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Comparative Study on Some Selected Urban And Rural Secondary Schools Female Students on Health Related Physical Fitness Components In Lalibela Wa

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**COMPARATIVE STUDY ON SOME SELECTED URBAN AND
RURAL SECONDARY SCHOOLS FEMALE STUDENTS ON
HEALTH RELATED PHYSICAL FITNESS COMPONENTS IN
LALIBELA WOREDA**

BY

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AUGUST, 2022

BAHIR DAR, ETHIOPIA

COMPARATIVE STUDY ON SOME SELECTED URBAN AND RURAL
SECONDARY SCHOOLS FEMALE STUDENTS ON HEALTH RELATED
PHYSICAL FITNESS COMPONENTS IN LALIBELA WOREDA

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*ATHESIS SUBMITTED TO SPORT ACADEMY BAHIR DAR UNIVERSITY IN PARTIAL
FULFILMENT FOR THE REQUIREMENTS OF DGREE OF MASTERS EDUCAT ION IN
PHYSICAL EDUCATION*

AUGUST 2022
BAHIR DAR

APPROVAL PAGE
BAHIR DAR UNIVERSITY
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As thesis research advisor, I certify that I have read and evaluated this thesis entitled “COMPARATIVE STUDY ON SOME SELECTED URBAN AND RURAL SECONDARY SCHOOLS FEMALE STUDENTS ON HEALTH RELATED PHYSICAL FITNESS COMPONENTS IN LALIBELA WORED A prepared under I guidance by Eniyew tefera . I recommended that to be submitted as fulfilling the thesis requirement.

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As members of the board, examiners of the MED thesis open defense, we certify that we have read and evaluated the thesis prepared by Eniyew Tefera and examined the candidate. We recommended that the thesis to be accepted as fulfilling the thesis requirement for the degree of master of teaching in physical education.

_____	_____	_____
Name of External Examiner	Signature	Date
_____	_____	_____
Name of Internal Examiner	Signature	Date
_____	_____	_____
Name of chairman	Signature	Date

DEDICATIONS

I DEDICATE THIS THESIS MANUSCRIPT TO MY BELOVED WIFE FIKIR MEKONEN. AS WELL AS THE RESEARCHER EXTENDED HIS DEDICATION TO MY FAMILIES.

DECLARATION

I, the under signed declare that this thesis is the result of my own work, all sources and materials used for this thesis have been appropriately acknowledged. This thesis is submitted in partial fulfillment of the requirement for degree of master of education in teaching physical education.

I confidentially declare that this thesis has not been submitted by any scholar to any other institution or university for the award of any academic degree or diploma.

Mr. Eniyew Tefera

Place: Bahir Dar University

Signature _____

Date _____

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ABBREVIATIONS AND ACRONYMS

ANOVA	-	Analysis Of Variance
BMI	-	Body Mass Index
CAPL	-	Canadian Assessment of Physical Literacy
CDC	-	Center for Disease Control and Prevention
CHD	-	Coronary Heart Disease
FMS	-	Fine Motor Skills
HAKK	-	Healthy Active Kids Kenya
HRF	-	Health-Related Fitness
PA	-	Physical Activity
PE	-	Physical Education
SPSS	-	Statistical Package for Social Sciences

ABSTRACT

In the present study, an attempt has been made to compare health related physical fitness components namely muscular endurance, body composition, cardiovascular endurance and flexibility between female students belonging to rural and urban set-ups. The study was carried out on 200 female students, the data collected through fitness test from 100 rural and 100 urban students who were selected through simple random sampling techniques of Lalibela Woreda secondary schools in north wollo zone. The data was collected by use of measurements of muscular endurance/one minute push-up test/, body composition /BMI/ test, cardio vascular endurance /1.5 mile run test/ and flexibility /sit and reach/ test used .The data were analyzed and compared with the help of statistical procedures in which arithmetic mean, standard deviation (S. D), standard error of mean (SEM), t- test were employed. Rural female students were found to be superior in muscular endurance and cardiovascular endurance. Urban female students were found to be superior in body composition and flexibility.

Key words- *health related Physical Fitness, Rural, and Urban, cardio vascular endurance, muscular endurance, Flexibility and body composition.*

CHAPTER ONE

1.1 BACKGROUND OF THE STUDY

Physical education is one of the subjects which are offered at the primary education level of Ethiopia. It provides with both theoretical and practical activity which are accompanied by physical exercises or skill development. The aim of this practical field of study is to produce students who are physical, mentally, emotionally and socially fit citizens through the medium of physical activity that have been selected with the view of realizing this outcome.

The school physical education programs focused on helping children attain competency in the fundamental motor skills (e.g. throwing, catching) and movement concepts (e.g. balance) that form the foundation for later development of specialized game, sport, fitness and dance activity. As children progress through school skill and fitness development is accompanied by any increased knowledge understanding of physical activities. High school students get opportunity to choose several different activities from their physical education program. Some instruction may take place in the community, increasing the range of activities that can be offered to students and encouraging students to use the community facilities during their leisure time (Deborah A. Wuest and Charles, 2006).

The negative effects of degraded health related physical fitness on both the individual and students are serious and multi-dimensional. It can cause many risk factors to health including coronary heart disease, certain forms of cancer, diabetes, hypertension, stroke, disease, osteoarthritis, respiratory problems, gout and is associated with increases in all-cause mortality. Regular physical activity among students and youth is important for normal growth. It also enhances the aerobic capacity and respiratory system. It is also necessary for muscle strength, muscular-endurance, cardiovascular fitness, body composition, flexibility. From the psychological perspective, physical activity gives self-esteem and the motivation to learn new movement skills (CDE, 2009).

Health related physical fitness refers to cardio-respiratory fitness, muscular strength, muscular endurance, flexibility and body composition (Moliner *et al.*, 2010). Although the components of health related physical fitness to a significant degree depend on constitutional/genetic differences they are affected by habitual physical activity and are related to health status.

According to Haskell and Kiernan, Fornicola, (ND, Kariharju, (2005) and U.S.A DHHS, (2000) physical fitness is defined "the ability to carry out daily tasks with vigor and alertness,

without undue fatigue and with ample energy to enjoy leisure time pursuits and to meet unforeseen emergencies." Although the development of physical fitness is the result of many things, optimal physical fitness is not possible without regular physical exercise. Physical fitness is associated with a person's ability to work effectively, enjoy leisure time, be healthy, resist hypokinetic diseases, and meet emergency situation. Although the development of physical fitness is the result of many things, optimal physical fitness is not possible without regular physical exercise.

The urban people with the growth of cities has come a great transformation in the living habits of society. The city is the hub of much social life, and it influences its standards. Intellectual growth, and habits, moral codes and condition, behaviors patterns and cultural conditions resolve a ground it. New communities, new groups, new ethic relations and multitude of classes make of the city on intricate and complex units of modern society. The student performances vary on the different physical fitness components. The urban and rural female students have different skill and health related physical fitness. The available data relating, urbanization to Physical Activity, sedentary behavior and CRF indicate somewhat variable results. Research addressing the lifestyle and physical fitness of urban and rural youth is limited (Coelho e Silva et al. 2003).

Physical Activity occurs in social contexts that have specific demands and constraints such as opportunities for walking, access to playground, proximity to shopping, centers, and so on. Changes in parental work habits, television viewing, availability of video game, and other culturally related factors in the environment have also been indicated as contributing to increased opportunities for sedentary behaviors (Moreno et al. 2001). The effect of urbanization may also interact with rearing style; for example, mothers with higher level of education are more likely to engage in health promotion behavior (Sherar et al, 2009). The two group, those are urban and rural female students shows varies behaviors after transformation of child to adults, and changes in living habits of the society influences their living standards.

The purpose of this study was to compare the physical fitness status of urban and rural female students on selected physical fitness, cardiovascular endurance, body composition, muscular endurance and flexibility from health related physical fitness in urban and rural female students.

1.2 STATEMENT OF THE PROBLEM

Schools have the potential to improve the health of young people by providing institution in physical education that promotes enjoyable lifelong physical activities. The physical fit student feels more alert and eager to do things. A weak student is a weak brick in the wall of the nation. Many factors can be related to level of physical activity among student. Nowadays individuals has different level of physical fitness in our school that may be determine on their lifestyle, family background or parental involvement, time, place of work, and living area. Physical fitness is determined by direct interaction with daily activities. At school level the student have great difference in participation and performance of physical activities in physical education practical class. Charles M (2006) was conducting the study Difference in Health for Rural and Urban Canadians students. In his study only cardiovascular endurance was covered; the remaining health related physical fitness quality of female students was not covered. So as to be current study were includes other health related physical fitness variables and try to fill the gap of Charles M (2006) study.

This study fills the gap by considering individual differences between urban and rural school female students regarding fitness achievements.

1.3. OBJECTIVE OF THE STUDY

1.3.1. GENERAL OBJECTIVE OF THE STUDY

The general objective of the study was to compare health related physical fitness status of urban and rural female students in the Lalibela Woreda secondary schools.

