in Physical Activities	500	6.65	4.239	Moderate

Note: <2.41 = low level 2.41-10.89 = moderate level >10.89 = high level

According to Table 1, the mean value of physical activity was 6.65 and the standard deviation was 4.239. Based on the results, the values above 10.89 (mean + SD) are defined as high level, the values between 2.41 (mean - SD) and 10.89 (mean + SD) are defined as moderate level, and the values below 2.41 (mean - SD) are defined as low level. According to these levels, it can be found that the mean values of student teachers' participation in physical activities at selected Education Degree Colleges were at a moderate level.

Table 2. Number and Percentage of Student Teachers' Participation Levels of Physical Activities at Selected Education Degree Colleges

Variable	Education Degree Colleges (EDCs)	Participation Levels of Physical Activities			
		Low	Moderate	High	Total
Participation Levels of Physical Activities	EDC 1	13 (24.1%)	72 (19.8%)	15 (18.3%)	100 (20%)
	EDC 2	6 (11.1%)	82 (22.5%)	12 (14.6%)	100 (20%)
	EDC 3	3 (5.6%)	47 (12.9%)	50 (61%)	100 (20%)
Participation Levels of Physical Activities	EDC 4	13 (24.1%)	83 (22.8%)	4 (4.9%)	100 (20%)
	EDC 5	19 (35.2%)	80 (22%)	1 (1.2%)	100 (20%)
	Overall Education Degree Colleges	54 (10.8%)	364 (72.8%)	82 (16.4%)	500 (100%)

Table 2 indicates the number and percentage of student teachers' participation levels of physical activities. It can be noted that 13 (24.1%) student teachers were at a low level, 72 (19.8%) student teachers were at a moderate level, and 15 (18.3%) student teachers were at a high level in participation levels of physical activities at EDC 1. And then, 6 (11

Table 2 indicates the number and percentage of student teachers' participation levels of physical activities. It can be noted that 13 (24.1%) student teachers were at a low level, 72 (19.8%) student teachers were at a moderate level, and 15 (18.3%) student teachers were at a high level in participation levels of physical activities at EDC 1. And then, 6 (11.1%) student

teachers were at a low level, 82 (22.5%) student teachers were at a moderate level, and 12 (14.6%) student teachers were at a high level in participation levels of physical activities at EDC 2. In addition, 3 (5.6%) student teachers were at a low level, 47 (12.9%) student teachers were at a moderate level, and 50 (61%) student teachers were at a high level in participation levels of physical activities at EDC 3. Moreover, 13 (24.1%) student teachers were at a low level, 83 (22.8%) student teachers were at a moderate level, and 4 (4.9%) student teachers were at a high level in participation levels of physical activities at EDC 4. Furthermore, 19 (35.2%) student teachers were at a low level, 80 (22%) student teachers were at a moderate level, and 1 (1.2%) student teachers were at a high level in participation levels of physical activities at EDC 5. Finally, it could be found that 54 (10.8%) student teachers were at a low level, 364 (72.8%) student teachers were at a moderate level, and 82 (16.4%) student teachers were at a high level in participation levels of physical activities at "Overall Education Degree Colleges."

Research Question (2): Are there any differences in student teachers' participation in physical activities according to their gender?

Table 3. Mean Values and Standard Deviations of Student Teachers' Participation in Physical Activities according to their Gender

Variable	Gender	N	Mean	SD
Participation in Physical Activities	Male	250	7.46	4.241
	Female	250	5.85	4.090

Note: <2.41 = low level 2.41-10.89 = moderate level >10.89 = high level

According to Table 3, it could find that both male and female student teachers were at moderate level of participation in physical activities.

Table 4. Independent Samples *t* Test Result of Student Teachers' Participation in Physical Activities according to their Gender

Variable	Gender	*t*	*df*	*p*
Participation in Physical Activities	Male	4.315	497.353	**0.000*** **
	Female			

Note: ***p<0.001

From Table 4, it could be seen that there were significance differences between male and female student teachers at the $p<0.001$. This meant that male student teachers more participated in physical activities than female student teachers.

