PHYSICAL ACTIVITY LEVEL OF STUDENTS AND EXPERIENCES OF TEACHERS AFTER THE HEALTH-RELATED PHYSICAL EDUCATION REFORM IN SECONDARY SCHOOLS

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

PHYSICAL ACTIVITY LEVEL OF STUDENTS AND EXPERIENCES OF TEACHERS AFTER THE HEALTH-RELATED PHYSICAL EDUCATION REFORM IN SECONDARY SCHOOLS

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The purpose of this study was to examine physical activity level of students and experiences of teachers after the Health-Related Physical Education Reform in secondary schools. Participants were 153 seventh grade students (83 girls and 70 boys) and their physical education teachers (six teachers) from three public secondary schools with limited, moderate and good physical infrastructure for physical education/activity in Ankara. For data collection, pedometer was used to measure students' physical activity level and semi-structured interviews were conducted with teachers. Quantitative data was analyzed by descriptive statistics, Analysis of Variances and Paired Sample t Test. Interview data was analyzed by content analysis method. According to the findings, students met approximately 28% and 31% (girls and boys) of daily physical activity recommendations during the school time. Boys were more physically active than girls during school time ($p<0.05$). Students' attending the (elective) Sport & Physical Activities course were more physically active during school time than students attending only (compulsory) Physical Education & Sport course ($p<0.05$). Students' were more physically active during compulsory course compared to elective course ($p<0.05$). Physical activity infrastructure of

schools had no effect on students' physical activity levels during school time ($p>0.05$). Interview findings revealed that teachers' practices in physical education setting influenced by their a) perception of school principals, students, other physical education teachers and parents' expectations, b) perception of physical education related educational policies, social setting and physical setting in the school, c) knowledge of physical education curriculum and d) knowledge of subject matter and its teaching.

Keywords: Health-Related Physical Education, Curriculum Reform, Physical Activity, Secondary School Students

ÖZ

ORTAOKULLARDA SAĞLIKLA İLGİLİ BEDEN EĞİTİMİ REFORMU SONRASI ÖĞRENCİLERİN FİZİKSEL AKTİVİTE DÜZEYLERİ VE ÖĞRETMEN DENEYİMLERİ

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Bu çalışmanın amacı ortaokullarda sağlıkla ilgili beden eğitimi reformu sonrası öğrencilerin fiziksel aktivite düzeylerinin ve öğretmen deneyimlerinin incelenmesidir. Çalışmaya Ankara'da bulunan beden eğitimi için sınırlı, orta ve iyi fiziksel altyapıya sahip üç ortaokuldan 153 yedinci sınıf öğrencisi (83 kız ve 70 erkek) ve öğretmenleri (6 öğretmen) katılmıştır. Verilerin toplanmasında, öğrencilerin fiziksel aktivitesini beş ardışık okul günü boyunca ölçmek amacıyla adımsayar kullanılmış ve öğretmenlerle yarı yapılandırılmış görüşmeler yapılmıştır. Nicel veriler betimleyici istatistik, Varyans analizi ve Bağımlı Örneklem t Testi ile analiz edilmiştir. Görüşme verilerinde ise içerik analizi yöntemi kullanılmıştır. Bulgulara göre öğrencilerin tavsiye edilen günlük fiziksel aktivitenin yaklaşık olarak %28 ve %31'ini (kızlar ve erkekler) okul saatleri boyunca karşıladıklarını göstermektedir. Erkek öğrenciler kız öğrencilerden okul saatleri boyunca fiziksel olarak daha aktiftir ($p<0.05$). Seçmeli Spor ve Fiziki Etkinlikler dersine katılan öğrenciler sadece zorunlu Beden Eğitimi ve Spor dersine katılan öğrencilerden okul saatleri boyunca fiziksel olarak daha aktiftir ($p<0.05$). Öğrenciler seçmeli dersle karşılaştırıldığında zorunlu ders süresince fiziksel olarak daha aktiftir ($p<0.05$). Okulların fiziksel aktivite altyapılarının öğrencilerin okul saati

boyunca fiziksel aktivite düzeyleri üzerinde bir etkisi yoktur ($p>0.05$). Yarı yapılandırılmış görüşme bulguları beden eğitimindeki öğretmen uygulamalarının öğretmenlerin a) okul müdürleri, öğrenciler, diğer beden eğitimi öğretmenleri ve ebeveyn beklentileri algısından b) beden eğitimi ile ilgili eğitim politikaları, sosyal çevre ve okulun fiziksel çevresi algısından c) beden eğitimi öğretim programı bilgisinden ve d) konu ve konu öğretimi bilgisinden etkilendiğini ortaya koymuştur.

Anahtar Kelimeler: Sağlıkla İlgili Beden Eğitimi, Öğretim Programı Reformu, Fiziksel Aktivite, Ortaokul Öğrencileri

To my family

and

To my husband who is my everything

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LIST OF ABBREVIATIONS

MoNE	Ministry of National Education
MVPA	Moderate to Vigorous Physical Activity
SPA	Sport and Physical Activities
TOÇBİ	Türkiye'de Okul Çağı Çocuklarında (6-10 yaş grubu) Büyümenin İzlenmesi Projesi
WHO	World Health Organization

CHAPTER 1

INTRODUCTION

Physical inactivity and sedentary behaviours during the childhood and youth are among the important contributors of the obesity epidemic (Prentice-Dunn & Prentice-Dunn, 2012; Strong et al., 2005). According to the World Health Organization (WHO, 2010a), low physical activity level causes health problems related with inactivity. High levels of sedentary time, independent of the amount of physical activity are related with obesity and also metabolic risks (Biddle, Gorely, & Stensel, 2004; Ekelund et al., 2006). Studies indicate that obese children and adolescents are more likely to become obese adults than their normal weight peers and experience adverse health outcomes prematurely (Craigie, Lake, Kelly, Adamson, & Mathers, 2011; Gordon-Larsen, Nelson, & Popkin, 2004; Guo, Wu, Chumlea, & Roche, 2002; Singh, Mulder, Twisk, van Mechelen, & Chinapaw, 2008; Wright, Parker, Lamont, & Craft, 2001).

Nevertheless, the risk for childhood or adolescent obesity, developing costly and deadly obesity-related chronic disease are reduced through regular physical activity in youth (Steinberger & Daniels, 2003; Strong et al., 2005). Especially, secondary school age is essential because physical development rate of students begins to increase dramatically during those years. At the same time, students should overcome basic motor skills, and develop their own hobbies and value judgments (Ściślak, Rokita, & Popowczak, 2013). However, research indicated that physical activity levels of students have decreased during secondary school years (Fredricks & Eccles, 2002; Kin-Isler, Asci, Altintas, & Guven-Karahan, 2009; Parish & Treasure, 2003). For this reason, interventions targeting secondary school children may be more effective than targeting adults.

According to the public health authorities, children and adolescents should engage in moderate or vigorous intensity aerobic physical activities that should comprise 60 or more minutes a day and high intensity physical activity should be included at least 3 days a week (WHO, 2010a). Also, the National Association for Sport and Physical Education (NASPE, 2011) recommends the engagement of secondary school age youth in daily physical education that is equivalent to 225 minutes/week. At least 50 % of regular physical education course time should be spent in moderate to vigorous physical activity (MVPA).

Despite physical activity recommendations have conventionally been time and intensity based, the pedometer has emerged as a simple and effective instrument for measuring and promoting physical activity (Lubans, Morgan, & Tudor-Locke, 2009; Schneider, Crouter, & Bassett, 2004; Tudor-Locke, 2002). While pedometer is not created to examine intensity of physical activity directly, it is an useful device to track the volume of daily physical activity demonstrated as a number of steps' summary output each day (Tudor-Locke, McClain, Hart, Sisson, & Washington, 2009).