1.3.2. SPECIFIC OBJECTIVE

- To identify the health related fitness physical fitness status in urban and rural female students.
- To point out the health related physical fitness variable rural vs. urban secondary school female students
- To examine the significance different between in urban and rural female student on physical fitness components.

1.4. DELIMITATION OF THE STUDY

The study was conducted in Amhara region, north wollo zone, Lalibela woreda secondary schools of urban and rural female students. The data were collected from 200 (100 urban

Lalibela secondary) and 100 rural (Kulimesk,tselifetsit and Bilibala secondary school) students of Lalibela Woreda secondary schools. The study was restricting on comparison of same selected health related fitness physical fitness status of urban and rural female students. It was delimited physical fitness component; cardiovascular endurance, muscular endurance, flexibility and body composition.

1.5. SIGNIFICANCE OF THE STUDY

In general, the finding of this research would help to:

- This study can helps as an input to introducing the ways of developing health related fitness physical fitness level of rural and urban female students,
- Motivate the students on the participation of regular exercise.
- The finding of the study was provided information about the health related physical fitness level of urban and rural female students.
- The finding of the study also uses for the teachers to modify the teaching methodology in their practical class, and it was provided source for other researchers for further investigation on this area of study.

1.6. LIMITATION OF THE STUDY

While conducting this study, the research would face different challenges like, shortage of electric light, internet access, inadequate of available transport in case of junta power war, and the researchers experience to do research.

1.7. OPERATIONAL DEFINITION

Body Mass Index (BMI): This is defined as the individual's body weight in kilograms divided by the square of his or her height in meters. This is the formula universally used and the unit of measure is kg/m^2 .

Endurance:-is the ability to carry out mobile activity of a long period at relatively high intensity at a given optimal level

Flexibility:-is the ability of a joint to move through its full range of motion.

Health-related Physical Fitness: State of physical and physiological characteristics that defines the risk levels for the premature development of morbid conditions. This presents a relationship with sedentary mode of life of school aged children in Nairobi County.

Kulimesk,tselifetsit and bilibala :-the name of rural secondary school in Lalibela woreda.

Lalibela :-the name of urban secondary school in Lalibela woreda.

Physical activity: - Any muscle skeletal movement that results in an expenditure of energy.

Physical fitness:-The ability of a person to function effectively and efficiently to enjoy.

Strength:-is the ability to overcome external resistance or exert influence against it or is to considerable degree the precondition for rapid movement.

1.8. ORGANIZATION OF THE STUDY

This study is organized under five chapters. The first chapter highlights the paper; and why to study. Chapter two reviews related literature to distinguish previously discovered areas to cover the ground for what is to be obtained in this study. Chapter three deals how to make the research, the targets to shot upon, and how the data to be analyzed. Chapter four analyzes data of different sources and nature to achieve the objective of the study. The final chapter is to summarize, conclude, and forward suggestion and recommendations based on what is obtained in chapter four.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

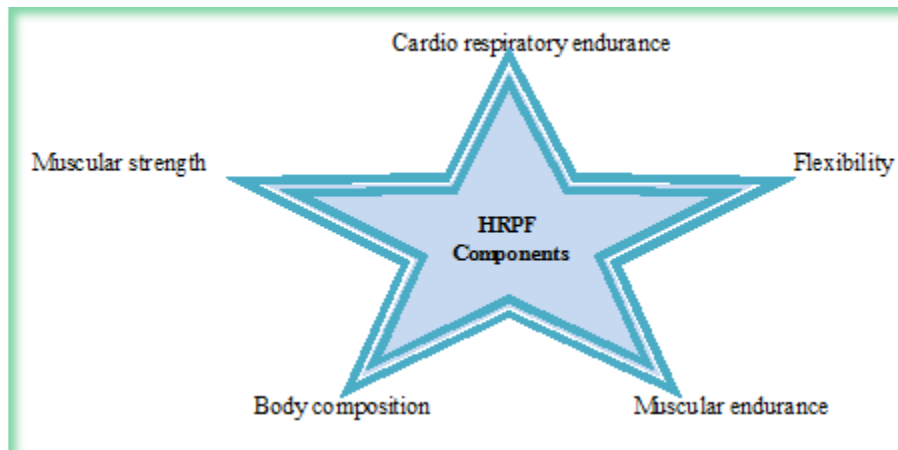
2.1. THE CONCEPT OF PHYSICAL EDUCATION

The idea of being physically fit is as old as humankind. Health-related physical fitness has been regarded throughout human history as a necessity for daily existence. The ancient people were mainly dependent up on their individual strength, vigor and vitality for physical survival. This in evolved mastery of some basic skill like strength, speed, endurance, agility for running, jumping, climbing and other skills employed in hunting for their livings.

Over the past four decades, there has been an increase in the prevalence fever weight and physical fitness deterioration in adult across all genders, ages and racial /ethnic groups (Ichinoheetal.2004). The negative effects of degraded physical fitness on both the individual and society are serious and multi-dimensional. It can cause many risk factors to health including coronary heart disease, certain form so cancer, diabetes, hyper tension, stroke, gallbladder diseases, osteoarthritis, respiratory problems, and gout an disassociated with increases in all-cause mortality (Cataldo1999). In adults, relationship among physical activity, health related fitness, and health are fairly well established (BoucherdandShepherd1994). Low level so physical activity and cardio-respiratory fitness are both associated with higher risk of all cause and disease specific mortality (Thuneetal.1998). His capacity to carry out daily tasks voluntarily and actively is known as physical fitness. Sports and health-related components are both a part of physical fitness. Regular exercise prevents or restricts weight growth and increases in body mass index (BMI) (Kyleet al. 200)

2.2. COMPONENTS OF HEALTH RELATED PHYSICAL FITNESS

The most frequently cited components fall into two groups: one related to health and the other related to skills that pertain more to athletic ability. The health-related components of physical fitness are cardio respiratory endurance, muscular endurance, muscular strength, body composition, and flexibility (MOE, 2005). These components are defined as



2.3. HEALTH-RELATED PHYSICAL FITNESS

It is not necessary to be extraordinarily physically fit to reap the benefits of HRPF for illness prevention and health promotion. High levels of fitness for health are more closely tied to performance than to health advantages. For instance, while moderate strength is required to prevent back and posture issues, high strength levels are most important for enhancing activity performance. Consists of the physical fitness elements that have a positive impact on health. Body composition, cardiovascular fitness, flexibility, muscular endurance, and strength are the components that are typically mentioned (McGraw-Hill. 2009 and Getachew, 2005). Health related physical fitness is generally considered to be “the ability to perform daily tasks without fatigue”. Physical fitness refers to the full range of physical qualities. It can be understood as an integrated measurement of all functions and structures involved in the performance of physical activity and/or physical exercise (Castillo *et al.* 2005).

2.3.1. BODY COMPOSITION

Is a health-related component of physical fitness that relates to the relative amounts of muscle, fat, bone and other vital parts of the body (USDHHS, 2014). Healthy body composition involves a high proportion of fat-free mass and an acceptably low level of body fat, adjusted for age and gender. A person with excessive body fat especially excess fat in the abdomen is more likely to experience health problems, including heart disease, insulin resistance, high blood pressure, stroke, joint problems, type 2 diabetes, gallbladder disease, blood vessel inflammation, some types of cancer, and back pain (McGraw Hill. 2009) .

BMI is commonly used method of determining an individual's weight is whether underweight, normal or overweight in relation to their particular body type. BMI is calculated as body weight in kilograms divided by height in meters squared (kg/m²) or is an indicator of weight-for-height. It is considered as one of the most commonly anthropometric measures to assess total body adiposity, because of its simplicity as a measure and its global acceptance (Arschel *et al.*, 1991). Although BMI is more accurate than body weight, there are limitations to the use of BMI alone to assess adiposity, including poor sensitivity in diagnosing excess body fatness. At the extremes of heaviness, BMI is probably a reasonable indicator of fatness in the general population (McGraw-Hill, 2009).

The best way to lose fat is through a lifestyle that includes a sensible diet and exercise. The best way to add muscle mass is through strength training. Large changes in body composition aren't necessary to improve health; even a small increase in physical activity and a small decrease in body fat can lead to substantial health improvements.

2.3.2. CARDIO RESPIRATORY ENDURANCE

Cardiorespiratory endurance is concerning the heart and respiratory system. Cardiorespiratory or Cardiovascular endurance is a term used interchangeably with aerobic endurance. This refers to the ability of the heart and lungs to meet the demands of the body. This can be assessed at rest and in response to aerobic exercise by measuring heart rate/pulse and blood pressure. In general, a lower heart rate and blood pressure indicate more efficient cardio respiratory functioning and better cardio respiratory fitness. , the capacity of the heart to cardio respiratory endurance is a key component of health related; cardio respiratory fitness is low, the heart has to work hard during normal daily activities and may not be able to work hard enough to sustain high-intensity physical activity in an emergency. As cardio respiratory fitness improves, related physical functions also improve (MOE, 2005 and Getachew, 2005).

A healthy heart can better withstand the strains of everyday life, the stress of occasional emergencies, and the wear and tear of time (USDHHS, 2014). Endurance training also improves the functioning of the body's chemical systems, particularly in the muscles and liver, thereby enhancing the body's ability to use energy supplied by food and to do more exercise with less effort from the oxygen transport system.

