

PHYSICAL EDUCATION AND ACTIVITY IN PREPARATORY AND SECONDARY SCHOOLS: A DESCRIPTIVE STUDY IN MANSOURA CITY

By

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ABSTRACT

The knowledge and practice of the students and teachers regarding physical education and activity at schools, and the obstacles that may affect its appropriate application were studied among a random sample of students and teachers using two forms of self-administrated questionnaire. The students sample included 1000 second grade preparatory and secondary, male and female students. The teachers sample included 200 male and female teachers. This study revealed that, although many students agreed on the importance of practicing physical activity (88.6%), physical education classes (PEC) at school (84.6%), and practicing physical exercises during morning queue (MQ) (69%), only 52.8% of them agreed that school helps to acquire

knowledge and skills necessary to practice physical activity, 49.2% of them had regular physical exercises during MQ, 27.6% of them regularly participate in these exercises, and 50.6% of them regularly practice physical exercises in PEC. All these percentages were significantly higher among male compared to female students. In addition, many of the students did not meet the minimal weekly requirement of the necessary moderate (22%) or vigorous (37.4%) physical activity in the past week prior to the study. On the other hand, on average school day, 44.6% of the students watched TV for 1-2 hours, 19% for 3-4 hours, and 6.1% for 5 hours or more. Among teachers, 89.5% of them mentioned the presence of a definite physical education curriculum, and many of them reported that physi-

cal education in schools is suitable for the age of the students (94.5%), has different activities (92%), aim to improve physical fitness (73%), and includes necessary knowledge and skills (72%). Although 89% of teachers reported the arrangement of physical activity competitions within their schools, only 67% of them reported that school environment is suitable for practicing physical activities. In addition, 65.5% of them reported practice physical activities regularly, and 33% of them reported that teachers received training courses in leading physical activities. The obstacles that affect school physical education and reported by teachers were insufficient physical education teachers (31.5%), insufficient place at school for physical activities (26.5%), students are not interested in physical activities (15.5%), school administration is not interested in physical activities (12%) and absence of definite physical education curriculum (10.5%).

INTRODUCTION

Physical activity is defined as any bodily movement produced by skeletal muscles that result in energy expenditure above the basal level¹. The benefits of promoting physical activity are undoubted. Scientific evidences

indicate that regular participation in moderate physical activity is an essential component of a healthy lifestyle²⁻⁵, healthy growth and development⁶, and benefits both physical and mental health^{7,8}.

Among children and adolescents, regular physical activity improves aerobic endurance and muscle strength^{9,10}, and reduces risk factors for cardiovascular diseases such as obesity, blood lipid profile, and resting blood pressure¹¹⁻¹⁴. In addition, it decreases blood pressure in adolescents with borderline hypertension¹⁵, increases physical fitness and decreases the degree of obesity¹⁶⁻¹⁸. It is also associated with higher levels of self-esteem and lower levels of anxiety and stress¹⁹.

Schools can teach children and youth the benefits of lifelong physical activity because they serve nearly all children and have facilities and staff with the expertise to provide instruction and supervision²⁰. The quality school-based physical education can contribute to the health of children and the adults they will become²¹.

The objectives of the present study are to assess the knowledge

and practice of the students and teachers regarding physical activities at schools, and to identify the obstacles that may affect its appropriate application.

SUBJECTS AND METHODS

This study was carried out in Mansoura city during the scholastic year from November 2002 to May 2003, where 4 public preparatory schools (2 for males and 2 for females) and 4 public secondary schools (2 for males and 2 for females) were chosen randomly. The consents of the schools' administrations were obtained. A systematic random sample was carried out among second grade students in these schools to select 125 students from each school. The total sample of students was 1000 students. Similarly, 25 teachers were randomly selected (including physical education teachers) from each school. The total sample of teachers was 200 teachers. Two forms of self-administrated questionnaire was designed to be completed, the first by the students and the second by the teachers. These questionnaires covered personal data, and knowledge and practices related to school physical education activities and any obstacles related to its appropriate application.

Statistical analysis of data was performed using IBM computer and SPSS package. The χ^2 test was used when appropriate. All reported P-values were 2-tailed and significance was accepted at $P < 0.05$.