Research Question (3): Are there any differences in student teachers' participation in physical activities according to their grade?

Table 5. Mean Values and Standard Deviations of Student Teachers' Participation in Physical Activities According to their Grade

Variable	Grade	N	Mean	SD
Participation in Physical Activities	Second Year (First Semester)	250	6.11	3.038
	Second Year (Second Semester)	250	7.19	5.118

Note: <2.41 = low level 2.41-10.89 = moderate level >10.89 = high level

Based on findings shown in Table 5, it could find that second year (first semester) and second year (second semester) student teachers were at moderate level of participation in physical activities.

Table 6. Independent Samples *t* Test Result of Student Teachers' Participation in Physical Activities according to their Grade

Variable	Grade	*t*	*df*	*p*
Participation in Physical Activities	Second Year (First Semester)	-2.869	405.121	**0.004****
	Second Year (Second Semester)			

Note: **$p<0.01$

From Table 6, it could be seen that there were significant differences between second-year (first semester) and second-year (second semester) student teachers' participation in physical activities. This meant that second-year (second semester) student teachers more participated in physical activities than second-year (first semester) student teachers.

Research Question (4): Are there any differences in student teachers' participation in physical activities according to their specialization?

Table 7. Mean Values and Standard Deviations of Student Teachers' Participation in Physical Activities according to their Specialization

Variable	Specialization	N	Mean	SD
Participation in Physical Activities	Science	159	5.05	2.671
	Art	108	6.18	3.599
	Art and Science	233	7.97	4.922

Note: <2.41 = low level 2.41-10.89 = moderate level >10.89 = high level

According to Table 7, it could be found that all specialization student teachers were at moderate level of participation in physical activities.

Table 8. Mean Values and Standard Deviations of Student Teachers' Participation in Physical Activities according to their Specialization

Variable	Specialization	N	Mean	SD
Participation in Physical Activities	Science	159	5.05	2.671
	Art	108	6.18	3.599
	Art and Science	233	7.97	4.922

Note: <2.41 = low level 2.41-10.89 = moderate level >10.89 = high level

According to Table 8, it could be found that all specialization student teachers were at moderate level of participation in physical activities.

Table 9. ANOVA Results for Student Teachers' Participation in Physical Activities according to their Specialization

Variable		Sum of Squares	*df*	Mean Square	*F*	*p*
Participation in Physical Activities	Between Groups	834.468	2	417.234	25.497	**.000*****
	Within Groups	8132.980	497	16.364		
	Total	8967.448	499			

Note: ***$p<0.001$

As shown in Table 9, a one-way ANOVA result indicated that there were statistically significant differences in "Participation in Physical Activities" (df = 2, F = 25.497, p<0.001) according to their specialization.

Moreover, in order to find out which particular group had statistically significant differences in student teachers' participation in physical activities according to their specialization, the Post Hoc Multiple Comparison Test (Games-Howell) was also calculated. (See Table 10)

Table 10. Results of Multiple Comparison for Student Teachers' Participation in Physical Activities according to their Specialization

Variable	Specialization (I)	Specialization (J)	Mean Difference (I-J)	*p*
Participation in Physical Activities	Art	Science	1.126*	**.017***
	Art and Science	Science	2.915*	**.000*****
		Art	1.790*	**.001****

Note: ****p*<0.001, ***p*<0.01, **p*< 0.05

According to Table 10, it was found that there were statistically significant differences of student teachers' participation in physical activities according to their specialization between art and science student teachers at the p<0.05 level. Similarly, there were statistically significant differences in student teachers' participation in physical activities between art and science, and science student teachers at the p<0.001 level. Moreover, there were statistically significant differences in student teachers' participation in physical activities between art and science, and art student teachers at the p<0.01 level.