CRF has been found to have higher death rates than people with higher levels of body fat who are otherwise fit. Develop cardio respiratory endurance through activities that involve continuous, rhythmic movements of large muscle groups, such as the legs. Such activities include walking, jogging, cycling, and aerobic dancing. CRF is a central component of HRPF

because the functioning of the heart and lungs is so essential to overall good health. A person can't live very long or very well without a healthy heart. Poor CRF is linked with heart disease, type 2 diabetes, colon cancer, stroke, depression, and anxiety (USDHHS, 2014). A moderate level of cardio respiratory fitness can help compensate for certain health risks, including excess body fat: People who are lean but who have low cardio respiratory fitness have been found to have higher death rates than people with higher levels of body fat who are otherwise fit. Commonly administered field tests include the One mile run/walk, the 12-minute run, the PACER run for children and various bicycle, step, and treadmill tests (Getachew, 2005).

2.3.3. FLEXIBILITY

Flexibility is a health related component of physical fitness that relates to the range of motion available at a joint (USDHHS, 2014). Some experts specify that flexibility requires range of motion without discomfort or pain. Flexibility is specific to each joint of the body, thus there is no general measurement of flexibility as there is for cardiovascular fitness.

Most people was, at one time or another, suffer back problems. Approximately 80% of these low back problems are due to weak and or tense muscles. Many daily activities place a great deal of strain on these muscles. Physical inactivity can also contribute to the risk factors that promote back problems. This means that these problems can be deducted or limited through improved physical fitness. Physical inactivity contributes to a loss of flexibility for the lower back and the hips flexors; sitting for long periods time promotes a sedentary existence which was result in a loss of flexibility. Individuals with a sedentary life style who perform occasional physical labor are at high risk for developing back problems. Physicians prescribe specific trunk and thigh flexibility exercises, stretching for their patients with lower back problems, supporting the value of stretching exercises to prevent low back problems (Howley & Franks, 1997).

2.3.4. MUSCULAR ENDURANCE

Muscular Endurance is a health related component of physical fitness that relates to the muscle's ability to continue to perform without fatigue (MOE, 2005 and USDHHS, 2014). Muscular endurance is important for good posture and for injury prevention. For example, if abdominal and back muscles can't hold the spine correctly, the chances of low-back pain and back injury are increased. Muscular endurance is specific in nature. For true assessment of muscular endurance it would be necessary to test each major muscle group of the body. Lab

and field tests of muscular endurance are similar and are based on the number of repetitions that can be performed by the specific muscle group being tested (example; repetitions of push-ups or abdominal curls). Muscular endurance can be measured isometric ally (static contractions) or isotopic ally (dynamic contractions).

Muscular endurance is important for good posture and for injury prevention. For example, if abdominal and back muscles can't hold the spine correctly, the chances of low back pain and back injury are increased. Good muscular endurance in the trunk muscles is more important than muscular strength for preventing back pain. Muscular endurance helps people cope with daily physical demands and enhances performance in sports and work (Getachew, 2005).

2.3.5. MUSCULAR STRENGTH

Muscular Strength is a health-related component of physical fitness; Muscular strength is the amount of force a muscle can produce with a single maximum effort. It depends on such factors as the size of muscle cells and the ability of nerves to activate muscle cells. Strong muscles are important for everyday activities, such as climbing stairs, as well as for emergency situations. They help keep the skeleton in proper alignment, preventing back and leg pain and providing the support necessary for good posture. Muscular strength has obvious importance in recreational activities. Strong people can hit a tennis ball harder, kick a soccer ball farther, and ride a bicycle up-hill more easily (USDHHS, 2014). Strength is specific in nature. For true assessment it would be necessary to test each major muscle group of the body. Lab and field tests are similar and involve the assessment of one repetition maximum (the maximum amount of resistance you can overcome one time). The tests are typically conducted on resistance machines. Strength can also be assessed using dynamometers.

(Getachew,2005). Strength can be measured isometric ally (static contractions) or isotopic ally (dynamic contractions). Maintaining strength and muscle mass is vital for healthy aging. Older people tend to experience a decrease in both number and size of muscle cells, a condition called sarcopenia. Many of the remaining muscle cells become slower, and some become nonfunctional because they lose their attachment to the nervous system. Strength training (also known as resistance training or weight training) helps maintain muscle mass and function and possibly helps decrease the risk of osteoporosis (bone loss) in older people, which greatly enhances their quality of life and prevents life threatening injuries.

2.4. PHYSICAL FITNESS AND LIFE IN URBAN AND RURAL AREA

A concept of physical fitness is as old as humankind. Throughout the history of mankind physical fitness has been considered an essential of daily life having two components like health related fitness and motor or skill related fitness (Corbin & Lindsey, 1994). The ancient people were mainly dependent upon their individual strength, vigor and vitality for physical survival. This involved some basic skill like strength, speed, endurance, agility for running, jumping, climbing and other skill employed in hunting for their livings. Study of skill related or motor gathered lots of interest from earlier. The study of environment and the effects on motor ability and development of a healthy life style remain unclear (Ozdienc, Ozcan, Akin, & Gelecek, 2005; Pene Reyes, Tan, & Mallina, 2003; Tognarelli et al., 2004; Tsimeas, Tsiokanos, Koutedakis, Tsigilis & Kellis, 2005). Living in an urban environment has been associated with inactivity of school children. In fact, students in urban areas tend to spend most of their free time at home, adopting sedentary behaviors such as reading, playing computer games, or watching television (Ruel et al., 1998). Conversely, students living in rural areas tend to engage in activity play in open environments, outside the house. The assumption may be that rural students are more fit compared to their urban peers (Pena Reyes et al., 2003). However, the induction of agricultural mechanization, maintenance of traditional high calorie nutritional habits, and the limited introduction of organized sport facilities and programs with respect to urban areas may put rural children at a disadvantage (Sheehan, 2005). Beneficial changes in public health and nutrition have been associated with early physical growth and development of children living in urban areas with respect to their rural peers (Bielski, 1986; Pena Reyes et al., 2003). The urbanization phenomena of western countries developed over the past century could represent a tremendous opportunity to study health-related differences, if any, between children living in rural and urban areas.

Rural area is generally linked to a more strenuous, physical dynamic way of life that is advantageous to physical fitness. On the other hand, changes in lifestyle due to living in urban settings may also affect physical fitness. Environmental and social changes related to living in urban areas such as crowding, changing neighborhood, safety worries and inadequate grounds for play may possibly contribute to lower level of physical fitness among children.

2.5. FACTORS THAT AFFECT PHYSICAL FITNESS PROGRAM

There are determinant factors on physical fitness those are lifestyle, family background or parental involvement, time, place of work, facilities and equipment, the existence of large

class size, environment, and living area. Physical fitness is determined by direct interaction with daily activities. Many factors can be related to level of physical activity among children. Loucaides et al, (2004) stated five factors that would contributed to level of physical activity among children in their “Difference in physical activity levels between urban and rural school children in Cyprus”. They stated that the factors that contribute are seasonal factors, space, and safety, exercise equipment availability, transportation and daily activity. Other factors that would related to children’s physical activity are, participation in organized sport, physical education class in the school, transport patterns, electronic and screen based entertainment, and socio-cultural changes (Dollman, 2005). These factors, some lead to the result of the urban children to have higher level of physical activity such as the equipment availability and transportation while some factors lead to the result that rural children have better level of physical activity (Loucaides et al, 2004). Dollman et al, (2005) stated that children nowadays are more ‘preferred’ to be inactive when choosing activities such as eating and sleeping as their top 10 activities. Further, television watching also get higher rates if years especially girls. In Iowa, a study examining differences in physical activity, physical fitness, and overweight among rural and urban children shows that children from rural areas and small cities were more active than urban children (Joens-Matre et al, 2008).

The complex interaction among exercise, genes, nutrition and environmental factors source: Adopted from Bray (2000).*J.Appl.physiol.*88:792. These factors may have more to do with youth fitness scores than doe’s activity level. Lifestyle and environmental factors also make a difference. For example, nutrition is a life style factor that can influence test scores and environmental condition. (Heat, humidity and population) strongly modify test performance.

2.5.1. ENVIRONMENT

The physical and social environment of cities has a major impact on the extent of physical activity. Multiplier effects are important levers for change. For example, the promotion of physical activity through commuting encourages a greater utilization of public transport and its thus attractive to urban planners and transportation agencies. Key issues include also access to open spaces, playgrounds, gymnasium, stairwells and road networks as well as social factors such as, level of crime and the local sense of community. Crowding, crime, traffic, poor air quality, a lack of parks, sports and recreational facilities and sidewalks make physical activity and sports a difficult choice for many people. The challenges is therefore as much as the responsibility of governments as it is for people, particularly for fostering the

creation of sustainable environment which encourage the regular practice of physical activity and sport in the community, WHO(2003b).