In recent years, there has been an increased interest in objective assessment of youth' daily physical activity using pedometers (Brusseau & Hannon, 2013; Hands & Parker, 2008; Lubans et al., 2009). The researchers have accepted the pedometers as practical physical activity measurement tools that are especially sensitive to ambulatory activities (i.e. walking, running) because they are small, light-weight and noteless devices (Bassett, 2000; Sirard & Pate, 2001; Tudor-Locke et al., 2002). Pedometers can be helpful in physical education courses as well to measure students' physical activity levels during course. Thereby, they ensure a measure of accountability for the program and motivates students to be active participants (Dunn & Tannehill, 2005).

Despite pedometers' widespread usage, there is no consensus regarding pedometer (steps/day) suggestions for children currently. Previous youth pedometer recommendations were 13.000 steps/day for boys and 11.000 steps/day for girls. Those scores were established by using the mean values of U.S. children (Vincent &

Pangrazi, 2002). In a different study (Tudor-Locke et al., 2004) that utilized contrasting groups' methodology to establish standards referenced to overweight status, utilized body mass index (BMI) as a criterion to improve recommendations for pedometer-determined activity in children. In their study, daily step count targets of 15.000 boys and 12.000 girls were proposed as the optimal cut-off points for predicting overweight and normal BMI. However, studies relating physical activity levels of children have showed that the physical activity recommendations of 60 minutes or more of MVPA or equivalent step counts daily were not being met by children (Beighle, Erwin, Morgan, & Alderman, 2012; Strong et al., 2005; Troiano et al., 2008).

Schools are ideal settings to influence the physical activity of children to meet these recommendations because they spend a considerable amount of their time in schools than any other setting with the exception of their homes. Therefore, in school, students get an opportunity to acquire a substantial portion of recommended daily physical activity through physical activity opportunities including active school transport (Buliung, Mitra, & Faulkner, 2009; van Sluijs et al., 2009), activity during recess integrated into the school day (Efrat, 2013; Erwin et al., 2012) and physical education (Elliot, Erwin, Hall, & Heidorn, 2013; Lee, Burgesson, Fulton, & Spain, 2007; Trudeau & Shephard, 2005). Particularly, physical education has been identified as a main entity that can positively impact physical activity behavior of children and encourage lifelong activity habits (Morgan, Beighle, & Pangrazi, 2007).

Physical education is a stage of education that aims to contribute to an individual's development of physical, cognitive, and psychosocial competencies (Yli-Piipari, 2014). In addition, students can obtain the tools for participating in safe and healthy activities during lifetime through effective physical education (Houston & Kulinna, 2014). According to the K12 physical education goals, students should succeed and learn the following outcomes (MoNE, 2013a; SHAPE, 2014): Development of motor and/or sport skills, acquisition of knowledge about physical activity, enhancement of knowledge about physical activity levels and/or health-related physical fitness, improvement of personal and social responsibility, refinement of attitudes or

perspectives regarding physical activity. Accomplishing the aims of the physical education can be possible only with a curriculum that is answering to the needs of the student and society.

A curriculum is a consecutive system for delivering physical education learning experiences to students in grades K-12. It can be defined as a plan for action or a written document that includes strategies for achieving desired goals or ends (Ornstein & Hunkins, 2004). In order to provide guidance to physical educators from a particular district or school the curriculum framework is designed. It provides insights on what, how and in what order, content of physical education should be learned and taught. It provides us very useful information since the application of a developmentally appropriate sequence of learning activities is critical to developing a quality physical education program. Therefore, curriculum revision should be taken into consideration as an ongoing process that has an effect on student learning (Sullivan & Dillon, 2009).

Education has been effected by rapid scientific and technological developments as in many other fields. Therefore, education has undergone noticeable reform to meet new challenges encountered in modern society. Physical education programs are also considerably affected by current social and professional perspectives (Darst & Pangrazi, 2006).

Over the past several decades there has been increasing academic, political and media interest all over the World, in the role of schools and physical education in promoting physical activity, health and active lifestyles (Kulinna, McCaughtry, Martin, Cothran, & Faust, 2008; MoNE, 2013a; WHO, 2010b). Therefore, an ultimate goal of physical education curriculum shifted from motor skill development or athletic ability to what is commonly referred to as health-related physical activity or fitness (Gao, Newton, & Carson, 2008; Payne & Isaacs, 2005).

In health related physical activity or fitness main purpose is the improvement for lifelong physical activity. For that reason, physical education gives priority to supply

opportunities for students to involve in pleasurable physical activity, to acquire motor and behavioral ability and to become physically fit. For physical education to provide a considerable contribution to student' physical activity levels, more time should be allocated for it. Besides, aims of health-related physical education can be met by increasing the amount of time allocated physical education curriculum in schools (Fairclough & Stratton, 2005). However, schools have problems for providing enough time and resources for students to meet all the standard physical education' objectives, the concept of "health-related physical education" has been encouraged (Pate et al., 2006).

The role of physical education seems essential in this regard because with an promotion in physical education courses being suggested as a promising intervention strategy (Kahn et al., 2002). For this purpose, in Turkey, an elective course named "Sport and Physical Activities" that takes 2 or 4 class hours in a week was included to secondary school curriculum in addition to compulsory physical education and sport course (MoNE, 2013b). Therefore, examining the course type may be significant to determine which course is more effective to increase physical activity level of students and also to indicate their effect on total physical activity level of students in school days.

In the literature, however, in school physical activity level differences between girls and boys has been well documented (Alderman, Benham-Deal, Beighle, Erwin, & Olson, 2012; Kin-İşler et al., 2009; Tudor-Locke, Lee, Morgan, Beighle, & Pangrazi, 2006). These studies indicate that boys are more physically active compared to girls. It can be said that gender is an important variable for the physical activity level of students. Thus, examining gender effect with regard to physical activity on elective sport and physical activities course is valuable for physical education curriculum.

As known schools are suitable and influential environments for increasing physical activity level of students, since they spend a large amount of daylight hours in schools. The physical infrastructures of school such as playground, sport materials and a

gymnasium provide physical activity opportunities for student. The size of school playground is important to supply an appropriate setting for students to engage in moderate to vigorous physical activity. According to an explorative study by Harten, Olds, and Dollman (2008), playground space is an important variable to determine male students' free play activity. Also, Ridgers, Fairclough, and Stratton (2010) stated that suitable play space for each child was a positive predictor of observed vigorous activity. For that reason, the effects of school' physical activity infrastructures on student' physical activity level was investigated in this study.

As mentioned before objectives of physical education curriculum has undergone a change and focused on health related fitness so as to provide students required knowledge, skills and attitudes for a lifelong physical activity. Physical education teachers who play a significant role in planning, implementing, and evaluating the curriculum must be well informed about health related physical education content knowledge to supply effective and high quality instruction to the students. Hence, examining the physical education teacher's experiences may be important to evaluate the effectiveness of health related physical education curriculum. By this way, evidence about physical education teachers' health related knowledge weakness and their implementation challenges of new curriculum can be obtained. In addition, a study related with the health related physical education experiences of the teachers may provide an insight for preservice teacher development opportunities.

1.1 Purpose of the Study

In Turkey, physical education policies has been reformed with an emphasis on health related physical activity and fitness. The most remarkable regulation related with secondary school physical education is the creation of an elective "Sport and Physical Activities" course that is 2 or 4 hours weekly in addition to compulsory secondary school PE class that is 2 hour in a week (MoNE, 2013a; MoNE, 2013b). The focus of the Turkish Secondary Schools Physical Education Curriculum shifted from sport oriented to health-related physical activity. Approximately 40% of the curricula is emphasized on Health Related Physical Activity and Fitness topics including lifetime

physical activity/sport, aerobic endurance, muscular endurance, flexibility and body weight management (MoNE, 2012; MoNE, 2013a; MoNE, 2013b).

After this curriculum reform, there is no research relating effectiveness and feasibility of physical education in terms of teachers and students. Therefore, the purpose of this study was to examine the physical activity of students and the experiences of teachers after the health-related Physical Education reform in secondary schools.

1.2 Research Questions

1. What is the physical activity level of students during the school time after the secondary school physical education reform in Turkey?