RESULTS

Table 1. shows that 88.6% of the students agreed that practicing physical activity is important, and this was significantly higher among males compared to females (99.2% versus 78%), and among secondary school students compared to preparatory school students (98% versus 79.2%). On the other hand, 84.6% and 69% of the students agreed that physical education classes (PEC) at school and practicing physical exercises during morning queue (MQ) are important, respectively. These percentages were significantly higher among males (87.6% and 79.6%) compared to females (81.6% and 58.4%), and among preparatory school students (89.6% and 75.6%) compared to secondary school students (79.6% and 62.4%). However, only 52.8% of the students agreed that school helps them to acquire knowledge and skills to practice physical activity, and this was significantly higher among males compared to females (70.8% versus

34.8%), and among preparatory school students compared to secondary school students (62.4% versus 43.2%).

Table 2. shows that, although there is morning queue in all the included schools, only 49.2% of the students reported regular physical exercises during the queue, and this was significantly higher among males than females (65.2% versus 33.2%), with no significant difference between preparatory and secondary schools. In addition, only 27.6% of the students reported regular participation in these exercises and this was again significantly higher among males than females (48% versus 7.2%). Furthermore, only 23.8% of students reported that the duration of physical exercises during morning queue is more than 10 minutes.

Similarly, only 50.6% of the students regularly practice physical exercises in PEC, and this was significantly higher among males than females (64.4% versus 36.8%). When the students were asked about the duration of practicing physical exercises in PEC, 20.6% reported more than 30 minutes, and this was significantly

higher among male and secondary school students.

Table 3. shows that regarding severe physical activity in the past week, 37.4% of the students did not participate in such activity, while only 10.2% participated for 5 days or more. On the other hand, only 22% of the students did not participate in moderate physical activity in the past week, while 43.2% participated for 5 or more days respectively. The practicing of both severe and moderate activity was significantly higher among male and preparatory school students compared to female and secondary school students.

Table 4. reveals that, on average school day, 10.8% of the students do not watch TV on school days and 17.6% watch TV for less than one hour, 44.6% watch TV for 1-2 hours, while 19% of the students watch TV for 3-4 hours, and 6.1% of them watch TV for 5 hours or more.

Table 5. shows that, 89.5% of teachers mentioned the presence of definite physical education curriculum. Regarding physical education at schools, 94.5% of them reported that it is suitable for the age of the stu-

dents, 92% of them reported that it has different activities, 73% of them reported that it aim to improve physical fitness, and 72% of the teachers reported that it includes knowledge and skills to necessary to practice physical activity. In addition, 67% of them reported that school environment is suitable for practicing physical activities, and 89% of them reported sports competitions within their schools. All these percentages were significantly higher among female teachers compared to male teachers. Similarly, except for the suitability of school environment and the arrangement of sport competitions, all other percentages were significantly higher among preparatory compared to secondary school teachers. On the other hand, 96% of teachers reported two PEC per class per week, and 70% of them reported that the students spend more than 50% of PEC time in actual practice of physical activities. These percentages were not significantly related to the teacher's gender or the educational level.

Table 6. shows that 65.5% of the teachers reported regular practice of physical activities, and this was not

significantly related to the gender or the educational level. On the other hand, 33% of them reported that teachers received training courses in leading physical activities, and this was significantly higher among preparatory compared to secondary school teachers (40% versus 26%).

Table 7. reveals the obstacles that affect learning and practicing physical activities at schools from the teachers' point of view. These obstacles were, insufficient physical education teachers (31.5%), insufficient place at school for physical activities (26.5%), students are not interested in physical activities (15.5%), school administration is not interested in physical activities (12%) and absence of definite physical education curriculum (10.5%). Except for absence of interest among students which is significantly higher among secondary compared to preparatory school teachers (21% versus 10%), and the absence of interest among school administration which is significantly higher among male compared to female teachers (19% versus 5%), the reported other obstacles were not significantly related to the teacher's gender or the educational level.

Table 1. Students' knowledge regarding physical activities.