Qualitative Findings

Thirty student teachers who participated in a qualitative study were asked to complete interview checklists in order to determine their participation levels of physical activities. The results of the analysis are listed below.

Ten student teachers of EDC 2 responded as follows.

- Three student teachers (30%) at low participation levels of physical activities reported that they did light physical activities such as "walking around the hostel," "studying on the desk," "making the bed," "preparing for eating," and "washing dishes," and moderate physical activities such as "exercising in a stadium or playground," "sweeping the floor around the hostel," "fitness dancing," and "getting up and down from the floor." In addition, they did vigorous physical activities such as "jumping rope," "aerobic dancing," "playing football," and "performing jumping jack." They did not do moderate physical activities such as "walking briskly 3 to 4.5 mph," "playing table tennis," "playing badminton (doubles)," "playing volleyball," and "bicycling 5 to 9 mph." Furthermore, they did not do vigorous physical activities such as "running (5 mph >)," "bicycling more than 10mph," "playing badminton—singles," and "playing basketball."
- Six student teachers (60%) at moderate participation levels of physical activities reported that they did light physical activities such as "walking around the hostel," "studying on the desk," "making the bed," "preparing for eating," and "washing dishes," and moderate physical activities such as "exercising in a stadium or playground," "walking briskly 3 to 4.5 mph," "sweeping the floor around the hostel," "fitness dance," and "Getting up and down from the floor". In addition, they did vigorous physical activities such as "jumping rope," "aerobic dancing," "playing football," and "performing jumping jack." They did not do moderate physical activities such as "playing table tennis," "playing badminton

(doubles),” “playing volleyball,” and “bicycling 5 to 9 mph." Furthermore, they did not do vigorous physical activities such as “running (5 mph >),” “bicycling more than 10mph," "playing badminton—singles,” and “playing basketball.”

- One student teacher (10%) at high participation levels of physical activities reported that they did light physical activities such as “walking around the hostel,” “studying on the desk,” “making the bed,” “preparing for eating,” and “washing dishes,” and moderate physical activities such as “walking briskly 3 to 4.5mph," “exercising in a stadium or playground,” “playing volleyball," Sweeping the floor around the hostel,” “Bicycling 5 to 9 mph,” and “getting up and down from the floor." In addition, they did vigorous physical activities such as “bicycling more than 10 mph,” “playing football,” “aerobic dancing,” and “performing jumping jack." They did not do moderate physical activities such as “playing table tennis” and “playing badminton (doubles)”. Furthermore, they did not do vigorous physical activities such as “running (5 mph >),” “jumping rope,” “playing badminton—singles,” and “playing basketball.”

Finally, it could be found that three student teachers who were at low participation levels of physical activities from EDC 2 did 13 out of 22 physical activities. Moreover, six student teachers who were at moderate participation levels of physical activities from EDC 2 did 14 out of 22. Furthermore, one student teacher who was at high participation levels of physical activities from EDC 2 did 15 out of 22.

Ten student teachers of EDC 3 responded as follows.

- Nine student teachers (90%) at moderate participation levels of physical activities reported that they did light physical activities such as “walking around the hostel," “studying on the desk," “making the bed," “preparing for eating," and “washing dishes,” and moderate physical activities such as “exercising in a stadium or playground," “playing badminton (doubles)," “playing volleyball," “sweeping the floor around the hostel," “fitness dancing,” and “getting up and down from the floor." In addition, they did vigorous physical activities such as “aerobic dancing,” “playing badminton (single),” “playing football,” and “performing jumping jack." They did not do moderate physical activities such as “walking briskly 3 to 4.5 mph,” “playing table tennis,” “playing badminton (doubles),” “playing volleyball,” and “bicycling 5 to 9 mph." Furthermore, they did not do vigorous physical activities such as “running (5 mph >),” “bicycling more than 10 mph,” and “playing basketball.”
- One student teacher (10%) at high participation levels of physical activities reported that he did light physical activities such as “walking around the hostel," “studying on the desk," “making the bed," “preparing for eating," and “washing dishes,” and moderate physical activities such as “walking briskly 3 to 4.5 mph," “exercising in a stadium or playground," “sweeping the floor around the hostel," “fitness dancing," “bicycling at 5 to 9 mph,” and “getting up and down from the floor." In addition, they did vigorous physical activities such as “jumping rope,” “aerobic dancing,” “playing football,” “running (5 mph >),”and “performing jumping jack." They did not do moderate physical activities such as “playing table tennis,” “playing badminton (doubles),” and “playing volleyball." Furthermore, they did not do vigorous physical activities such as “bicycling more than 10 mph,” “playing badminton (single),” and “playing basketball.”