   Sub questions

   1. Does gender affects physical activity level of students during school time?
   2. Does course type (compulsory Physical Education & Sport and elective Sports & Physical Activities) affect physical activity level of students during school time?
   3. Do gender and course type affect physical activity level of students during school time?
2. Do the physical infrastructure of the school for physical activity (limited, moderate, good) affect physical activity level of students during school time?
3. Is there a significant difference on the physical activity level of students between compulsory “Physical Education & Sport” and elective "Sport & Physical Activities” courses?
4. What are the experiences of physical education teachers after the Health-Related Physical Education Reform?

1.3 Significance of the Study

Students’ physical activity levels in school have been a foundation for the evaluation of the physical education programs’ effectiveness. Understanding the effect of physical education on children’ activity levels may help to constitute future policy reform related to the health of this population. Also, understanding in-school physical

activity policy and program implementation practices is essential for assessment of school-based physical activity policy' effect. Since, previous studies show that policies promoting physical activity were applied in schools but inappropriate application practices existed in these schools (Alfrey, Cale, & Webb, 2012; Jin, 2013; Johns, 2002). Therefore, implementation and fidelity of physical education program are significant concepts to understand effectiveness and repetition of the program.

There is lack of information in Turkey on physical activity levels of students and the experiences of teachers after the health-related physical education reform in secondary schools. This study will provide the important knowledge about to what extend students' in school physical activity levels meet the recommendations identifed by WHO to protect children and youth health with respect to gender, course type and school physical infrastructure for physical activity. Also, understanding of teachers' thoughts relating the this subject are expected. The findinds will provide suggestions about "Physical Education and Sports" and "Sport and Physical Activities" courses' content, implementation and professional development needs of relevant teachers.

1.4 Definition of the Terms

The following operational definitions were provided in support of research questions.

Physical activity: It is any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level (CDC, 2015).

Physical activity level: It refers to student' number of step for meeting physical activity recommendations in children (Tudor-Locke et al., 2004).

Course type: It refers to two different courses related to physical education in curriculum. They are Physical Education & Sport and Elective Sport & Physical Activities courses (MoNE, 2013a; MoNE, 2013b).

School Physical Activity Infrastructure: Opportunities of schools to provide physical activity for students (playground, sport materials and a gymnasium).

Health-related physical education: It refers to a type of physical education program that focuses in-class participation in moderate to vigorous physical activity and motor and behavioral skills' mastery that encourages lifelong physical activity (Caspersen, Powell, & Christenson, 1985).

CHAPTER 2

REVIEW OF THE LITERATURE

This chapter includes the literature synthesis related to physical activity and benefits of physical activity, physical education, health-related physical education curriculum reform, physical education teachers' professional competencies, and physical education related infrastructure of the schools.

2.1 Physical Activity

2.1.1 Basic definitions

Physical activity is defined as "*any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level*" (CDC, 2015). Warburton, Nicol, and Bredin (2006) also define physical activity as "*all leisure and non-leisure body movements resulting in an increased energy output from the resting condition*".

Physical activity is categorized a number of ways with regard to intensity or expenditure of energy. For many people regular moderate intensity physical activity is most effective way to get health benefits in a comfortable pattern. While a person engages in moderate-intensity physical activity, it feels warm and a little out of breath and also its heart beat increases. A brisk walk or jogging that increases to metabolism at the minimum three times its resting level can be given as an example for moderate intensity physical activity for most people (Cavill, Kahlmeier & Racioppi; 2006). If an activity is fast enough to work up a sweat and get a person out of breath such as running or fast cycling, this activity can be named vigorous intensity physical activity. This physical activity increases the metabolism to at least six times resting level of it. Sport

or exercise is a way for achieving vigorous intensity physical activities (Cavill et al., 2006).

2.1.2 Benefits of physical activity

The positive link between physical activity and health for youth has been well documented in the literature. A number of review studies revealed evidence-based data related with positive effects of physical activity on obesity, osteoporosis, diabetes, injuries, musculoskeletal health, several components of cardiovascular health, adiposity in overweight youth, some kinds of cancer, blood pressure in mildly hypertensive adolescents and weight control (Hallal, Victora, Azevedo, & Wells, 2006; Janssen & LeBlanc, 2010; Strong et al., 2005; Warburton et al., 2006).

The review study of Strong et al. (2005) also presented evidence related to psychological benefits of physical activity on mental health ailments such as stress, self-concept, anxiety, and depression symptoms. Similarly, the social development of young people can be promoted by providing opportunities for self-expression, building self-confidence, social interaction and integration through participation in physical activity (WHO, 2012).

According to Lankenau, Solari, and Pratt (2004), physical activity positively affects healthy behaviors (e.g. improve diet) and discourages the use of tobacco, alcohol, and drugs. Another study findings examining the relationship between physical activity and other health-related behaviors indicated that smoking, inconsistent seatbelt use while driving a car, and insufficient consumption of fruits and vegetables are related with low levels of physical activity (Dinger & Vesely, 2001).

While the mechanism underpinning a causal, positive connection between cognitive function and physical activity has yet to be agreed upon, supporting studies state that physically fit children are prone to have better cognitive processing and get better academic results (Buck, Hillman, & Catelli, 2008; Rasberry et al., 2011; Tomporowski et al. 2008; Trudeau and Shepherd, 2008).

The connection between physical activity and both cognitive function and academic performance was studied more recently. One of the largest study was made to evaluate the longitudinal relationship between changes in fitness and academic outcomes among 83.000 urban middle school children by Bezold et al. (2014). The results showed that academic rankings of students that increased their fitness level by ≥ 20 percentile points improved in the following year in comparison with the other students whose fitness level did not change.

Another study by Van Dusen, Kelder, Kohl, Ranjit, and Perry (2011) aimed to quantify the cross-sectional association between physical fitness measurements and standardized mathematics with reading academic achievement scores using a large sample of 254.743 from primary school to high school children and adolescents. According to their findings, fitness was exceedingly and significantly connected to academic performance. A dose-response connection was found between cardiovascular fitness and academic performance independent of other socio-demographic and fitness variables.

2.1.3 Physical activity level of youth and its consequences

WHO (2014) recommends that children and adolescents aged 5-17 years

"*Should do at least 60 minutes of moderate to vigorous-intensity physical activity daily,*

Should include activities that strengthen muscle and bone, at least 3 times per week."

Despite the above mentioned worth related with an active lifestyle, a high percentage of school-age youth are not active enough to obtain health benefits (Dollman, Norton, & Norton, 2005; NASPE, 2004; Riddoch et al., 2007; van Sluijs, McMinn, & Griffin, 2007). Globally, 81% of 11-17 years adolescents were not physically active enough in 2010 (WHO, 2014). Although adolescent boys were more active than adolescent girls, WHO recommendations were not being met by both of them with 78% vs. 84% (WHO, 2014). More recently, Hallal et al. (2012) reported that worldwide 80.3% of

adolescents do not meet recommended levels of physical activity identified for public health guidelines.

Recently, Tudor-Locke et al. (2004) pointed out another criteria for health enhancing level of physical activity for the children and youth. According to them, boys and girls should accumulate at least 15.000 and 12.000 daily steps, respectively. This criteria is really important for the objective evaluation of physical activity level of youth as pedometers become cheaper and reliable tool to measure physical activity level via daily step count.

A recent report by a Turkish NGO (Aktif Yaşam Derneği, 2015) using the daily steps taken as an indicator of physical activity level of the children and youth (7-12 years old) indicated that 85% of the girls (average daily steps: 9.733) and 94% of the boys (average daily steps: 10.924) had lower daily steps than the recommended level. Similar findings were reported by Cengiz and Ince (2014) in a group of middle school students who were living in a rural area in Turkey. In this study, authors reported approximately 10.000 steps/day for the middle school students. In another study in Turkish setting, Kin-Işler et al. (2009) found out an age-related decline in physical activity level, lower physical activity in girls as compared to boys, and a decrease in attending moderate to vigorous physical activities in 11-14 years old Turkish children and youth.

As a negative consequence of low level of physical activity participation in children and youth, childhood overweightness and obesity rates have been increased dramatically. Overweightness and obesity were identified as an excess of body fat mass that forms a risk to health (Bellizzi & Dietz, 1999). A rough measurement of obesity by population is the body mass index (BMI) that defined as weight of a person in kilograms divided by the square of his/her height in meters (kg/m^2). An adult person with a BMI equal or more than to 25 is considered overweight and with a BMI equal or more than to 30 is considered obese. For children and youth, BMI percentiles are used for the deciding overweigthness and obesity.

