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Fetiya Kedir
Department of Health and
Physical Education, Alamura
Secondary and Preparatory
School, Hawassa-Ethiopia

Mekbib Alemu
Department of Science and
Mathematics, College of
Education and Behavioral
Studies, Addis Ababa
University, Addis Ababa-
Ethiopia

Comparison of selected health related fitness level of urban and rural secondary school students of Hawassa, Southern Ethiopia

Fetiya Kedir and Mekbib Alemu

Abstract

The objective of the present study was to compare selected health related fitness level of urban and rural background students in secondary schools of Hawassa, Southern Ethiopia. The study was carried out on 400 students of both sexes in which 181 were urban (94 female and 87 male) and 219 were rural (106 females and 113 males). From the selected study participants 215 were from grade 9 and 185 participants were grade 10 students. Health related fitness level of seven Hawassa town secondary school rural and urban background students were compared using health related fitness variables of cardiovascular endurance, muscular endurance, muscular strength and flexibility. Descriptive (Mean and standard deviation) and inferential statistics (Independent sample t-test) were used for data analysis. The results of the study indicated that rural students have significantly higher cardiovascular endurance and muscular strength than urban students ($P < 0.0001$). Whereas the study result showed that in flexibility urban students are better than rural students. In muscular endurance no significant differences was found in rural and urban students ($P = 0.45$). It is concluded that in most health related fitness rural students were found to be higher than those of the urban students. Therefore curriculum developers should be aware of the difference among students and develop diversified physical education curriculum to address the observed gap in fitness level between urban and rural students.

Keywords: Health - related fitness, governmental schools, secondary school

Introduction

Health-related fitness component is closely related with well-being and health [1]. Health-related fitness components comprise cardiovascular endurance, muscular endurance, muscular strength, flexibility and body composition [2].

Level of individuals physical fitness varies based on place of work situation, the fitness level of a person and an interaction between the daily activities. Continues activity produces physical fitness improvements. Rural areas life style is more active when compared to the life style in urban areas which produced high level of physical and physiological functioning in rural residents. On the other hand civilization, advancement of science and technology minimized physical activity level of urban population due to dependency in mechanization, automation and computerization [3].

The main reasons for the betterment of rural students in physical fitness compared to urban students were high participation of rural students in agriculture related work, the way of life (More activity oriented routine) in rural areas, more open spaces and play fields compared to urban areas [4]. Socioeconomic status, ethnicity and area of residence (Urban or rural) to be significant influences on the level of physical fitness among students [5, 6].

According to the knowledge of researchers studies were not conducted in Ethiopia regarding health related fitness differences among rural and urban background students in Ethiopian schools learning in similar schools. Therefore the objective of this study was to compare selected health related fitness level of urban and rural background students in secondary schools of Hawassa, Southern Ethiopia.

Materials and Methods

The study was conducted in the year of 2017 in seven governmental secondary schools of

Correspondence
Fetiya Kedir
Department of Health and
Physical Education, Alamura
Secondary and Preparatory
School, Hawassa-Ethiopia

Hawassa town, Southern Ethiopia. Quantitative research method was applied in this research. In addition to this descriptive survey research design was used in the research.

Study participants

181 urban background and 219 rural background totally 400 students aged 15 to 17 years were selected as a sample population for this study. From the total sample size 200 were male and 200 were female. Regarding grade level 215 students were from grade 9 and 185 students were from grade 10. Sample size in terms of residence, gender and grade level were selected using stratified sampling method. The participants of the study were grade 9 and grade 10 students from seven secondary schools of Hawassa town.

Procedures

Data was collected by applying Likert scale measurement instrument. To conduct health related fitness test physical fitness level test was prepared by the researchers and the training was given for 8 data collectors. Except body composition all health related fitness components were included to measure health related fitness level of urban and rural students. Due to lack of percent body fat measurement instrument (Calipers) body composition was not included in the test. Health related fitness test of urban and rural students were done: using three minutes test to assess cardiovascular

endurance, curl-ups measurement to assess abdominal and low back muscular endurance, push-ups to assess upper body strength, and sit and reach test to assess hamstring flexibility. Structured rating scales of cardiovascular endurance, muscular endurance, push-ups and modified push-ups, and sit and reach test were used to assess health related fitness level [7, 8].

Statistical analysis

Data entry and analysis were done using Statistical Package for Social Sciences (SPSS) version 16. It was done applying statistical analysis procedures in which arithmetic mean, standard deviation and t-test used to compare the data. Significance level was set at $P < 0.05$.

Results

Selected health related fitness level of urban and rural secondary school students

The objective of this study was to measure and compare health related fitness level of urban and rural students in secondary schools of Hawassa. Health related fitness level of Hawassa secondary school students were compared using the fitness variables of cardiovascular endurance, muscular endurance, muscular strength and flexibility. The mean scores of the rural and urban students' health related fitness were presented and compared below.

Table 1: Health related fitness level of urban and rural secondary school students

Variable	Residence	No of students	Mean	Std. Deviation	t	p-value
Cardiovascular endurance	Rural	219	3.8	0.9	16.9	<0.0001
	Urban	181	2.6	0.5		
Muscular endurance	Rural	219	3.8	0.8	0.8	0.45
	Urban	181	3.7	1.0		
Muscular strength	Rural	219	4.0	0.8	5.6	<0.0001
	Urban	181	3.5	0.9		
Flexibility	Rural	219	3.7	0.8	-1.7	0.09
	Urban	181	3.8	1.0		

The mean flexibility of urban students ($M=3.8$, $SD=1.0$) are better than rural students ($M=3.7$, $SD=0.8$) and $t = -1.7$, $p = 0.09$. In addition, the muscular endurance of urban students ($M=3.7$, $SD=1$) showed no differences when compared to rural students ($M=3.8$, $SD=0.8$) and $t=0.8$, $p=0.45$.

This result therefore indicates that rural students have significantly higher cardiovascular endurance and muscular strength than urban students ($P < 0.0001$).

Discussion

The main objective of this study was to compare health related fitness level of urban and rural secondary school students of Hawassa city currently learning in under similar school conditions. After quantitatively comparing the mean health related fitness scores, the study showed that health related fitness level was higher in rural students when compared to urban students except flexibility. The result of this study showed that health related fitness level was higher in rural students when compared to urban students except flexibility. The result of this study were agree with Hian *et al.* [1], Saha *et al.* [9], Narges *et al.* [10] except flexibility. The possible reason for high health related fitness level of rural students in most health related fitness components was the life style of rural students Narges *et al.* [10].

But in flexibility urban students were better than rural students. Regarding flexibility the result of this study was agree with Bebcakova *et al.* [11], Petroski *et al.* [12], Chillón *et*

al. [13], but were opposed with findings of Saha *et al.* [9] that likely the causes of contradiction may be age of participants, environment (Climate of the area) and ethnicity. In the present study urban students were dwellers of Hawassa. Hawassa is lowland area and the temperature of the area is high when compared to the surrounding rural areas from which came rural background students. According to the study of Stojiljkovic [14] flexibility raises at higher temperature and reduces at lower temperature. So the temperature of the environment in which students live significantly affects the level of flexibility. In addition to that the type of activities in which students involved may affect the level of flexibility Nikolic *et al.* [15].

Conclusion

In most health related fitness rural students were found to be higher than those of the urban students. Therefore curriculum developers should be aware of the difference among students and develop diversified physical education curriculum to address the observed gap in fitness level between urban and rural students.

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Conflicts of interests

There are no any conflicts of interests

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