Attention should also be directed towards the development of class climate or atmosphere where children feel psychological safe. Respect for other appreciation of individual difference and valuing of effort contribute to warm, nurturing class climate. In this climate children feel free to try new activities, explore and create and challenge them to achieve (Wuest Bucher, 1999).

2.5.2. THE EXISTENCE OF LARGE CLASS SIZE

Physical education class sizes are often larger and more heterogeneous than classes in other subject area. Many and diverse expectations associated with the multiple role of teacher and coach may lead to difficulty in meeting these competing demands (Wuest Bucher, 1999).

Large class size demands time for physical activity. Large physical education class contribute to decrease in student learning, decrease in acquisition of motor skill and decrease in achievements of task essential knowledge and skill in both urban and rural students. The National Association for Sport and Physical Education (NASPE) recommends that large of physical education class is consistent with those of other subject area for safe and effective instruction. As class size increase safe and effective instruction may become compromised. This can manifest itself many ways such as: (NASPE, 2004)

- Decrease instruction time due to management issue
- Insufficient amount of equipment and activity space
- Decrease practice opportunities resulting in slower rate of learning
- Decrease student time spent in activity during class
- Decrease the ability of teacher to provide individualized instruction
- Increase students injury
- Increase opportunity for “off task” behavior of students
- Reducing learning and teaching feedback

2.5.3. SHORTAGE OF FACILITIES AND EQUIPMENT

The shortage of facilities can be considered as one of significance factors in shopping education class. According to Jesse and Williams (1964) in some high schools the shortage of facilities are a very real. They also emphatically explain that there are many communities and institutions with limited facilities. On the influence that shortage of activities can lay claim they future suggest when facilities are in critical shortage or merge as innumerable schools. Then class in physical education are hold in class, corridors and basements, such places unit

the program and when facilities are lacking children do not learn the skill and co-operation that is essential for their development. When physical education fall in shortage of facilities required teacher was also be in problem on this issue. Equipment should be appropriate for the ability of the child and children should be instructed in its proper use enforcement of class that emphasize safety help ensure the wellbeing of students.

2.5.4. PARENTAL INVOLVEMENT

In addition to introducing children to physical activity through physical education program and integrated curriculum parents can be encouraged to become involved in this aspect of their children's development. Children today are leading a more sedentary lifestyle than ever before (U.S Department of Health and Human Services, 2001). The days of coming home from school and playing outside until dark have been replaced with activities such as watching television, surfing the internet, and playing video games. However, there are many things that parents can do to get children out of the house and involved in some types of physical activity (New York online access to health, 2004). Some of these activities may include taking family walks or bike rides, going to the park or other recreational facilities, encouraging participation in extracurricular activities. They can ask their children what they are doing in physical education or better yet, visit them in class. Encouraging them to practice skills learned or practicing with them can be an effective to keep them turned on to physical activity.

2.5.5. THE VIEW ON PHYSICAL FITNESS ASSESSMENT

Historically, physical fitness assessments for children and adolescents have been a mainstay of the physical education curriculum. If used correctly, fitness assessment can enhance instruction of fitness concepts, provide diagnosis of fitness needs for individual exercise prescription, facilitate fitness goal-setting and self- monitoring skills, and promote fitness knowledge and self-testing skills (Whitehead et al., 1990). However, there are many factors other than physical activity that can influence a child's performance on physical fitness tests (e.g., maturation, heredity, predisposition/ trainability and body composition). An overemphasis on fitness testing in the curriculum can send the wrong message to children about physical activity. For example, some children may get discouraged in physical education if they score poorly on fitness tests despite being physically active. Alternately, children may incorrectly believe that they don't need to be active if their fitness levels are in the healthy fitness zone.

Recently, there has been a conceptual shift in the physical education field toward the promotion of physical activity. While fitness is still a desirable outcome, more emphasis is being placed on promoting the behavior of physical activity. For example, in the current National Association for Sport and Physical Education (NASPE) definition “physical educated person”, three of the five components refer specifically to physical activity (NASPE, 2001). In addition to having good skills and reasonable level of fitness, a physically educated person participate in regular activity, knows the benefits of participation and value the contribution activity can make to a healthy lifestyle.

Incorporating physical activity assessments into the curriculum allows for better instruction on physical activity concepts and avoids some of the problems associated with fitness testing. An additional benefit is that by emphasizing a behavior, all children can be successful.

Many people assume that physical activity and physical fitness are directly related, but they actually represent very different things. Physical activity is a behavior, while physical fitness is a characteristic. While physical activity was contributed to physical fitness, the relationship is not as strong one would expect. There are a variety of other factors that influence levels of physical fitness and many are beyond a person’s control.

2.6. BARRIER’S FOR PHYSICAL ACTIVITY DEVELOPMENT

According to WHO (2003), some major constraints to physical activity development:

- Lack of awareness about benefits
- Insufficient data on trends, levels, and determinant of physical activity
- Lack of political commitment and support
- Insufficient cooperation between concerned sectors.
- In access, ability to the community of available sport facilities.
- Existence of strong barriers to people participation in physical activity.

2.7. PHYSICAL FITNESS DIFFERENCES URBAN TO RURAL PEOPLE

Urban and rural people have different level of physical fitness which may changes with time allotted, place of work, work load, facilities and equipment, situation, and also interaction between the daily activities. From the physiological point of view physical fitness may say to be ability at the body to adopt and recover from serious exercise. Chaudhary (1998) studied the difference in physical fitness of urban and rural students studying in the class IX and X and found that rural students were better in physical fitness than urban students. Uppal and Sacreen (2000) conducted a study to find out the comparison on cardiovascular fitness

between urban and rural students and revealed that students with rural background performed better than that of their counterparts in urban area. Charles (2006) conducted a study on the “Differences in health for rural and urban Canadians”. The rural communities have good physical fitness than urban communities in specific physical fitness and vice versa urban communities also have a good physical component than rural on a certain physical fitness components, it supported that trend in physical fitness shows more variable contrasts. Youth from rural communities were more likely to be classified as a physical fit, especially in CRF, compared with urban youth in Oman (Albarwani et al., 2009).

2.8. PHYSICAL ACTIVITY OUTCOMES AND IMPACTS

Physical activity is associated with many physical and mental health benefits as well as social, economic, and environmental benefits. Across all age groups, physical activity is related to lower obesity risk and better fitness, bone health and cognitive performance (Lee et al 2012, Okely et al 2013).

Physical health: physical inactivity is responsible for more than five million deaths globally per year (Lee et al. 2012). Sport and recreation participation is related to reduced overweight or obesity and improved physical fitness (Khan et al. 2012). Active travel contributes to low obesity risk and premature cardiovascular disease mortality among adults, and improved fitness in children and youth (Larouche 2014a, Larouche et al. 2014b, Xu et al 2013).

Mental health: participation in sport and recreation is associated with fewer depressive symptom, better mental and social health, team work skills, social interaction and friendships and feelings of belongingness among children and adolescents (Eime et al. 2013). Walking can deliver a community benefits by increasing social connections and public safety (Burke et al. 2014).

2.9. THE EFFECT OF PHYSICAL ACTIVITY ON ADULTS AND AGED PEOPLE

According to WHO, (2003) for adults and aging individuals physical activity has shown to improve balance, strength, coordination, flexibility, endurance, mental health, motor control and cognitive function. Improved flexibility, balance, and muscle tone can help prevent falls-a major cause of disability among older people. Walking or organized exercise sessions, appropriately suited to an individual’s fitness level can provide the opportunity for social interaction, for reducing feelings of alone lines and social exclusion. Physical activity improves self –confidence and self-sufficiency, the benefits of physical activity can be enjoyed even if regular practice starts late in life. While being active from an early age can help prevent many diseases, regular movement and activity throughout life can also help

relieve the disability and pain associated with common diseases among older people are cardiovascular diseases, arthritis, osteoporosis and hypertension. Department of Health and Human Service of USA, (2004) suggested that researchers have found that exercise and physical activity also can improve the health of people who are 90 or older, who are frail, or who have the diseases that seem to accompany aging. Staying physical active and exercising regularly can help prevent or delay some diseases and disabilities as people grow older. In some cases, it can improve health for older people who already have diseases and disabilities, if it's done on a long term, regular basis. Regular participation in various exercises increase physical fitness. The high level of physical fitness is desirable for a full productive life. However, sedentary living habits and poor physical fitness have negative impact on both health and daily living. Every person has different level of physical fitness which may change with time, place of work, and situation. There is also an interaction between the daily activities, and the fitness of individual. From the physiological point of view, physical fitness may be ability of the body to adopt and recover from strenuous exercise (Kamla –Raj, 2010). Mostly an individual physical fitness results' based on the regular participation on regular exercise. Hence, physical activity and physical fitness are closely related in that physical fitness is mainly not entirely determined by physical activity, and also by genetic, it addressing on (Bouchard, C., L., Pe' Russe, 1994). According to WHO, (2006b) active living contributes to individual physical and mental health but also to social cohesion and community well- being opportunities for being physical active is not limited to sports and organized recreation. They exist everywhere, where, where people live and work, in neighborhoods and in educational and health establishments. According to WHO, (2018) regular physical activity of moderate intensity- such as walking, cycling, or doing sports-has significant benefits for health. At all ages, the benefits of being physically active outweigh potential harm, for example through accidents. Some physical activity is better than doing none. By becoming more active throughout the day in relatively simple ways, people can quite easily achieve the recommended activity levels. Regular and adequate levels of physical:

- Improve muscular and cardiovascular fitness;
- Improve bone and functional health;
- Reduce the risk of hypertension, coronary heart disease, stroke, diabetes, various types of
- cancer (including breast cancer and colon cancer) , and depression;
- Reduce the risk of falls as well as hip or vertebral fracture; and□

- Are fundamental to energy balance and weight control.