As a summary, it could be found that nine student teachers who were at moderate participation levels of physical activities from EDC 3 did 15 out of 22 physical activities. Furthermore, one student teacher who was at high participation levels of physical activities from EDC 3 does 16 out of 22.

Ten student teachers of EDC 5 responded as follows.

- One student teacher (10%) at low participation levels of physical activities reported that she did light physical activities such as “walking around the hostel,” “studying on the desk,” “making the bed,” “preparing for eating,” and “washing dishes,” and moderate physical activities such as “exercising in the stadium or playground” and “sweeping the floor around the hostel." In addition, they did vigorous physical activity such as “aerobic dancing." They did not do moderate physical activities such as “fitness dance,” “bicycling at 5 to 9 mph” and “getting up and down from the floor,” “table tennis,” “badminton (doubles),” and “volleyball.”. Furthermore, they did not do vigorous physical activities such as “jumping rope,” “running (5 mph >),” “playing football,” “performing jumping jack,” “bicycling more than 10 mph,” “playing badminton (single),” and “playing basketball.”
- Seven student teachers (70%) at moderate participation levels of physical activities reported that they did light physical activities such as “walking around the hostel,” “studying on the desk,” “making the bed,” “preparing for eating,” and “washing dishes,” and moderate physical activities such as “exercising in a stadium or playground,” “playing badminton (doubles),” “playing volleyball,” “sweeping the floor around the hostel,” and “getting up and down from the floor." In addition, they did vigorous physical activities such as “playing badminton (single),” “playing football,” and “performing jumping jack." They did not do moderate physical activities such as “walking briskly, 3 to 4.5 mph,” “playing table tennis,” “fitness dancing,” and “bicycling, 5 to 9 mph." Furthermore, they did not do vigorous physical activities such as “running (5 mph >),” “jumping rope,” “bicycling more than 10 mph,” “aerobic dancing,” and “playing basketball.”
- Two student teachers (20%) at high participation levels of physical activities reported that they did light physical activities such as “walking around the hostel," “studying on the desk," “making the bed," “preparing for eating," and “washing dishes,” and moderate physical activities such as “walking briskly 3 to 4.5 mph," “exercising in a stadium or playground," “playing badminton (doubles)," “playing volleyball," “sweeping the floor around the hostel," “fitness dance,” and “Getting up and down from the floor." In addition, they did vigorous physical activities such as “running (5 mph >),” “jumping rope,” “aerobic dancing,” “playing badminton—singles,” “playing football,” and “performing jumping jack." They did not do moderate physical activities such as “playing table tennis” or “bicycling 5 to 9 mph." Furthermore, they did not do vigorous physical activities such as “bicycling more than 10mph” and “playing basketball.”

As a summary, it could be found that one student teacher who was at low participation levels of physical activities from EDC 5 did eight out of 22 physical activities. Moreover, seven student teachers who were at moderate participation levels of physical activities from EDC 5 did 13 out of 22 physical activities. Furthermore, two student teachers who were at high participation levels of physical activities from EDC 5 did 18 out of 22.

In addition to interview checklists, three interview questions were asked of student teachers to find out how many days per week and hours per day they did physical activities.

Interview Responses for Participation in Physical Activities

The first question is, “How many days per week and how much time per day do you do light physical activities?”