Students' knowledge	Total (1000)	Gender		χ^2	Level		χ^2
		Males (500)	Females (500)		Preparatory (500)	Secondary (500)	
Practicing physical activity is important	886 (88.6)	496 (99.2)	390 (78.0)	111.2 [#]	396 (79.2)	490 (98.0)	87.5 [#]
Physical education classes at school are important	846 (84.6)	438 (87.6)	408 (81.6)	6.9 ^{**}	448 (89.6)	398 (79.6)	19.2 [#]
Physical exercises during morning queue is important	690 (69.0)	398 (79.6)	292 (58.4)	42.3 [#]	378 (75.6)	312 (62.4)	20.4 [#]
At school, you acquire knowledge and skills for practice physical activity.	528 (52.8)	354 (70.8)	174 (34.8)	52.5 [#]	312 (62.4)	216 (43.2)	36.9 [#]

p > 0.05, ** significant p < 0.01; # significant p < 0.0001.

Table 2. Participation of students in physical activities during morning queue (MQ) and physical education classes (PEC) in schools.

Participation of students	Total (1000)	Gender		χ^2	Level		χ^2
		Males (500)	Females (500)		Preparatory (500)	Secondary (500)	
Presence of physical exercises during MQ:							
Regularly	492 (49.2)	326 (65.2)	166 (33.2)	102.4 [#]	252 (50.4)	240 (48.0)	0.45, ns
Sometimes	192 (19.2)	122 (24.4)	70 (14.0)	17.4 [#]	108 (21.6)	84 (16.8)	3.71, ns
Students participation in physical exercises during MQ:							
Regularly	276 (27.6)	240 (48.0)	36 (7.2)	208.3 [#]	144 (28.8)	132 (26.4)	0.72, ns
Sometimes	372 (37.2)	204 (40.8)	168 (33.6)	5.6 [*]	198 (39.6)	174 (34.8)	2.47, ns
Duration of physical exercises during MQ:							
< 5 min	198 (19.8)	96 (19.2)	102 (20.4)		92 (18.4)	106 (21.2)	
5-10 min	252 (25.2)	134 (26.8)	118 (23.6)	123.9 [#]	170 (34.0)	82 (16.4)	32.8 [*]
10+ min	238 (23.8)	222 (44.4)	16 (3.2)		104 (20.8)	134 (26.8)	
Students participation in physical exercises in PEC:							
Regularly	506 (50.6)	322 (64.4)	184 (36.8)	76.2 [#]	266 (54.2)	240 (48.0)	2.7, ns
Sometimes	268 (26.8)	98 (19.6)	170 (34.0)	26.4 [#]	120 (24.0)	148 (29.6)	4.0 [*]
Duration of practicing physical exercises in PEC:							
< 20 min	174 (17.4)	90 (18.0)	84 (16.8)		90 (18.0)	84 (16.8)	14.5 ^{***}
20-30 min	320 (32.0)	146 (29.2)	174 (34.8)	54.6 [#]	188 (37.6)	132 (26.4)	
> 30 min	206 (20.6)	160 (32.0)	46 (9.2)		86 (17.2)	120 (24.0)	

ns= not significant, p > 0.05; * significant, p < 0.05; *** significant p < 0.001; # significant p < 0.0001.

Table 3. Participation of the students in physical activity in the past week.

Participation in the past week.	Total (1000)	Gender		χ^2	Level		χ^2
		Males (500)	Females (500)		Preparatory (500)	Secondary (500)	
Severe physical activity							
No participation	374 (37.4)	98 (19.6)	276 (55.2)		130 (26.0)	244 (48.8)	
1-2 days	344 (34.4)	181 (36.2)	163 (32.6)	178.3 *	203 (40.6)	141 (28.2)	59.9 *
3-4 days	180 (18.0)	147 (29.4)	33 (6.6)		115 (23.0)	65 (13.0)	
5 + days	102 (10.2)	74 (14.8)	28 (5.6)		52 (10.4)	50 (10.0)	
Moderate physical activity:							
No participation	220 (22.0)	70 (14.0)	150 (30.0)		68 (13.6)	152 (30.4)	
1-2 days	218 (21.8)	114 (22.8)	104 (20.8)	39.2 *	96 (19.2)	122 (24.4)	57.3 *
3-4 days	130 (13.0)	78 (15.6)	52 (10.4)		74 (14.8)	56 (11.2)	
5 + days	432 (43.2)	238 (47.6)	194 (38.8)		262 (52.4)	170 (34.0)	

Severe physical activity: physical activity for at least 20 minutes that made the student sweat and breathe hard, such as football, basketball, swimming, running, fast bicycling. Moderate physical activity: physical activity for at least 30 minutes that did not made the student sweat and breathe hard, such as walking ²² * significant $p < 0.0001$.