Insufficient physical activity is one of the leading risk factors for global mortality and is on the rise in many countries, adding to the burden of NCDs and affecting general health worldwide. People who are insufficiently active have a 20% to 30% increased risk of death compared to people who are sufficiently active.

2.10. HEALTH AND PHYSICAL FITNESS

Regular physical activity and good fitness not only help prevent diseases, but also promote quality of life and feeling well. Good health related physical fitness can help the person feel good, look and enjoy life.

Available experience and scientific evidence show that the regular practice of appropriate physical activity and sport provides people, male and female, of all age and conditions, including persons with disability, with wide range of physical, social and mental health benefits. It interacts positively with strategies to improve diet, discourage the use of tobacco, alcohol and drugs, helps reduce violence, enhances functional capacity and promotes social interaction and integration. Physical activity is for an individual: a strong means for prevention of diseases and for nation's cost-effective methods to improve public health across the population, (WHO, 2003b).

The world is witnessing a significant increase of the global burden of non-communicable diseases (NCD) such as cardiovascular diseases, cancer, diabetes and chronic respiratory diseases. The increasing global epidemic of these diseases relates closely to respective changes in lifestyles mainly in tobacco use, physical inactivity and unhealthy diet. The 2002 world health report on "Risk to heart-promoting healthy living" highlights the significant contribution of these risk factors, including physical inactivity to the overall burden of NCD worldwide. Overall physical inactivity is estimated to cause 1.9 million Deaths globally. Physical inactivity causes globally, about 10-16% of cases each of breast cancer. The risks of getting a cardiovascular disease increases up to 1.5 times in people who do not follow minimum physical activity recommend actions. Physical activity is in key position for weight control. In the United States, obesity causes 300000 deaths annually, a number exceeded only by deaths related to tobacco. A higher rate of obesity is found in many countries of Latin America, the Middle East and Asia.

Some island nations of the western pacific have especially high rates of obesity. In china, an estimated 200 million people could become obese in the next ten years. The health benefits of

physical activity and a healthy diet take place through many other mechanisms besides influencing weight control.

The negative effects of degrading physical fitness on both individuals and society are serious and multi-dimensional. It can cause many risk factors to health including coronary health disease, certain form of cancer, diabetes, hypertension, stroke, gall bladder disease, osteoarthritis, respiratory problem, gout, and is associated with increases in all-cause mortality. Low level of physical activity and cardiorespiratory fitness are both associated with higher risk of all cause and disease specific mortality. Physical fitness is the ability to perform daily activities willingly and actively. Physical fitness includes not only components of sports but those of health as well. Regular physical activity prevents or limits weight gain, and gain in body mass index (BMI) (Kyle et al., 2001).

2.11. FACTORS AFFECTING STUDENT’S HEALTH RELATED PHYSICAL FITNESS

A significant amount of health related physical fitness test performance is explained by heredity, training, gender (Bouchard, 1990; Bouchard, 1992). Various factors such as environment, nutrition, drug taking, stress, age, fatigue physical disability, and maturation affect health related physical fitness performance as reflected in physical fitness test scores. Research shows that heredity and maturation strongly impact fitness scores.

2.12. GUIDELINES FOR THE ADMINISTRATION AND USE OF FITNESS TESTS

Health related Fitness testing can be an important part of any school physical education or fitness programs.

The following guidelines, however, should be observed when fitness tests administered: (Charles B. Corbin (2009).

1. Measure health related fitness components that the public and research experts agree are the most important. Focus on health and self-improvement rather than on comparison to others.
2. In the school environment, fitness tests should be a part of the total educational program. Attention should be given to the knowledge and understanding of fitness concepts, and students should be held accountable for class work. Written test items should measure the students’ understanding of the concepts.
3. Fitness test results should be kept confidential; careful attention should be given to ensure that the test results do not embarrass or threaten a student’s self-image.
4. Teach students how to take fitness tests; give ample time for practice of the test components.

5. Fitness awards should encourage life time activity rather than a one time performance.
6. Take care to provide necessary, adequate, sufficient, and valid information regarding test results to parent's students.

CHAPTER THREE

RESEARCH METHODS

3.1. STUDY AREA

The study is conducted in northern part of Ethiopia, Amhara Region North Wollo Zone and 300km far than bahir dar, 180km from woldiya and 701 km from Addis abeba. the region is bordered by tigray in the north, Oromia in south, Afar in the east Benishangual gumuz in the south west . The lalibela woreda is located in the east Gachena woreda, in the west bugna woreda, in the north gdan woreda and in the south mekte woreda.

3.2. STUDY DESIGN

The research method designs were cross-sectional comparative design. Data collections were mainly using quantitative mechanisms following simple random sample collection. Validate data was be collect using appropriate methods. The collected data was analyzed using software. This method use Independent t-test calculate mean and standard deviation analysis of the fitness test for same selected health related components of physical fitness performance of female students in urban and rural secondary schools of Lalibela Woreda.

3.3. POPULATION SIT

Total population is 400 females' students have those schools. There are 200 urban and 200 rural female Students have in their schools. Source: Lalibela Woreda education office, 2014 E.C), and one (1) urban and three (3) rural secondary school in Lalibela Woreda.

3.4. SAMPLING SIZE AND SAMPLING PROCEDURES

In order to determine the sample size among populations the researcher uses the following formula (modern elementary statics, John. Friend, Gary Asimov, 1985).

$$n = \frac{N}{1 + N(e)^2}, \quad e = \text{error} \quad \text{Where: } n = \text{total sample size of the population, } N = \text{Total}$$

$$\text{population of the study } n = \frac{400}{1 + 400(0.05)^2} = 200, \quad e = 0.05 \quad n = 200$$

The samples were selected from 1urban and 3 rural secondary schools of Lalibela Woreda. in urban Lalibela secondary school 200 female students (100%), and from rural 84 (41.6%)female students from Kulmesk, 66 (32.9%) female students from Bilibala and 50 (25.3%) female students from Tselifetsit secondary schools. 200 students selected with

simple random sampling techniques (lottery method) for rural and urban school of Lalibela woreda.

3.5. SOURCES OF DATA

The data for the research was gathered from primary sources of data. The data were collected from health related physical fitness tests in urban and rural secondary school students. Name of Urban schools- Lalibela secondary school and from rural schools- kulmesik, bilibala and tselifetsiet secondary schools. Primary data was collected from subjects through fitness tests in the field tests, because it's preferable, not expensive and accessible materials. Those are used as international standards.

3.6. DATA COLLECTION INSTRUMENT

In order to achieve the objective of the study regarding to comparing urban and rural secondary schools female students' health related physical fitness components, practical tests were employed. Practical tests include; Muscular endurance, cardio respiratory fitness, Body composition and Flexibility. To test physical fitness in this study body mass index test, 90 degree push up test, sit and reach test and 1.5 mile run test respectively. Statistical procedures in which arithmetic mean, standard deviation (S.D), standard error of mean (SEM), t- test were employed.

3.7. DATA COLLECTION PROCEDURE

The data was collected in order to select health related physical test tests were taken based on the load of the tests. That is, first day body mass index, and 90 degree push up test, second day sit and reach test and 1.5 mile run test is evaluated. Based on this procedure all urban and rural schools health related physical fitness tests was take 2 to 3 week in each school. The result was record and supervise by the Health and Physical Education Teachers and department heads, and other oriented persons of both schools. The principals of the selected schools also gave their permission.

3.8. HEALTH RELATED PHYSICAL FITNESS TESTS

HRPF was assessed using the European physical fitness test battery (EUROFIT) 1, FITNESSGRAM- 1 tests and IPFT 3 tests that measure health related components of fitness: Sit and reach (flexibility), BMI (Body composition), 1000m run test (CRFIPFT), 1 minute 90 degree push up (upper body muscle endurance- FITNESSGRAM) and sit up test (abdominal muscle strength- EUROFIT Manual, 1988). This test battery is a reliable and valid instrument to measure physical fitness in children and is a commonly used test.

3.8.1. 90 DEGREE PUSH UP TEST (1MINUTE) / UPPER BODY MUSCLE ENDURANCE TEST

The 90 push-up is a test of upper body muscle endurance. Endurance of the muscles of the upper body is important in activities of daily living, maintaining functional health and promoting good posture. The most important advantages are that it requires no equipment and very few zero scores occur. A number of assessments of upper arm and shoulder girdle strength/endurance have been used in various youth fitness batteries. The most commonly used assessment is the push up test.