According to WHO (2012) global estimates, the worldwide prevalence of overweight and obese adults (≥18 years) has doubled in the last 20 years. Overall, about 39% of the world's adults population were overweight (39% of men and 40% of women) and 13% were obese (11% of men and 15% of women) in 2014. Thus, more than 1.9 billion adults worldwide were overweight and of these over 600 million were obese.

Recent studies in the Turkish setting indicate that approximately 10% of the primary, secondary and high school students are obese, and overweightness and obesity rate increase by time (Dündar & Öz, 2012; Gökler et al., 2015; TOÇBİ, 2011).

These children are most probably to become obese into adulthood and have a greater risk of suffering from obesity-associated health problems such as respiratory difficulties, cardiovascular problems, musculoskeletal problems, endocrine and metabolic abnormalities and disturbances, diabetes, some cancers (endometrial, breast, and colon) (Freedman, Mei, Srinivasan, Berenson, & Dietz, 2007; Kakinami et al., 2012). Also, they are likely experience psychological problems, social bias, eating disorders, body shape dissatisfaction and negative self-esteem not only in adulthood, because the relationship between obesity and these all problems has been evidenced in childhood as well (Daniels, 2009; WHO, 2012). Therefore, prevention of childhood obesity must be high priority of societies challenging this problem.

Although many of these diseases' occurence take place in adulthood, it is increasingly understood that their progress begins in childhood and adolescence (Parsons, Power, Logan, & Summerbelt, 1999). Preferences of adolescents in their early life stage may shape their long periods of adulthood because people form many of own way of life preferences while they were adolescent (Hallal et al, 2006). Researchers stated that physical activity in adolescence is an important contributing factor to adult physical activity levels. Hence, promoting physical activity must start early in life.

2.2 Physical Education

Physical education has the potential to increase physical activity levels for all children and, it can play an important role in supporting public health (Wallhead & Buckworth, 2004). Schools are identified as ideal settings to promote physical activity. Physical education programs of schools can provide an opportunity for children and adolescents at all ages. By this way, physical activity levels and health-related physical fitness of this youths can increase (Levin, McKenzie, Hussey, Kelder, & Lytle, 2001). In addition, according to findings of review studies in school interventions are more effective and efficient to promote physical activity (CDC, 1997; Collins et al., 2002).

Physical education is within the core component of the school curriculum and emphasizes on human and motor development got through physical activities knowledge and practice (MoNE, 2013a). In addition, physical education courses have targeted to increase knowledge and positive attitudes about a healthy lifestyle. Although physical education' focus during the last decades has become different, the main objectives have remained relatively constant: to supply students with the knowledge, behaviors, abilities, skills, and confidence to be physically active during their lifetime (Sallis, Floyd, Rodriguez, & Saelens, 2012). Currently, a quality physical education program should support the students daily physical activity, physical fitness, competency in a variety of physical and sport skills, and knowledge for living an active and healthy lifestyle (MoNE, 2013a).

2.2.1 The influence of Physical Education on Physical Activity

Physical education has the potential to effectively supply all children and adolescents with regular and structured physical activity because they have to attend school. Also, physical education may be the only chance for school age children to engage in physical activity per day especially in neighborhood settings with poor social and physical support toward activity. Thus, for many children physical education is a significant physical activity source in school (Trudeau & Shephard, 2005).

Physical education courses supply an opportunity to enable students to succeed the physical activity recommendations for youth. In addition to this, students learn the needed knowledge and skills to maintain physically activity during adulthood in physical education courses (Sallis et al., 1997). Numerous studies have reported the contribution of physical education to physical activity levels of children and adolescents (Basset et al., 2013; Dobbins, Husson, DeCorby, & LaRocca, 2013; Sallis et al., 1997).

Tudor-Locke et al. (2006) found that physical education contributed 8–11% of overall physical activity per day for 6th grade students. Another study by Morgan et al. (2007) indicated that low physically active students can accumulate as far as 18% of daily physical activity throughout a 30-min physical education course. More recently, Alderman et al. (2012) showed that 15% of the least active, 10.9% of the moderately active, and 6.4% of the most highly active 5^{th} and 6^{th} grade students' daily physical activity were met from physical education course.

The study by Alderman et al. (2012) describe the physical activity of middle school students during physical education and non-physical education days. Two hundred seventy nine students (159 boys, 120 girls) wore pedometers during 5 school days, with at least two of the days including scheduled physical education. The least (~1.575; 31% increase), moderately (~2.650; 20% increase), and most highly active students (~5.950; 34% increase) accumulated significantly more daily step counts on days when they participated in physical education.

Another study by Brusseau, Kulinna, Tudor-Locke, van der Mars, & Darst (2011) revealed that girls and boys might accumulate an additional 1.011 and 1.409 steps/day respectively when they have physical education course in a school day. Students were significantly more active on physical education days, approximately 12.979 steps/day (14.197 ± 4.697 steps/day for boys and 12.058 ± 3.772 steps/day for girls), compared to non-physical education school days when they accumulated approximately 11.809 steps/day (11.047 ± 3.382 steps/day for girls and 12.788 ± 3.600 steps/day for boys).

Moreover, the study of Reznik et al. (2013) showed that students are more active on physical education days (20–34% increase in daily step counts) than non-physical education days. These findings support the notion that although physical education may not provide students with the entire 60 minutes of recommended daily physical activity, physical education does meaningfully contribute to students' levels of daily physical activity in a short period of time.

Utilizing Graser, Groves, Prusak, and Pennington (2011) found that a 30 minute physical education course including quality instruction and activity has the potential to contribute an additional 10 and 12 minutes of physical activity each day for girls and boys, respectively. These minutes represented 102 steps/minute for girls and 122 steps/minute for boys. Using this line of reasoning, daily physical education has the potential to contribute nearly 60 (males) and 50 (females) additional minutes of physical activity per week.

Tudor-Locke et al. (2009) results showed that boys take approximately 42–49% of daily steps during the school day; girls take 41–47%. Steps taken during physical education class contribute to total steps per day by 8.7–23.7% in boys and 11.4–17.2% in girls. Recess represents 8–11% and lunch break represents 15–16% of total steps per day.

Dauenhauer & Keating (2011) study' findings indicates that physical education could be important in raising girls' activity levels, as they have not been found to be as physically active as boys at other times of the school day, such as recess and lunch breaks (Sarkin, McKenzie, & Sallis, 1997; Tudor-Locke et al., 2006).

A study used data from the Early Childhood Longitudinal Study-Kindergarten Class (ECLS-K) to assess whether additional time allocated to physical education in the first grade had an effect on body mass index (Datar & Sturm, 2004). The researchers found that one additional hour of physical education in the first grade compared with time

allocated in kindergarten reduces BMI among overweight boys and girls and at risk for overweight girls.

The results of Tassitano et al. (2010) study indicated a significant association between reporting participating in physical education classes 2 times per week and meeting recommended levels of physical activity. It was observed that adolescents enrolled in at least 2 classes per week in comparison with those with no weekly physical education were 27% more likely to meet the current physical activity guidelines. With regard to the association between physical education enrollment and students' overall physical activity, the results of this research are consistent with 2 previous studies. In the National Longitudinal Study of Adolescent Health, it was expressed that subjects enrolled in physical education were more likely to perform higher levels of weekly moderate to vigorous physical activity (Gordon-Larsen, McMurray, & Popkin, 2000). Lastly, Pate, Ward, O'Neill, & Dowda, (2007) found that adolescents who participate in physical education classes reported higher overall physical activity level.

Although there are information on the contribution of physical education classes to students' daily physical activity level, there is a lack of information about the issue in Turkish school setting.