Ten student teachers from EDC 2 responded as follows:

- Three student teachers (30%) at low participation levels of physical activities reported that they did light physical activities two days per week and half an hour per day.

- Six student teachers (60%) at moderate participation levels of physical activities reported that they did light physical activities five days per week and one hour per day.
- One student teacher (10%) at high participation levels of physical activities reported that he did light physical activities all day per week and one hour per day.

Ten student teachers in EDC 3 responded as follows:

- Nine student teachers (90%) at moderate participation levels of physical activities reported that they did light physical activities five days per week and one hour per day.
- One student teacher (10%) at high participation levels of physical activities reported that he did light physical activities all day per week and one hour per day.

Ten student teachers from EDC 5 responded as follows:

- One student teacher (10%) at low participation levels of physical activities reported that she did light physical activities two days per week and half an hour per day.
- Seven student teachers (70%) at moderate participation levels of physical activities reported that they did light physical activities five days per week and one hour per day.
- Two student teachers (20%) at high participation levels of physical activities reported that they did light physical activities all day per week and one hour per day.

As a summary, it could be found that four student teachers who were at low participation levels of physical activities from EDC 2, EDC 3 and EDC 5 reported that they did light physical activities two days per week and half an hour per day. Moreover, 22 student teachers who were at moderate participation levels of physical activities from EDC 2, EDC 3 and EDC 5 reported that they did light physical activities five days per week and one hour per day. Furthermore, four student teachers who were at high participation levels of physical activities from EDC 2, EDC 3 and EDC 5 reported that they did light physical activities all day per week and one hour per day.

The second question is, "How many days a week and how much time a day do you do moderate physical activities?"

Ten student teachers from EDC 2 responded as follows:

- Three student teachers (30%) at low participation levels of physical activities reported that they did moderate physical activities two days per week and one hour per day.
- Six student teachers (60%) at moderate participation levels of physical activities reported that they did moderate physical activities five days per week and one hour per day.
- One student teacher (10%) at high participation levels of physical activities reported that he did moderate physical activities all day per week and one hour per day.

Ten student teachers in EDC 3 responded as follows:

- Nine student teachers (90%) at moderate participation levels of physical activities reported that they did moderate physical activities five days per week and one hour per day.
- One student teacher (10%) at high participation levels of physical activities reported that he did moderate physical activities all day per week and one hour per day.

Ten student teachers from EDC 5 responded as follows:

- One student teacher (10%) at low participation levels of physical activities reported that she did moderate physical activity two days per week and half an hour per day.

- Seven student teachers (70%) at moderate participation levels of physical activities reported that they did moderate physical activities three days per week and one hour per day.
- Two student teachers (20%) at high participation levels of physical activities reported that they did moderate physical activities five days per week and one hour per day.

As a summary, it could be found that four student teachers who were at low participation levels of physical activities from EDC 2, EDC 3 and EDC 5 reported that they did moderate physical activities two days per week and one hour per day. Moreover, 22 student teachers who were at moderate participation levels of physical activities from EDC 2, EDC 3 and EDC 5 reported that they did moderate physical activities three to five days per week and one hour per day. Furthermore, four student teachers who were at high participation levels of physical activities from EDC 2, EDC 3 and EDC 5 reported that they did moderate physical activities five to all days per week and one hour per day.

The third question is, "How many days per week and how much time per day do you do vigorous physical activities?"

Ten student teachers from EDC 2 responded as follows:

- Three student teachers (30%) at low participation levels of physical activities reported that they did vigorous physical activities two days per week and half an hour per day.
- Six student teachers (60%) at moderate participation levels of physical activities reported that they did vigorous physical activities three days per week and one hour per day.
- One student teacher (10%) at high participation levels of physical activities reported that he did vigorous physical activities five days per week and one hour per day.

Ten student teachers in EDC 3 responded as follows:

- Nine student teachers (90%) at moderate participation levels of physical activities reported that they did vigorous physical activities three days per week and one hour per day.
- One student teacher (10%) at high participation levels of physical activities reported that he did vigorous physical activities five days and two hours per day.