The purpose of this test is to evaluate the endurance of the arm and chest muscles.

Students should use the standard 90 degree push up position with only the hands and the toes touching the floor in the starting position. To do this, knee on the floor, hands on either side of the chest and keep your back straight. Lower the chest down towards the floor, always to the same level each time, either till your elbows are at right angles or your chest touches the ground. Give -2- minute recovery period after warming up and prepare to start the test. A common version of the push up test is to measure the maximum number of push up in a 1 minute.

3.8.2. BODY MASS INDEX /BODY COMPOSITION

Body Mass Index is a measure of body composition. BMI is calculated by taking a person's weight and dividing by their height squared. Like any of these types of measures it is only an indication and other issues such as body type and shape have a bearing as well. BMI is just a guide it does not accurately apply to elderly populations, pregnant women or very muscular athletes such as weight lifters. For the rest of the world, there is a metric version for entering height in meters and weight in kilograms. Higher the score usually indicating higher levels of body fat.

Body weight: the child was stood on the platform of the scale without support. He stood still over the center of the plat form with the body weight evenly distributed between both feet. Light under clothes can be worn, excluding shoes, long trousers and sweater (Garzón, 2009).

Body height: This measurement was recorded as the height from the floor to the top of the head. Hair ornaments were removed and braids were undone. The child stands on the digital balance with bare feet placed slightly apart and the back of the head, shoulder blades, buttocks, calves, and heels touching the vertical board. Legs kept straight and the feet flat. The tester positions the child's head so that a horizontal line drawn from the ear canal to the lower edge of the eye socket runs parallel to the baseboard (i.e., the Frankfort plane positions horizontally). The headboard was pulled down to rest firmly on top of the head and compress

hair. It starts when the child has reached the correct test position. Two measurements of both body weight and body height are performed and the mean of each one is retained. Body weight in kilograms divided by the square of height in meters (kg/m²) results BMI (Garzón, 2009).

Equipment: Weight in kg, meter, digital balance, and record sheet

Test procedure: BMI was calculated from body mass (M) and height (H).

$$\text{BMI} = M / (\text{H} \times \text{H})$$

Where; M = body mass in kilograms

H = height in meters

Higher the score usually indicating higher levels of body fat (WHO, 2008). Target population BMI is often used as a general population measure to determine the level of health risk associated with obesity.

3.8.3. MILE RUN TEST OF CARDIO RESPIRATORY FITNESS

One of the simplest and most accurate means of evaluating cardio respiratory fitness is the 1.5 mile run test. This test popularized by Dr. Kenneth cooper and works on the physiological principle that people with a high level of cardio respiratory fitness can run 1.5 miles in less time than less fit individuals. The objective of the test is to monitor the development of the athlete's aerobic endurance how, by complete a 1.5 mile distance (preferably on a track) in the shortest possible time. The test was conducted in a moderate weather condition (avoiding very hot or very cold days). For reasonably physically fit individual running, or jogging can cover the 1.5 mile distance. For less fit individuals, the test becomes a run/walk can cover a given distance. A good strategy was to try to keep a steady pace during the entire distance. Accurate timing of the test was essential, and to undertake this test the researcher was require: 400 meter track, Stop watch, assistant, pen and paper. The test was conducted as follow:

- ✓ student to complete a 10 minute warm up,
- ✓ student to run 2.4 km (6 laps of a 400m track) as fast as possible,
- ✓ Assistant to keep athlete informed of the number of laps remaining to complete the test,
- ✓ Researcher to record the time taken for the athlete to run 2.4km.

3.8.4. SIT AND REACH FLEXIBILITY TEST / FLEXIBILITY/

The sit and reach test are common measure of flexibility and specifically measure the flexibility of the lower back and hamstring muscles. This test is important as because tightness in this area is implicated in lumbar lordosis, forward pelvic tilt and lower back pain. This test was first described by Wells and Dillon (1952) and is now widely used as a general test of flexibility.

About Test Variations: there are a few variations of the test. Many of the variations of this test involve the differences in the value of the level of the feet. The most logical measure is to use the level of the feet as recording zero, so that any measure that does not reach the toes is negative and any reach past the toes is positive (such as for PRT Sit and Reach for the Navy). However, using negative values is more difficult for statistical analysis, and for comparing results.

The procedure for the Presidents Challenge version requires that the box is made with 9 inches (23 cm) at the level of the feet. The stretch should be held from 5 to 10 seconds initially. This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor the tester may assist by holding them down. With the palms facing downwards, and the hands on top of each other or side by side, the subject reaches forward along the measuring line as far as possible. Ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for a one-two seconds while the distance is recorded. Make sure there are no jerky movements. The score is recorded to the nearest centimeter or half inch as the distance reached by the hand. Some test versions use the level of the feet as the zero mark, there is also the modified sit and reach test which adjusts the zero mark depending on the arm and leg length of the subject. Validity of this test only measures the flexibility of the lower back and hamstrings, Reliability of this test was depend on the amount of warm-up that is allowed, and whether the same procedures are followed each time the test is conducted. Warm up is used, it is important to have a standardized warm up and test order and repeat the same conditions for each time the test is conducted.

3.9. Method of data analysis

Based on the data for fitness test the researcher was simply take the record fitness test result and compare the urban and rural schools female students health related components of fitness level. It was assess and analyze using IBM SPSS statistics version 20. The results was use the

standards of their health related physical fitness tests and compare the statistics of mean and standard deviation for selected health related physical fitness components. Inferential statistics of independent t-test was used to determine significant difference between variables and level of student ability results are present in tables and figures. The level of significance is set at $p < 0.05$.

3.10. ETHICAL CONSIDERATIONS

Ethical standards require that researchers should not put subjects in a situation where they might be at risk of harm as a result of their participation. The entire subject has clear information about the purpose of the study and they give an agreement orally to participate in this study. Prior to the beginning of the study the purpose of the study, the procedures to be used and the potential benefits in this study was explained to the subject. Prepare consent from the subject of physical education in urban and rural secondary school and to give awareness to the student and prepare the consent of the sample to study in order to make sure gathering the data without any problem. For the sake of the respondent 's confidentiality, the researcher was creating awareness program that the result of each individual was shown by preparing consult form with all the respondents to sign the agreement by getting permission from the school administrative, department heads and other concerned bodies if necessary.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1. INTRODUCTION

This chapter deals with the analysis of data collected from the samples under this study. The purpose of this study was to compare the physical fitness level of rural and urban area secondary school students. The mean, standard deviation and independent sample t-test was used to compare for the statistically significant differences between rural and urban secondary school female student's fitness level.

4.2. RESULTS OF THE STUDY

4.2.1. Demographic characteristics of the study participants

Table 1. Demographic characteristics of rural and urban female students

Character	Group	Number	Mean	Standard Deviation	Sig 2-tailed
Age	Rural	100	17.628	1.526	0.35
	Urban	100	17.421	1.361	
Height	Rural	100	1.628	0.072	0.524
	Urban	100	1.593	0.054	
Weight	Rural	100	51.236	2.969	0.219
	Urban	100	52.372	3.219	

According to the above table 2 indicated that Demographic characteristics of rural and urban female students participants from Lalibela Woreda rural and urban secondary school students, Subjects were not statistically significant difference between rural and urban students on age, height and weight at 95 % confidence interval ($p=0.35$, $p=0.524$ and $p=0.219$) respectively. Mean of rural versus urban (17.628 versus 17.421 years), (1.628 versus 1.593 meter) and (51.236 versus 52.372 kg) on age, height and weight respectively.

TABLE 2. : *Descriptive Statistics of health-related physical fitness Variables rural and urban secondary school*

		Mean	N	Std. Deviation	Std. Error Mean
Muscular endurance	Rural	10.5700	100	2.02138	.20214
	Urban	7.8000	100	1.96433	.19643
Body composition	Rural	21.4642	100	2.52591	.25259
	Urban	24.1100	100	2.52751	.25275
Cardiovascular endurance	Rural	15.1330	100	1.12504	.11250
	Urban	13.8001	100	.71521	.07152
Flexibility	Rural	3.2928	100	2.67629	.26763
	Urban	4.5359	100	2.58483	.25848

The above table 3 indicated that the mean and standard deviation values of physical fitness of urban and rural school female students. These values were recorded as variable wise on rural female students, push up test 10.5700 and 2.0213, body mass index test 21.4642 and 2.52591, 1.5 mile run test 15.1330 and 1.12504, sit and rich test 3.2928 and 2.676, respectively. And also the values were recorded as variable wise on urban students, push up test 7.8000 and 1.96433, body composition 24.1100 and 2.52751, 1.5 mile run test 13.8001 and .71521, sit and rich test 4.5359 and 2.58483, respectively. As shown this result rural female students had better performance on muscular endurance and cardiovascular endurance while the urban students had better performance on body composition and flexibility.