2.3 Health-Related Physical Education Curriculum Reform

After the alarming increase in the obesity epidemic including childhood and youth as well as the adult population globally, developed countries started to question the effectiveness of school physical education in early 1990s (Sallis & McKenzie, 1991; Sallis et al., 2012; Simons-Morton, Taylor, Snider, & Huang, 1993). Then, especially in Canada, USA, England and Australia, school physical education curriculums were updated by a specific emphasis on health-related physical education and physical activity (Houston & Kulinna, 2014; Leggett, 2008; Lynch, 2014).

In Turkey, elementary school physical education curriculum (1-8. grades) was revised at 2006-2007 with a similar approach (MoNE, 2007). Interestingly, just after the 2006-2007 curriculum revision, secondary and high school physical education classes were also decreased from 2 class hours/week to 1 class hour/week. Decrease in the school physical education time started a hot discussion among the stakeholders about the negative effects of extreme emphasis on the academic core subjects (e.g. math, science, language) in the holistic development of students. At the same time, whole compulsory formal education system was restructured by 4+4+4 system (1-4 primary grades, 4-8 secondary grades and 9-12 high school grades) in Turkey. The result of those discussions and the new 4+4+4 educational system revision resulted on a change in the name of the physical education courses, an increase in the class time devoted for those courses and a new curricula (MoNE, 2012; MoNE, 2013a; 2013b).

After the curriculum reform Primary School (grades 1-4) physical education course removed the from school curriculum. A new course which was named as "Games & Physical Activity" (Oyun ve Fiziki Etkinlikler) for 5 class hours/week from grades 1 to 3 (1 class hour/school day) and 2 class hours/week in grades 4 was developed (MoNE, 2012). For the secondary school level (grades 5-8) name of the physical education class was changed as "Physical Education & Sport". Weekly class hours of this compulsory course for all children was set as 2 hours/week. Moreover, an elective "Sport & Physical Activities" (Spor ve Fiziki Etkinlikler) course was added the secondary school program. If students want to take this elective course, they have to participate in the course 2 hours or 4 hours/weekly according to their choice in addition to the compulsory Physical Education & Sport classes (MoNE, 2013a; 2013b).

New Primary School "Games & Physical Activity" and Secondary School "Physical Education & Sport" courses were structured over 9 program learning outcomes (MoNE 2012; 2013a). These were;
Students'

1. Develop skills in variety of physical activities and sports

2. Use movement concepts and principles in variety of physical activities and sports
3. Use movement strategies and tactics in variety of physical activities and sports
4. Explain health-related physical activity and sport concepts & principles
5. Participate in regular physical activities and sports to maintain and improve health
6. Comprehend national cultural heritage & values with respect to physical education and sport
7. Develop self-management skills by participating in physical activities and sports
8. Develop social skills by participating in physical activities and sports
9. Develop cognitive skills by participating in physical activities and sports

On the other hand, (elective) "Sport & Physical Activities" course for secondary schools were structured over students development on a single sport of interest such as track & field athletics, basketball, cycling, swimming, tennis (MoNE 2013b). It is expected that students would develop;

1. Movement competency by learning movement skills, concepts, strategies and tactics
2. Physical and psychological adaptation
3. Sport specific knowledge
4. Life skills (self-management, social and cognitive skills)

by participating in a single sport activities. For the course implementation, use of "Sport Education Model" (Siedentop et al, 2011) was recommended to teachers within the curricula (MoNE, 2013b)

Considering the above-mentioned curriculum reforms, it can be stated that new physical education related courses in the Turkish educational system reformed toward the health-related physical education and physical activity. The above mentioned curriculum reform has been in action since 2013. There is limited knowledge on the influence of those curricula on the students' physical activity level in Turkey.

2.3.1 Health-Related Physical Education

The term health-related physical education/activity is frequently used in relation to the health benefits gained from physical education/activity. Any type of physical activity providing health benefits and functional capacity without excessive risk should be understood as health-related physical activity. (Foster, 2000). The term health related fitness knowledge (HRFK) can be described as the health content in physical education that encompasses the necessary knowledge for individuals to remain physically active for life. For example, HRFK could include knowledge of the benefits of aerobic fitness, moderate-to-vigorous activities, and the effects that different exercises have on the body (Hodges, 2015).

Historically physical education has lacked an emphasis on cognitive learning, especially related to health-related fitness (HRF) knowledge (Stewart & Mitchell, 2003). Physical education classes have traditionally focused on skill acquisition and sport performance (Hannon, Holt, & Hatten, 2008). However, over the past decade there has been a shift in focus toward concepts-based lifetime fitness courses (Hannon et al., 2008).

Student' mastery of health-related fitness (HRF) knowledge has become as an important area that requires improvement (Keating et al., 2009; Stewart & Mitchell, 2003). While knowledge per se seems to not adequate to alter behaviors (Placek et al., 2001), in order to establish healthy physical activity behaviors, the first initiative might be developing and improving mastery of HRF knowledge (Keating, 2003). The deficiency of HRF knowledge was considered to be one of the determinants of the ongoing obesity epidemic among secondary school youth (Zapata, Bryant, McDermott, & Hefelfinger, 2008). For this reason, enhanced HRF knowledge could lead to the improved physical activity behaviors (Stewart & Mitchell, 2003).

2.3.2 Teachers Professional Competencies for Health-Related Physical Education/Activity Teaching

School physical education programs are placing emphasis on health-related fitness in an attempt to teach students the necessary knowledge, skills, and attitudes to become physically active for a lifetime (Dale & Corbin, 2000). For these reasons, physical education teachers need to be knowledgeable in their own content knowledge of physical activity and health-related fitness to provide high quality and effective instruction to their students. However, limited research has been conducted on the content knowledge of teachers in the area of physical activity and health-related fitness. Research findings have suggested that physical educators' health related fitness content knowledge is unsatisfactory for teaching in physical education (Alfrey et al., 2012; Castelli & Williams, 2007; İnce & Hünük, 2013; Leggett, 2008; Miller & Housner, 1998; Santiago, Disch, & Morales, 2012).

A study by Santiago et al. (2012) was conducted to investigate content knowledge of primary physical education teachers about physical activity and health-related fitness. Appropriate Physical Activity and Health-Related Fitness test were completed by 88 teachers (24 male and 64 female)**.** Results revealed that teachers' level of education and gender were not related to their content knowledge related to physical activity and health-related fitness. On the other hand, teaching experience years was found as significant predictor of content knowledge of teachers about physical activity and health-related fitness.

A similar study was applied by Castelli and Williams (2007). Researchers analyzed HRF knowledge of middle school physical education teachers (N = 73) and their confidence about these knowledge. For this purpose, 3 part cognitive HRF test designed by the South Carolina Physical Education Assessment Program for ninth-grade students and a self-efficacy questionnaire were completed by teachers. Major findings showed that, teachers were very confident in how they would perform on the HRF knowledge test and anticipated a much higher score on the HRF test than they actually achieved. Results indicated that only 38% of this sample of teachers passed

the HRF knowledge test, thus revealing the notion that many teachers did not have the knowledge expected of ninth-grade students.

For instance, Leggett's (2008) was conducted a research related to Health-Related Exercise (HRE) policy and practice in secondary schools in England and Wales. Findings showed that many physical education teachers has a philosophy of 'fitness for life'. However, physical education teachers' delivery of HRE was usually expressed with regard to a 'fitness for performance' discourse, which is dominated by training and testing. What is more, this practice was considered to be challenging to change because of the ways in which official discourse becomes interpreted and re-contextualized within the pedagogical field (Leggett, 2008).

Ward, Cale, and Webb (2008) reported concerns related to the expression of health within physical education. They found that most physical education teachers believe in the value of health-related learning, but some of them had no written scheme of work that outline the nature and this learning process. Also, sport and fitness contexts were used by most teachers, however, more health and activity-oriented approaches should be used by them. All of this implies that health-related subject knowledge of physical education teachers and their implementation of this knowledge during courses may be slightly insufficient and may need to improvement.