Table 4. The students' daily watching of TV on average school day.

TV watching on school days	Total (1000)	Gender		χ^2	Level		χ^2
		Males (500)	Females (500)		Preparatory (500)	Secondary (500)	
Never watch TV on school days	108 (10.8)	56 (11.2)	52 (10.4)		68 (13.6)	40 (8.0)	
< 1 hour	176 (17.6)	104 (20.8)	72 (14.4)		96 (19.2)	80 (16.0)	
1-2 hours	446 (44.6)	222 (44.4)	224 (44.8)	21.9 ***	226 (45.2)	220 (44.0)	14.7 **
3-4 hours	190 (19.0)	76 (15.2)	114 (22.8)		78 (15.6)	112 (22.4)	
5 + hours	61 (6.1)	42 (8.4)	19 (3.8)		32 (6.4)	29 (5.8)	

** significant $p < 0.01$; *** significant $p < 0.001$.

Table 5. The knowledge of teachers regarding physical education in schools.

Physical education and activities in schools	Total (200)	Gender		χ^2	Level		χ^2
		Males (100)	Females (100)		Preparatory (100)	Secondary (100)	
There is definite physical education curriculum	179 (89.5)	83 (83.0)	96 (96.0)	8.9 **	92 (92.0)	87 (87.0)	1.3, ns
Physical activities at school:							
- include knowledge and skills	144 (72.0)	62 (62.0)	82 (82.0)	9.9 **	80 (80.0)	64 (64.0)	6.4 *
- aim to improve physical fitness	146 (73.0)	56 (56.0)	90 (90.0)	29.3 #	82 (82.0)	64 (64.0)	8.2 **
- has different activities	184 (92.0)	88 (88.0)	96 (96.0)	4.4 *	96 (96.0)	88 (88.0)	4.4 *
- suitable for the age of the students	189 (94.5)	91 (91.0)	98 (98.0)	4.7 *	96 (96.0)	93 (93.0)	0.9, ns
School environment is suitable for practicing physical activities	134 (67.0)	50 (50.0)	84 (84.0)	26.1 #	86 (86.0)	48 (48.0)	32.7 #
Sport competitions are arranged within the school	178 (89.0)	82 (82.0)	96 (96.0)	10.0 **	88 (88.0)	90 (90.0)	0.2, ns
Number of PEC per class per week:							
one	8 (4.0)	6 (6.0)	2 (2.0)		2 (2.0)	6 (6.0)	
two	192 (96.0)	94 (94.0)	98 (98.0)	2.1, ns	98 (98.0)	94 (94.0)	2.1, ns
% of PEC time actually spent in physical activity:							
less than 50%	60 (30.0)	29 (29.0)	31 (31.0)		24 (24.0)	36 (36.0)	
50% and more	140 (70.0)	71 (71.0)	69 (69.0)	0.1, ns	76 (76.0)	64 (64.0)	3.4, ns

ns= not significant, $p > 0.05$; * significant, $p < 0.05$; ** significant $p < 0.01$; # significant $p < 0.0001$.

Table 6. The practice of physical activities by teachers and within schools.

The practice of physical activities	Total (200)	Gender		χ^2	Level		χ^2
		Males (100)	Females (100)		Preparatory (100)	Secondary (100)	
Teachers practice physical activities regularly	131 (65.5)	64 (64.0)	67 (67.0)	0.2, ns	68 (68.0)	65 (65.0)	0.2, ns
Teachers receive training courses in leading physical activities	66 (33.0)	34 (34.0)	32 (32.0)	0.1, ns	40 (40.0)	26 (26.0)	4.4 *

ns= not significant, $p > 0.05$; * significant.

Table 7. Obstacles that affect learning and practicing physical activities at schools from teachers' point of view.