Table 3. *Independent t test statistical correlation result between health-related physical fitness Variables*

Independent sample t- test rural versus urban female students

Fitness test variables	school	t-test for Equality of Means								
		F	Sig.	T	Df	Sig. (2-tailed)	MD	SED	95% Confidence Interval of the Difference	
									Lower	Upper
Muscular endurance	Urban	.913	.341	9.828	198	.000	2.770	.282	2.214	3.326
	rural			9.828	197.838	.000	2.770	.282	2.214	3.326
Body composition	Urban	.061	.804	-7.404	198	.000	-2.64580	.35733	-3.35046	-1.94114
	Rural			-7.404	198	.000	-2.64580	.35733	-3.35046	-1.94114
Cardiovascular endurance	Urban	20.120	.000	9.998	198	.000	1.33285	.13331	1.06995	1.59575
	Rural			9.998	167.786	.000	1.33285	.13331	1.06966	1.59604
flexibility	Urban	.084	.772	-3.341	198	.001	-1.24310	.37207	-1.97684	-.50936
	rural			-3.341	197.761	.001	-1.24310	.37207	-1.97684	-.50936

Table 4:- The above indicate that Rural female student were significantly better than urban female students 90 degree push up test of muscular endurance fitness, and 1.5 mile run test of

cardiovascular endurance at 95% confidence interval ($p=0.000$, $p=0.000$ and $p=0.000$) respectively $< (0.05)$. on push up test mean = 10.5700, body mass index = 21.4642 and 1.5 mile run test mean = 15.1330 respectively while sit and reach test 3.2928. And also the values were recorded as variable wise on urban students, push up test mean = 7.8000 body composition mean = 24.1100 and 1.5 mile run test mean = 13.8001. that means rural female students can perform 10.57 correct push up, in body mass index or fat percentage urban students more fat than rural students and in 1.5 mile run test urban students take less time than rural students. But, urban female students were better than rural female students on Sit and reach test of flexibility. Mean = 4.5359 cm versus 3.2928cm that means urban female students can more flexible sit and reach 4.5359 cm on average, while rural female students can flex 3.2928 on average. at 95% confidence interval difference was significant at 95% confidence interval ($p = 0.001$) $< (0.05)$.

4.3. DISCUSSIONS

- The finding of this study in each variable are discussed as follows. In case of the **90 degree push up test of muscular endurance** also indicate that, there was statistically significant difference between groups of rural female versus urban female secondary school students. The mean value of this fitness variables were 10.5700 versus 7.800 push-ups respectively. As shown that rural female student can perform correct pushups than urban female's students on average. Its indicate that rural female students had significantly better performance than urban female secondary school students, at 95% confidence interval ($p=0.000$) < 0.05 . For this regard (Shen CK, Huang J 2001; 31:81–90) observed that greater physical fitness of children had a significant relationship with larger living space and residing in rural areas. In the rural area students performing different activity such as dinging the farm /earth/ ,plugging the farm, carrying wood, harvesting the crops collecting, carrying the crops, carrying the thresh . This activity developing were better in muscular endurance,
- **In case of body composition**, there was statistical difference between students were significantly change of urban female students and rural female secondary school students on body mass index of body composition. The mean value of this fitness variables were urban 24.110 versus rural 21.4642. Its indicate that urban female students had significantly more fat percentage than rural female secondary school students of body mass index test of body composition at 95% confidence interval ($p=0.000$) $< (0.05)$.

Urban school female students they did not perform such activity like rural area students. simply they perform easy tasks like watch TV film ,making bed ,making wat, washing clothes, this tasks they pass their time by relaxing and simply sit and when they want move place to place they can move by car they did not move on foot and heavy tasks then developing were better in body composition (McGraw Hill. 2009) .

- **In case of cardio respiratory fitness**, there was statistically significant difference between rural female versus urban female secondary school students in cardio respiratory fitness when assessed in 1.5 mill run test. The mean value of this fitness variables were 15.1330 versus 13.8001 respectively. That means group of rural female students needs 15.1330 minutes to cover the distance on average, while group of urban female students need 13.8001 minutes on average to cover the given distance. Its shows that, the group of rural female students had significantly better performance than group of urban female secondary school students, at 95% confidence interval ($p=0.000 < (0.05)$). As shown this finding the researcher stated that rural resident is better than urban for the development of cardio respiratory fitness. For this regard (Uppal and Sareen2000) also conducted a study to find out the comparison on cardiovascular fitness between rural and urban students and revealed that students with rural background performed better than that of their counterparts in urban area. In the rural area students performing different activity such running, jumping and throwing stone this activity developing were better in cardio respiratory fitness.
- **In case of flexibility**: - there was statistical difference between students were significantly change of urban female students and rural female secondary school students on Sit and reach test of flexibility. The mean value of this fitness variables were urban 4.5359 versus rural 3.2928. Its indicate that urban female students had significantly better performance than rural female secondary school students of sit and rich test of flexibility at 95% confidence interval ($p=0.001 < (0.05)$).Several investigations have shown that flexibility training can immediately damage the production of muscle strength and potency (Bacurau et al 2009). Consequently, this type of training can contribute negatively to performance in high-performance sports (P N, Blum et al. 2013). In addition, high-intensity or long-term cardiovascular training is a peripheral phenomenon, and therefore this exercise modality diminishes the muscle glycogen reserves (Malanda A, et al. 2011). These glycogen reserves are

the most significant source of fuel used in the vigorous contraction of muscles (Kadaja et al L201). These means when you became to engage strength exercise your flexibility became decrease.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1. SUMMARY

The general purpose of the study was to compare health related physical fitness level of urban and rural area secondary school female students and to find out which of the two categories is more physically fit in responding to standardized level of physical fitness test. The data collected through fitness test from 100 rural and 100 urban students who were selected through proportional simple random sampling techniques. The physical fitness level of the students between the two groups was analyzing using SPSS statistics version 20. Such as means, standard deviation and independent sample t-test. Consequently, through interpretation and discussion of the result were made in chapter four, the following major finding were obtained: -

In order to achieve the objective of the study regarding to comparing rural and urban secondary schools female students' HRPF components, practical tests were employed. Practical testes include; Muscular endurance, CRF, Body composition and Flexibility.

The study used a combination of standardized instruments of FITNESSGRAM, EUROFIT and IPFT. To test physical fitness in this study 90⁰ push up test, 1 run t.5m run test body mass index test, sit and reach test respectively.

The data for the research was gathered from primary sources of data. The data obtained from the study showed that there are certain similarities and variations between urban and rural high school female students regarding fitness tests.

5.2. CONCLUSIONS

Based on the results of the findings, it was conclude that:

- There was significant difference between urban and rural school female students regarding flexibility, muscular endurance, body composition and cardiovascular endurance. There was significant difference between urban and rural school female students regarding flexibility, muscular endurance, body composition and cardiovascular endurance.
- Rural school female students were better in muscular endurance, and cardiovascular endurance
- Urban school female students were better in flexibility and body composition

5.3. RECOMMENDATIONS

The following points should be taken in to consideration by different stakeholders.

- There should be better consideration for rural school female students to maximize body composition and flexibility level.
- Great consideration should be given for lower muscular endurance and CRF of urban school female students.
- The Schools health and physical education teachers, student parents have responsibility to improve students' HRPF.
- Schools should organize and create opportunity to HRPF test programs for female students on regular basis so as to be physically fit. It should do better to fulfill equipment and facility for their students like dumbbell, safe court and comfort mate.
- Physical education teachers as a means to improve the HRPF status of female students' should encourage health related physical exercises among various classes and grade levels.

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APPENDIX

Appendix I : Students proportion by age, weight and height

Character	Group	Number	Mean	Standard Deviation	Sig 2-talid
Age	Rural	100	17.628	1.526	0.35
	Urban	100	17.421	1.361	
Height	Rural	100	1.628	0.072	0.524
	Urban	100	1.593	0.054	
Weight	Rural	100	51.236	2.969	0.219
	Urban	100	52.372	3.219	

Sample schools and Sample size

No	School type	School Name	Total no of students (Grade9)	Sample Size	Total no of students in %
1	Urban school	Lalibela	200	100	100
2	Rural school	Kulmesk	84	42	41.72
		Bilbila	66	33	32.76
		Tsinfesiet	50	25	25.2
3	Grand total	4	400	200	100

Appendix II - Students test result summary with variables

		Mean	N	Std. Deviation	Std. Error Mean
Muscular endurance	Rural	10.5700	100	2.02138	.20214
	Urban	7.8000	100	1.96433	.19643
Body composition	Rural	21.4642	100	2.52591	.25259
	Urban	24.1100	100	2.52751	.25275
Cardiovascular endurance	Rural	15.1330	100	1.12504	.11250
	Urban	13.8001	100	.71521	.07152
Flexibility	Rural	3.2928	100	2.67629	.26763
	Urban	4.5359	100	2.58483	.25848