A recent study aimed to investigate secondary physical education teachers' experiences, views and understandings of health related exercise and related continuing professional development in England (Alfrey et al., 2012). A survey questionnaire were completed by 112 teachers for quantitative part and semi-structured interviews were conducted by 12 teachers among them for qualitative part. The survey revealed that roughly half of the physical education teachers stated that they have no teaching experience related to health-related exercise. In addition, most of them had not taken part in service training activities related to health and lifelong physical activity in the former one year (80%) or 3 years (70%). Findings of both the interviews and the survey responded by teachers revealed that health-related exercises

in physical education course carries on to be characterized by incoherence and misunderstanding.

Recently, Ince & Hunuk (2013) studied the HRFK level of experienced physical education teachers in Turkish setting just before the curriculum reform in 2013. They examined the HRF knowledge internalization processes of teachers' who were a) high in knowledge level and use it in their classes, b) high in knowledge level but not use in their classes, c) have misconceptions in their knowledge, and d) low in knowledge level in 79 experienced physical education teachers. Their findings indicated that experienced teachers' HRF content knowledge level was low in general, teachers' perception of their HRF content knowledge level and teaching competency of HRF content were moderate.

Above-mentioned studies revealed that teachers' professional competencies including content and pedagogical content knowledge to teach health-related physical education/activity is limited. Therefore, understanding physical education teachers' experiences in teaching health-related physical education/activity (after the curriculum reform in Turkey) is critical to make future recommendations for their professional development.

2.4 Infrastructure of the Schools for Physical Education

Physical infrastructure of the schools including the physical activity & sport facilities and materials is important in physical education related practices in the schools (Cohen, Scott, Wang, McKenzie, & Porter, 2008; Dyment, Bell, & Lucas, 2009).
Previously Cohen et al. (2008) examined the link between school building footprints, the size of the playgrounds, and in-school physical activity of sixth grade girls with their physical activity. According to their findings, school building facilities were associated with physical activity level of the students. In another study, Dyment et al. (2009) found that the school design and cultural factors influence children's physical activity during the school time.

In Turkish setting, physical education teachers main concerns about their school is poor physical infrastructure (playgrounds and their design, outdoor-indoor facilities) and the limited materials (e.g. balls, mats) of their schools in general. However, our knowledge on the effectiveness of health-related physical education practices in schools with better physical infrastructure and better educational material support is limited.

CHAPTER 3

METHOD

The major focuses of current study were to (1) examine the physical activity level of students and (2) the experiences of teachers after the health-related physical education reform in secondary schools. This chapter contains knowledge about research design, sampling and participants, data collection procedures, data collection instruments, data analysis and limitations respectively.

3.1 Research Design

Summative evaluations are intended "*to examine the effects or outcomes of an object by describing what happens after the delivery of the program or technology in order to assess whether the object caused the outcome"* (Fraenkel, Wallen, & Hyun; 2012). This study was a summative evaluation research that inform current situation about the physical activity level of students and the experiences of teachers after the health-related physical education reform in secondary schools. Both quantitative and qualitative methods were involved in this study. Quantitative data (physical activity level) was collected by using pedometers. Semi-structured interviews with teachers was used for collecting qualitative data.

3.2 Sampling and Participants

The study was performed in Sincan district in Ankara. There were totally forty-four secondary schools in Sincan. Three public secondary schools offering the elective "Sport and Physical Activities" course in addition to compulsory "Physical Education and Sport" course were selected as a research setting by purposive sampling method (Table 3.1). Each of these schools were representing different physical education/activity/sport related school infrastructure including limited, moderate, and good (see Figure 3.1, 3.2 and 3.3). More specifically, one of them defined as limited

has no a suitable playground -in regard to design- (1240 m^2 - for each student 1.56 m^2) or a gymnasium and also not enough sports equipment. Second one described as moderate has a suitable playground (2100 m^2 – for each student 1.19 m^2) but not a gymnasium, and limited sports equipment. Conversely, last one identified as good has a suitable playground (3029 m^2 – for each student 2.63 m^2) and a gymnasium (700 m^2) in addition to well-supplied sport equipment.

Table 3.1

List of Purposively Selected Public Secondary Schools of Sincan District in Ankara

Cumhuriyet Ortaokulu
Yenikent İlksan Ortaokulu
Ressam İbrahim Çallı Ortaokulu

Figure 3.1 School with Limited Physical Infrastructure

Figure 3.2 School with Moderate Physical Infrastructure

Figure 3.3 School with Good Physical Infrastructure

All schools were double shift schools. One of them was being used as both primary and secondary school. Class sizes ranged from 30 to 35 students and course duration was 40 minutes for all schools. Two schools applied block scheduling so recess time of these schools was shorter than the other 30 min.

The participants of this study were 67 students (46 girls and 21 boys) attended only compulsory "Physical Education and Sport" course and 86 students (37 girls and 49 boys) attended additional elective "Sport and Physical Activities" course, totally 153 7th grade students (83 girls and 70 boys) from three secondary schools. Students

attended schools from 7:20 am to 13:00 pm for a school and from 13:05 pm to 18:15 pm for two schools. Both compulsory Physical Education & Sport and elective Sport & Physical Activities courses were provided two hours per week.

In addition to students, six full-time physical education teachers (a female and five male) who have teaching experiences at least three years participated the study. The teaching experience' length of teachers was taken into consideration in the hope that they would have experienced the current curriculum reform. Teachers' ages varied between 37-54 years (M = 42, SD = 6.16) and teaching experiences ranged from 4 to 27 years (M = 16.83, SD = 7.52). Three teachers have passed from classroom teaching to physical education teaching (see Table 3.2) and two of them have master degree in educational sciences and early childhood education.

Table 3.2

Descriptive Statistics of Teacher' Age, Teaching Experiences, Physical Education Teaching Experiences

	M	*SD*	*N*
Age	42.00	6.16	6
Teaching Experiences	16.83	7.52	6
Physical Education Teaching Experiences	10.33	10.44	6

3.3 Data Collection Procedures

This study was conducted at the October of 2015-2016 teaching year. Prior to the study, approval of the Applied Ethics Research Center of Middle East Technical University (see Appendix A) was obtained to make sure that there is no ethical problem in the study. After that, the researcher contacted with teachers and principals of the selected secondary schools to inform them on the purpose of the study and to get permission. Legal permissions were obtained from Ministry of National Education (see Appendix B). A written consent was acquired from parents (see Appendix C) and all students (see Appendix D) who participated the study. All aspects of the measurement protocol were explained to the students and teachers. During the week

of the data collection, the researcher situated at schools to answer participants' questions about study and pedometer application. Modifications were not made to the curriculum or instruction during the study. To handle ethical issues, all the names of the participants, their personal information and also results were kept confidential.

On the first day of data collection, the researcher acquired height and weight measurements of the participants. Their height and weight were measured with no shoes using a tape and digital weight scale (Omron BF511, Body Composition Monitor). Before the beginning of the study, the participants were given information about how the pedometer functions, and its proper usage was demonstrated (e.g., wear the device on waistband and restriction on shaking it). After that, the pedometers were adjusted temper to students' score of measurement and distributed to the participants by researcher. Students were instructed to wear the pedometers throughout school time, to continue their routine school day or normal activity, and to give back the pedometers at the end of the school day. The students applied this protocol for each of the following four school days.

Students' number of steps was recorded from the beginning of the first class to the end of the last class by the researcher. Also, on days that students attended compulsory Physical Education & Sports and elective Sports & Physical Activities courses, step counts were recorded at the beginning and end of these classes by using paper-pencil technique. All obtained scores were transferred to personal computer to back up the data. On the last day of the data collection, final step scores of students were recorded and pedometers were collected at the end of the school time by the researcher. All data were collected during days when the weather was conducive to outdoor physical activity (see Table 3.3).