Ten student teachers from EDC 5 responded as follows:

- One student teacher (10%) at low participation level of physical activities reported that she did vigorous physical activities one day per week and half an hour per day.
- Seven student teachers (70%) at moderate participation levels of physical activities reported that they did vigorous physical activities three days per week and one hour per day.
- Two student teachers (20%) at high participation levels of physical activities reported that they did vigorous physical activities three days per week and one hour per day.

As a summary, it could be found that four student teachers who were at low participation levels of physical activities from EDC 2, EDC 3 and EDC 5 reported that they did vigorous physical activities one to two days per week and half an hour per day. Moreover, 22 student teachers who were at moderate participation levels of physical activities from EDC 2, EDC 3 and EDC 5 reported that they did vigorous physical activities two to three days per week and one hour per day. Furthermore, four student teachers who were at high participation levels of physical activities from EDC 2, EDC 3 and EDC 5 reported that they did vigorous physical activities three to five days per week and one hour per day.

Conclusion

Discussion

Findings from investigating student teachers' participation in physical activities at selected Education Degree Colleges in Upper Myanmar indicated that, student teachers' participation in physical activities was generally at moderate level. Specifically, the findings of this study revealed that out of 500 student teachers, 54 (10.8%) were at low participation levels of physical activities, 364 (72.8%) were at moderate participation levels of physical activities, and 82 (16.4%) were at high participation levels of physical activities. The qualitative result of this study was also consistent with the quantitative findings in that, out of 30 student teachers in qualitative study, 4 (13.33%) were at low participation levels of physical activities, 22 (73.33%) were at moderate participation levels of physical activities, and 4 (13.33%) were at high participation levels of physical activities. This result was consistent with the findings of Bansie and Sarpong (2022), Kim (2011), and Oncen and Tanyeri (2020) because it could be found that there were participants who were at three participation levels of physical activities such as low, moderate and high in their studies.

In investigating whether there were significant differences in physical activity participated by student teachers according to their demographic data, there were significant differences in physical activity participated by student teachers in terms of gender, grade, and specialization.

According to gender, it was found that male student teachers more participated in physical activities than female student teachers in quantitative study. According to the results of qualitative findings, male student teachers more participated in moderate and vigorous physical activities such as running, football, volleyball and badminton than female student teachers. The result of this study was similar with the findings of Maqbool et al. (2021) and Babic et al. (2014).

According to grade, it was found that student teachers who attended in the second year (second semester) were greater than those who attended in the second year (first semester) in their participation in physical activities in quantitative study. According to the results of qualitative findings, student teachers who attended in the second year (second semester) more participated in moderate and vigorous physical activities such as running, football, volleyball and badminton than those who attended in the second year (first semester).

According to specialization, it was found that student teachers who specialized art and science had the highest participation in physical activities, and those who specialized in science had the lowest participation in physical activities in quantitative study. According to the results of qualitative findings, student teachers who specialized art and science more participated in moderate and vigorous physical activities such as running, football, volleyball and badminton than those who specialized in science subject and art subject.

Recommendations

- Student teachers should participate more in physical activities than at present.
- Student teachers in all Education Degree Colleges should also be encouraged to participate more in physical activities.
- Student teachers should participate in physical activities for at least 60 minutes daily.
- Both male and female student teachers should participate equally in physical activities.
- Both second-year (first semester) and second-year (second semester) student teachers should participate equally in physical activities.
- Student teachers of all specializations, such as art and science, science, and art, should participate equally in physical activities.

Need for Further Research

- Further study is needed to examine participation in physical activities among student teachers according to their age which are not included in this study.
- Further research is studied to explore the relationship between participation in physical activities and student engagement.
- As this study is conducted at selected Education Degree Colleges in Upper Myanmar, further study is needed to conduct at other Education Degree Colleges in Lower Myanmar.

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