The obstacles	Total (200)	Gender		χ^2	Level		χ^2
		Males (100)	Females (100)		Preparatory (100)	Secondary (100)	
insufficient physical education teachers	63 (31.5)	29 (29.0)	34 (34.0)	0.6, ns	33 (33.0)	30 (30.0)	0.2, ns
insufficient place at school for physical activities	53 (26.5)	29 (29.0)	24 (24.0)	0.6, ns	31 (31.0)	22 (22.0)	2.1, ns
students are not interested in physical activities	31 (15.5)	11 (11.0)	20 (20.0)	3.1, ns	10 (10.0)	21 (21.0)	4.6 *
school administration is not interested in physical activities	24 (12.0)	19 (19.0)	5 (5.0)	9.3 **	9 (9.0)	15 (15.0)	1.7, ns
No definite physical education curriculum	21 (10.5)	10 (10.0)	11 (11.0)	0.1, ns	8 (8.0)	13 (13.0)	1.3, ns

ns= not significant, $p > 0.05$; * significant, $p < 0.05$; ** significant $p < 0.01$.

DISCUSSION

The World Health Organization (WHO) has recognized physical inactivity as a major threat to health, and recommended possible goals and priority actions for countries to promote active living by the year 2001, and included in these actions is the assessment of physical activity level among various sectors of the population²³. Schools have the potential to help students establish lifelong healthy physical activity pattern. Physical education that emphasizes moderate to vigorous activity can increase student's knowledge about ways to be physically active and to improve physical fitness levels²⁴. Therefore, every effort should be made to encourage schools to require adequate physical education in each grade and to promote physical activities that can be enjoyed throughout life.

Positive attitude toward physical education is positively associated with physical activity among youth^{25,26}. In this study, many students agreed on the importance of practicing physical activity (88.6%), PEC at schools (84.6%) and practicing physical exercises during MQ (69%). In contrast, only 52.8% of them agreed that school helps to acquire knowledge

and skills to practice physical activity, 49.2% had regular physical exercises during MQ, 27.6% regularly participate in these exercises, and 50.6% regularly practice physical exercises in PEC, with only 20.6% reported spending more than 30 minutes in these activities. All these percentages were significantly higher among male compared to female students. These results are consistent with the results of other studies reported that girls are less likely to participate in physical activity²⁷⁻²⁸. Therefore, physical activity programs for girls should provide instructions, experiences, opportunities and social environment that increase their confidence in participating in physical activity.

Compared to preparatory students, more secondary school students reported that practicing physical activity is important. However, in contrast, more preparatory students reported that physical education classes at school and practicing physical exercises during morning queue are important. Other studies reported that physical activity tends to decline steadily during adolescence²⁷⁻²⁸.

Adolescents should be physically active daily or nearly every day, as

part of play, games, sports, work, recreation, physical education, or planned exercise. They should be also engaged in three or more sessions per week of activity that last 20 minutes or more ²⁹. In this study, many of the students did not meet the minimal weekly requirement of the necessary moderate to vigorous physical activity. In the past week prior to the study, 37.4% and 22% of the students did not participated in severe or moderate physical activity respectively. Those who participated in such activities for 5 or more days were only 10.2% and 43.2% respectively. On the other hand, sedentary living habits represent a serious threat to health. In this study, on average school day, 44.6% of the students watch TV for 1-2 hours, 19% for 3-4 hours, and 6.1% for 5 hours or more.

Teachers are supposed to teach the knowledge as well as motor and behavioural skills needed for participation in lifelong physical activity. In this study 89.5% of the teachers mentioned the presence of a definite physical activities curriculum. In addition, 94.5%, 92%, 73%, and 72% of them mentioned that physical education in schools is suitable for the age of the students, has different activi-

ties, aim to improve physical fitness, and includes necessary knowledge and skills respectively.

Although 89% of teachers reported the arrangement of physical activity competitions within their schools, only 67% of them reported that school environment is suitable for practicing physical activities.

Physical educators should encourage other school staff to participate in physical activities. This can contribute to the health of both staff members and the students for whom they are role models. In this study 65.5% of the teachers reporting practice physical activities regularly, with no significant difference regarding gender or educational level. On the other hand, only 33% of them reported that teachers received training courses in leading physical activities.