Table 3.3

Weather Condition during the Data Collection

	School A	**School B**	**School C**
Date	05 - 09/10/2015	12 - 16/10/2015	19 - 23/10/2015
Monday	15º C - 16º C	21º C - 23º C	19º C - 22º C
Tuesday	15º C - 18º C	21º C - 22º C	17º C
Wednesday	12º C - 13º C	19º C - 20º C	17º C - 20º C
Thursday	14º C - 15º C	22º C	17º C - 18º C
Friday	13º C - 16º C	19º C - 21º C	16º C - 19º C

3.4 Data Collection Instruments

Pedometer

Pedometer is a digitally equipped device that is attached to a person' waistband for measuring and storing every steps. It can be used by a person while walking, running, climbing steps, play sports (i.e. football, basketball), or working in the garden. During these activities every step is recorded via pedometer thus physical activity measurement is provided. Pedometer also can be functional in physical education to measure students' physical activity levels during course and encourage them to be active participants. For the physical education program, it provides an assessment of accountability (Dunn & Tannehill, 2005). Furthermore as a modest and unobtrusive device, pedometer is an ideal instrument to monitor large samples' physical activity. In recent studies, pedometer is being increasingly used for measuring physical activity level of students (Fu et al., 2013; Oh & Rana, 2014).

In this study, pedometers (Omron HJ-321-E) were used to measure physical activity levels of secondary school students during compulsory Physical Education & Sports and elective Sports & Physical Activities courses. Besides, they were utilized for one week (five consecutive school days) throughout the school time to inform the effectiveness of these courses to increase physical activity level of students. Children's physical activity patterns are not as stable as adults' physical activity patterns. Therefore, measured numbers of days are vital for the accuracy. As previous literature

represents 3–5 days of monitoring are enough to get reliable predictions about physical activity levels of children (Hands & Parker, 2008; Trost et al., 2002).

Pedometer step counts are validated among children aged 7 years and older utilizing relatively objective measurements. Hands and Larkin (2006) measured children's physical activity by pedometer during their free play and results significantly correlated with direct observation (r = .90). Furthermore, Eston, Rowland, and Ingledew (1998) found that the correlation score between heart rate monitor and pedometer is equal to .78. In particular, there were high correlations between accelerometer measures and pedometer steps in previous studies, r = .99 and r = .90 respectively (Kilanowski, Consalvi, & Epstein, 1999; Rowlands & Eston, 2005).

In this study, step counts of pedometers were validated using accelerometer (ActiGraph GT3X+). Randomly selected 40 students (23 girls, 17 boys) from three schools were informed about accelerometer application and necessary information (i.e. date of birth, height and weight) was obtained for calibration of the accelerometers. To calibrate the accelerometers ActiLife 5 data analysis software was used and students' number of steps was determined through this analysis. Following day that students informed, they wore the accelerometer in addition to pedometer during the school time. Accelerometer was attached on students' dominant side with an adjustable elastic belt around their waist and worn only one day. After data collection procedure, accelerometers were downloaded via the software for data reduction. As a result, students' daily step counts from the pedometer are strongly correlated with daily activity counts registered by the accelerometer (r = .98).

Interviews

A semi-structured interview was conducted with physical education teachers to get information about their teaching experiences after the Health-Related Physical Education Reform by an experienced interviewer. All interviews were audio-recorded with the permission of the participants. Based on the natural pace of the interviews and teachers' interest about subject, interviews ended between 20 to 30 minutes. Also, the

researcher took brief notes throughout the interviews in order to draw attention on important issues. Interview questions that allow in-depth discussion were prepared by the researcher. For this, the open-ended questions were used to motivate physical education teachers to state their thoughts and experiences in a natural pattern with a relaxed atmosphere. The researcher provided chance to find out and share teachers' thoughts on related issues for each participant.

The following questions were asked the teachers;

- How do physical education teachers feel related to the new Health-Related Physical Education Reform?
- What do physical education teachers think about the new Health-Related Physical Education Curriculum?
- What are the major challenges (problems or issues) that physical education teachers confront while implementing the new Health-Related Physical Education Curriculum?
- What do the physical education teachers see as the major social changes that are effected current physical education?
- In what ways are today's students different from those of four years ago, and why?
- How has the role of physical education in the school curriculum changed over the time?

3.5 Data Analysis

For the quantitative data, both descriptive and inferential statistics were used in this study. Descriptive statistics were performed for all variables and presented as means and standard deviations. As for inferential statistics, analysis of variances (ANOVA) was used to test differences between more than two population means and the t statistics were applied for inferences about population means and mean differences. Besides, assumptions for univariate analysis were checked before performing any inferential analysis (Field, 2009). For this study, an alpha level was utilized as .05 that means the results of analyses are true with a 95% of probability. Furthermore, if alpha

level is smaller than .05, it can be said that there is significant relationship between variables. All analysis was conducted by using the Statistical Package for Social Sciences version 23.

For the qualitative data, conventional content method analysis was used (Hsieh & Shannon, 2005). Firstly, interview data was fully transcribed. Then, two independent coders coded the transcriptions. After the full agreement of the coders, codes were sorted into categories. These emergent categories were used to organize and group codes into meaningful clusters. Finally, findings were reported under clusters.

3.6 Limitations

This study was conducted in secondary school settings in Sincan (a low-middle socioeconomic neighborhood), Ankara. All study schools were double shift schools. Data was collected three consecutive weeks (a week for each school) in month of October from secondary school students and their physical education teachers. Students' number of steps during the "Physical Education & Sport" and "Sport & Physical Activities" courses were included in the calculations of their physical activity levels throughout school time. Weather condition was good for participation of the students in outdoor activities throughout the study. Findings of the study can only be generalized to similar settings.

CHAPTER 4

RESULTS

This chapter contains the results of data analysis related to research questions. Findings for each question are displayed respectively.

4.1 Research Question 1

What is the physical activity level of students during school time after the secondary school physical education reform in Turkey?

Sub questions;

1. Does gender affects physical activity level of students during school time?
2. Does course type (compulsory Physical Education & Sport and elective Sports & Physical Activities) affect physical activity level of students during school time?
3. Do gender and course type affect physical activity level of students during school time?

4.1.1 Descriptive Statistics

The data was provided in order to find whether there is a significant effect of gender and course type (Physical Education & Sport and Sport & Physical Activities) on the student' number of steps during five consecutive school days. At first, descriptive statistics were performed and the means and standard deviations were presented in Table 4.1. In terms of gender, total mean steps of boys (M = 4748.38, SD = 1273.92) were higher than total mean steps of girls (M = 3362.53, SD = 1008.55). For course type, total mean steps of students who participate elective Sport & Physical Activities course (M = 4494.76, SD = 1296.40) is higher than total mean steps of students who participate Physical Education & Sport course (M = 3357.12, SD = 1078.17). In addition, both girls (M = 3812.39, SD = 962.69) and boys (M = 5010.01, SD = 1284.98)

who attended elective Sport & Physical Activities have higher mean steps score than girls (*M* = 3000.67, *SD* = 901.03) and boys (*M* = 4137.90, *SD* = 1037.82) who attended only Physical Education & Sport course.

Table 4.1
Descriptive Statistics of Students Number of Steps in terms of Gender and Course Type

Gender	*Course type*	*M*	*SD*	*N*
Girls	Physical Education & Sport	3000.67	901.03	46
	Elective Sport & Physical Activities	3812.39	962.69	37
	Total	3362.53	1008.55	83
Boys	Physical Education & Sport	4137.90	1037.82	21
	Elective Sport & Physical Activities	5010.01	1284.98	49
	Total	4748.38	1273.92	70
Total	Physical Education & Sport	3357.12	1078.17	67
	Elective Sport & Physical Activities	4494.76	1296.40	86
	Total	3996.58	1328.63	153

4.1.2 Analysis of Variance (ANOVA)

A 2x2 ANOVA was used to investigate whether students' number of steps in five consecutive school days effected by gender and course type.

4.1.2.1 Assumptions of Analysis of Variance

According to Field (2009), some assumptions should be ensured for most statistical tests related to the variables in the analysis. The main assumptions underlying ANOVA consist of random sampling, independent observations, normality, and homogeneity of variance. In this study, there is no dependency in the scores between independent observations.

4.1.2.1.1 Normality

For normality check; Skewness and Kurtosis Test, Kolmogorov-Smirnov and Shapiro-Wilk Test, histograms and Q-Q plots were performed for each levels of each independent variable (gender and course type) before the analysis (Field, 2009).