Independent sample t-test rural versus urban female students

Fitness test variables	school	t-test for Equality of Means								
		F	Sig.	T	Df	Sig. (2-tailed)	MD	SED	95% Confidence Interval of the Difference	
									Lower	Upper
Muscular endurance	Urban	.913	.341	9.828	198	.000	2.770	.282	2.214	3.326
	Rural			9.828	197.838	.000	2.770	.282	2.214	3.326
Body composition	Urban	.061	.804	-7.404	198	.000	-2.64580	.35733	-3.35046	-1.94114
	Rural			-7.404	198	.000	-2.64580	.35733	-3.35046	-1.94114
Cardiovascular endurance	Urban	20.120	.000	9.998	198	.000	1.33285	.13331	1.06995	1.59575
	Rural			9.998	167.786	.000	1.33285	.13331	1.06966	1.59604
Flexibility	urban	.084	.772	-3.341	198	.001	-1.24310	.37207	-1.97684	-.50936
	Rural			-3.341	197.761	.001	-1.24310	.37207	-1.97684	-.50936

Appendix III- Students HRPF test result in rural schools

Test result summary									
No	90° push up	BMI	1.5m run	Sit and rich	No	90° push up	BMI	1.5m run	Sit and rich
1	10	18.68	13.45	3.8	51	14	23.56	13.68	-2.1
2	16	21.32	14.35	3.1	52	11	21.23	14.28	0.6
3	9	22.66	14.26	4.8	53	16	25.63	14.26	6.5
4	14	24.89	15.52	4.2	54	14	22.3	16.32	8.7
5	12	17.49	16.24	-2.4	55	11	21.7	14.56	6.7
6	13	21.38	14.65	-0.6	56	12	25.17	18	11.1
7	8	17.84	14.26	2.5	57	11	14.25	15.23	-1.4
8	14	20.36	14.5	4.5	58	7	23.25	14.35	1.2
9	11	22.78	16	3.4	59	10	24.56	13.26	1.4
10	15	19.34	18	2.3	60	10	28.79	16.24	1.6
11	12	20.56	16	1.5	61	10	21.15	14.68	-0.5
12	11	22.15	14.2	1.6	62	11	23.65	16.82	-2.4
13	10	24.68	16	8.4	63	10	17.58	16.24	3
14	9	23.65	15	2.1	64	8	17.89	14.86	3.4
15	9	20.25	14.82	3.5	65	7	19.96	14.82	3.5
16	12	21.65	16.82	6.5	66	14	21.08	14.32	3.6
17	9	22.54	14.25	-2.6	67	11	20.09	14.25	2.7
18	11	24.32	14.32	0.6	68	11	23.38	14.23	3.6
19	12	17.65	15.2	2.3	69	10	21.78	14.32	7.6
20	14	19.71	14.05	4.7	70	7	20.89	16.24	5.8
21	12	23.24	14.08	6.5	71	9	21.56	14.26	5.2
22	11	20.14	15	3.1	72	10	23.25	16	6.8
23	7	24.47	16	3.2	73	9	24.65	15.2	7.
24	8	21.04	14.2	3.6	74	8	23.2	16	5.3
25	12	25.14	16.32	2.1	75	9	21.56	15	4.6
26	9	21.15	18	2.3	76	8	20.71	16.4	4.6
27	10	25.14	16	2.5	77	10	25.26	16	8.7

28	9	20.16	15	4.5	78	10	19.77	16.23	2.5
29	11	24.16	18	3.1	79	10	20.19	14.25	1.4
30	12	18.06	14.25	2.4	80	8	18.02	15.26	-0.3
31	12	19.58	14.35	3.1	81	10	20.52	14.82	5.9
32	14	23.24	14.26	2.4	82	11	20.76	14.29	2.4
33	11	26.58	15.38	2.8	83	8	20.5	14.86	2.4
34	8	17.36	15.36	-1.6	84	10	24.25	18	3.6
35	8	21.25	14.29	2.5	85	11	20.02	14.23	3.8
36	8	24.89	13.12	4.5	86	12	23.26	14.86	3.2
37	9	19.45	16.24	2.4	87	10	21.25	14.05	1.4
38	9	17.52	14	2.7	88	11	23.28	14.36	-2.3
39	11	18.65	15.25	3.5	89	10	24.2	15.26	3.8
40	10	18.56	16	6.4	90	11	23.18	14.235	1.2
41	11	17	14.23	3.2	91	9	20.41	15.26	3.5
42	13	19.25	15.23	3.2	92	8	21.75	16.23	3.5
43	14	21.25	16.25	5.7	93	14	20.18	14.26	1.2
44	11	21.89	14.26	6.7	94	8	20.36	13.25	3.6
45	9	22.25	15.23	8.6	95	13	19.42	14.26	4.3
46	12	22.45	15.26	2.4	96	11	21.05	16.35	2.6
47	10	24.56	15.23	7.8	97	10	19.08	14.32	3.2
48	11	21.36	16.24	5.4	98	10	17.09	14.84	1.4
49	9	17.85	14.23	3.6	99	9	21.52	18	3.2
50	12	25.32	14.84	-2.2	100	11	21.42	14.01	1.5

Appendix III- Students HRPF test result in urban schools

Test result summary										
No	90° push up	BMI	1.5m run	Sit and rich	No	90° push up	BMI	1.5m run	Sit and rich	
1	1.23	23.15	13.84	4.45	51	10	25.78	13.36	1.23	
2	-1.78	26.56	13.25	5.24	52	8	26.13	13.25	-1.78	
3	0.86	20.52	14.5	5.89	53	7	19.58	13.63	0.86	
4	7.56	21.68	15.6	4.72	54	8	25.66	13.65	7.56	
5	6.58	25.89	14.25	4.68	55	6	24.68	13.25	6.58	
6	4.68	26.32	13.2	5.78	56	6	23.15	13.26	4.68	
7	3.89	24.65	13.8	5.65	57	5	19.27	13.87	3.89	
8	3.75	27.52	13.24	5.21	58	6	27.28	13.65	3.75	
9	4.89	25.65	13.8	4.78	59	7	26.45	14.36	4.89	
10	4.76	26.85	13.57	4.36	60	6	25.23	13.24	4.76	
11	3.21	24.65	16	3.98	61	8	24.54	13.18	3.21	
12	-1.6	23.75	14.5	3.89	62	7	24.65	13.68	-1.6	
13	-1.24	24.06	14.26	4.23	63	6	23.22	13.64	-1.24	
14	4.6	23.25	15.23	4.58	64	8	24.65	13.65	4.6	
15	4.8	21.65	14.25	3.74	65	7	24.25	13.58	4.8	
16	6.4	28.02	13.8	2.43	66	8	17.26	13.65	6.4	
17	5.8	26.81	13.5	1.82	67	10	27.15	13.54	5.8	
18	7.2	24.32	13.6	3.83	68	6	26.58	13.64	7.2	
19	7.45	25.54	13.5	4.19	69	10	24.65	13.63	7.45	
20	7.62	23.02	13.2	4.35	70	7	24.69	13.24	7.62	
21	1.6	25.74	13.64	-1.34	71	7	25.78	13.64	1.6	
22	5.4	19.75	13.58	3.56	72	6	19.32	13.65	5.4	
23	4.8	20.14	13.64	0.99	73	8	25.42	13.65	4.8	
24	3.5	19.55	13.28	4.56	74	9	24.32	13.54	3.5	
25	4.8	26.75	12.26	5.02	75	9	19.23	14.26	4.8	
26	4.6	24.32	12.68	5.76	76	6	24.11	14.23	4.6	
27	3.7	25.32	13.08	6.78	77	7	19.23	14.25	3.7	

28	7.4	24.75	13.2	8.65	78	7	25.55	14.32	7.4
29	7.65	26.32	13.24	2.45	79	11	24.65	14.58	7.65
30	5.89	24.09	13.24	7.89	80	7	24.78	13.26	5.89
31	5.23	25.65	13.24	5.48	81	8	24.32	13.25	5.23
32	6.89	23.89	13.24	3.68	82	8	25.45	13.36	6.89
33	7.2	19.32	13.24	-2.28	83	12	21.23	13.25	7.2
34	5.36	26.78	13.26	-2.12	84	7	25.09	13.36	5.36
35	4.68	19.76	14.5	0.65	85	8	25.26	13.25	4.68
36	4.68	21.6	14.62	6.58	86	11	25.78	13.63	4.68
37	8.79	22.58	14.23	8.78	87	6	24.19	13.65	8.79
38	2.56	27.58	13.54	6.78	88	7	24.23	12.28	2.56
39	5.68	24.73	13.87	11.14	89	6	19.54s	13.89	5.68
40	-0.3	24.32	13.65	10.78	90	6	19.35	14.56	-0.3
41	5.9	21.54	13.54	1.23	91	8	25.32	14.23	5.9
42	7.56	25.56	14.26	1.45	92	7	27.54	14.58	7.56
43	4.65	25.12	14.23	1.68	93	8	24.38	16.23	4.65
44	2.89	25.32	14.25	6.58	94	7	26.78	14.32	2.89
45	5.49	25.74	14.32	5.78	95	6	17.25	15.26	5.49
46	4.73	19.24	14.58	4.35	96	9	26.32	14.6	4.73
47	6.32	27.25	13.26	3.49	97	8	24.78	15	6.32
48	7.25	25.32	13.25	3.89	98	11	25.6	14	7.25
49	3.89	25.26	13.36	3.98	99	9	24.58	16	3.89
50	4.25	25.26	13.25	5.87	100	7	24.36	12.56	4.25