Creating an environment that support physical activity is essential for the success of any physical activity programs in school. The reported obstacles that affect school physical education were insufficient physical education teachers (31.5%), insufficient place at school for physical ac-

tivities (26.5%), students are not interested in physical activities (15.5%), school administration is not interested in physical activities (12%) and absence of definite physical education curriculum (10.5%). These reported obstacles were not significantly related to the teacher's gender or the educational level, except for absence of interest among students which is significantly higher among secondary compared to preparatory school teachers, and the absence of interest among school administration which is significantly higher among male compared to female teachers,

RECOMMENDATIONS

- (1) Revision of physical education curricula, and providing effective, enjoyable and instructional curricula that utilize morning queue and physical education classes, and promote lifelong participation in physical activities.
- (2) Providing more physical activity facilities and programs, and making school sports facilities available for students' use after school hours and at the weekends.
- (3) Training courses for teachers to improve their knowledge, attitude and practice regarding physical education in schools, and to pro-

vide them with the necessary behavioural and motor skills to improve the delivery of physical education in schools.

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التربية البدنية والنشاط البدنى فى المدارس الإعدادية والثانوية دراسة وصفية فى مدينة المنصورة

تمت دراسة معرفة وممارسة الطلاب والمعلمين فيما يتعلق بالتربية والنشاط البدنى فى المدارس والعقبات التى يمكن أن تؤثر على تطبيقاتها المثلى بين عينة عشوائية من الطلاب والمعلمين باستخدام نوعين من الاستبيانات. واشتملت عينة الطلاب على ١٠٠٠ طالب وطالبة فى الصف الثانى من المرحلة الإعدادية والثانوية. واشتملت عينة المعلمين على ٢٠٠ معلم ومعلمة. وقد أظهرت هذه الدراسة أن العديد من الطلاب وافقوا على أهمية ممارسة النشاط الرياضى (٨٨.٦٪)، وحصلت التربية الرياضية فى المدارس (٨٤.٦٪) وممارسة التمارين الرياضية أثناء الاصطفاف الصباحى (٦٩٪) ومع ذلك فإن ٥٢.٨٪ منهم فقط وافقوا على أن المدرسة تساعد فى إكتساب المعرفة والمهارات اللازمة لممارسة النشاط البدنى، ٤٩.٢٪ منهم لديهم بانتظام تمارين بدنية أثناء الاصطفاف الصباحى، ٢٧.٦٪ منهم يشاركون بانتظام فى هذه التمارين، وأن ٥.٠٦٪ منهم يشاركون بانتظام فى أداء التمارين الرياضية أثناء حصص التربية البدنية. وكانت هذه النسب المثوية أعلى بين الطلاب مقارنة بالطالبات. بالإضافة إلى ذلك، فإن العديد من الطلاب لم يستوفوا الحد الأدنى من الاحتياج اللازم للنشاط البدنى المتوسط (٢٢٪) أو الشديد (٣٧.٤٪) فى الأسبوع السابق للدراسة. من ناحية أخرى، ففى اليوم الدراسى العادى فإن ٤٤.٦٪ من الطلاب يشاهدون التلفاز لمدة ١-٢ ساعة، ١٩٪ لمدة ٣-٤ ساعات و ٦.١٪ لمدة ٥ ساعات أو أكثر. وبالتسبة للمعلمين، فقد ذكر ٨٩.٥٪ منهم وجود منهج محدد للتربية البدنية، وأشار العديد منهم أن التربية البدنية فى المدارس تتناسب مع عمر الطلاب (٩٤.٥٪)، وتشمل أنشطة متعددة (٩٢٪)، وتهدف إلى تحسين اللياقة البدنية (٧٣٪)، وتشمل المعارف والمهارات اللازمة (٧٢٪). وبالرغم من أن ٨٩٪ من المعلمين ذكروا تنظيم مسابقات للنشاط البدنى داخل مدارسهم، فإن ٦٧٪ منهم فقط ذكروا أن البيئة المدرسية مناسبة لممارسة الأنشطة البدنية. بالإضافة إلى ذلك فإن ٦٥.٥٪ منهم ذكروا أنهم يمارسون النشاط البدنى بانتظام، وذكر ٣٣٪ منهم أن المعلمين يتلقون دورات تدريبية فى قيادة النشاط البدنى. وكانت العوائق التى تواجه التربية البدنية المدرسية والتى ذكرها المعلمون هى نقص معلمى التربية البدنية (٣١.٥٪)، نقص الأماكن اللازمة لممارسة التربية البدنية فى المدرسة (٢٦.٥٪)، عدم اهتمام الطلاب بالنشاط البدنى (١٥.٥٪)، وعدم إهتمام إدارة المدرسة بالنشاط البدنى، وعدم وجود منهج محدد للتربية البدنية.