As indicated Table 4.2 and 4.3, skewness and kurtosis values were close to zero (between ± 3) for both gender (girls and boys) and course type (Physical Education & Sport and elective Sport & Physical activities). In the Kolmogorov-Smirnov and Shapiro-Wilk tests, *p* values for both gender and course type were found higher than .05, *p*> .05 (Table 4.4 and Table 4.5). When histograms were inspected for both gender and course type, it was seen that the curve of the histograms looks like normal (see *Figure* 4.1, 4.2, 4.3, 4.4 on Appendix E). As for the Q-Q plots, the dots were found close to line and there were no extreme scores for all groups (see *Figure* 4.5, 4.6, 4.7, 4.8 on Appendix E). Therefore, it can be said that the normality assumptions has not been violated.

Table 4.2

Skewness and Kurtosis Tests Results of Gender

Gender	*Skewness*	*Kurtosis*
Girls	.23	-.55
Boys	.18	-.13

Table 4.3

Skewness and Kurtosis Tests Results of Course Type

Course Type	*Skewness*	*Kurtosis*
Physical Education & Sport	.27	-.70
Elective Sport & Physical Activities	.36	-.19

Table 4.4

Kolmogorov-Smirnov & Shapiro-Wilks Tests Results of Gender

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	*df*	*p*	*Statistic*	*df*	*p*
Girls	.09	83	.10	.98	83	.13
Boys	.08	70	.20	.99	70	.79

p>.05

Table 4.5

Kolmogorov-Smirnov & Shapiro-Wilks Tests Results of Course Type

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	*df*	*p*	*Statistic*	*df*	*p*
PE & Sport	.07	67	.20	.98	67	.25
Sport & PA	.07	86	.20	.98	86	.38

p>.05

Skewness and kurtosis values of interaction between gender and course type were close to zero (Table 4.6). In the Kolmogorov-Smirnov and Shapiro-Wilk test, *p* values for all groups were found higher than .05, $p > .05$ (Table 4.7). In addition, histograms showed normal distribution because the shape of the histogram bars close to the curve for each of the group (see *Figure* 4.9, 4.10, 4.11, 4.12 on Appendix E). The view of the Q-Q plots seemed to be suitable because the dots were found close to line and there were no extreme scores (see *Figure* 4.13, 4.14, 4.15, 4.16 on Appendix E). Hence, normality assumption has not been violated for interaction between gender and course type.

Table 4.6

Skewness and Kurtosis Tests Results of Interaction between Gender & Course Type

		Skewness	*Kurtosis*
Girls	Physical Education & Sport	.32	-.39
	Sport & Physical Activities	.08	-.69
Boys	Physical Education & Sport	-.40	-.60
	Sport & Physical Activities	.14	-.32

Table 4.7

Kolmogorov-Smirnov & Shapiro-Wilks Tests Results of Interaction between Gender & Course Type

		Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	*df*	*p*	*Statistic*	*df*	*p*
Girls	PE & Sport	.09	46	.20	.97	46	.25
	Sport & PA	.14	37	.06	.97	37	.33
Boys	PE & Sport	.10	21	.20	.95	21	.36
	Sport & PA	.10	49	.20	.98	49	.59

p>.05

4.1.2.1.2 Homogeneity of variance

The Levene's Test of Equality of Error Variance was used to check homogeneity of variance assumption. The results of the test were discovered significant ($p < .05$) and presented in the Table 4.8. This results revealed that the assumption of the homogeneity of variance had been violated, F (3, 149) = 3.18, $p < .05$.

Table 4.8
Levene's Test of Equality of Error Variances

F	df_1	df_2
3.18	3	149

**p<.05*

4.1.2.2 Results of Analysis of Variance

As a result of the ANOVA test, there was no significant interaction between gender and course type, F (1, 149) = .03, $p > .05$, but significant main effect for gender F (1, 149) = 40.74, $p < .05$, $\eta^2 = .22$ and course type F (1, 149) = 21.19, $p < .05$, $\eta^2 = .13$. According to the Cohen's standards (1988), $\eta^2 = .22$ indicates a large effect and that the 22 % of the variance in change in students' number of steps during five consecutive school day is explained by the main effect of gender. Also, $\eta^2 = .13$ indicates a moderate effect and that the 13 % of the variance in change in students' number of steps in five consecutive school day is explained by the main effect of the course type. As results indicated, boys (M = 4748.38, SD = 1273.92) tended to have significantly higher effect on students' number of steps during five consecutive school days than girls (M = 3362.53, SD = 1008.55). For course type, elective Sport & Physical Activities (M = 4494.76, SD = 1296.40) tended to have higher effect on students' number of steps during five consecutive school days than Physical Education & Sport (M = 3357.12, SD = 1078.17).

Table 4.9

ANOVA Summary Table

Source	*SS*	*df*	*MS*	*F*	η^2
Gender	46676601.516	1	46676601.516	40.74*	.22
Course	24276012.653	1	24276012.653	21.19*	.13
Gender * Course	31222.370	1	31222.370	.03	.00
Error	170694167.110	149	1145598.437		
Total	268318123.115	152			

**p <.05*

4.2 Research Question 2

Do the physical infrastructure of the school for physical activity (limited, moderate, good) affect physical activity level of students during school time?

4.2.1 Descriptive Statistics

The main purpose of this research question was to investigate the effect of the schools that have different physical infrastructure on the students' number of steps during five consecutive school days. Before applying analysis, descriptive statistics were conducted. The means and standard deviations were provided in Table 4.10. Mean step numbers of students who enrolled in school A (M = 4167.52, SD = 1476.41) was higher than the mean step numbers of students who enrolled in other schools. In addition, mean step numbers of students enrolled in the school C (M = 4037.05, SD = 1054.71) was higher than mean step numbers of students enrolled in school B (M = 3790.00, SD = 1407.47).

Table 4.10

Descriptive Statistics of Mean Step Numbers of Students for Schools

	M	*SD*	*N*
School A	4167.52	1476.41	51
School B	3790.00	1407.47	52
School C	4037.05	1054.71	50
Total	3996.58	1328.63	153

4.2.2 Analysis of Variance

In this research question, one-way ANOVA test was conducted to examine whether there were difference between three schools that have different physical infrastructure in terms of students' number of step during five consecutive school days. To consider whether the overall ANOVA was significant or not, Test of Between-Subjects Effects was examined.

4.2.2.1 Assumptions of Analysis of Variance

As mentioned before "Normality" and "Homogeneity of Variance" assumptions should be checked before the analysis.

4.2.2.1.1 Normality

To examine the normality, Kolmogorov-Smirnov and Shapiro-Wilk Test, Skewness and Kurtosis Test, histograms and Q-Q plots were performed.

As for the Kolmogorov-Smirnow and Shaphiro-Wilk test, the results should be higher than the alpha level establish by the researcher (*p* value was set as .05 in present study). However, the tests results of Kolmogorov-Smirnov and Shaphiro-Wilk in Table 4.11 indicated that the significance of school B and school C were lower than the critical value ($p < .05$). Therefore, the results were significant, which indicates a violation of normality assumption. Conversely, the significance of school A is higher than critical value ($p > .05$) so we conclude that the normality assumption has not been violated (Table 4.11). Although results of Kolmogorov-Smirnov and Shaphiro-Wilk tests indicated some normality problems, the Skewness and Kurtosis values for school A, school B and school C were satisfied in Table 4.12. Besides, visual inspection of histograms (see *Figure* 4.17, 4.18, 4.19 on Appendix E) and Q-Q plots (see *Figure* 4.20, 4.21, 4.22 on Appendix E) indicated no great deviations from normality. For that reason, it can be said that the distributions are normal.

Table 4.11

Kolmogorov-Smirnov & Shapiro-Wilks Tests Results for Schools

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	*df*	*p*	*Statistic*	*df*	*p*
School A	.07	51	.20	.98	51	.71
School B	.13	52	.03*	.95	52	.03*
School C	.14	50	.01*	.94	50	.01*

*$p < .05$

Table 4.12

Skewness and Kurtosis Values for Schools

	Skewness	*Kurtosis*
School A	.02	-.23
School B	.69	-.20
School C	.88	.77

4.2.2.1.2 Homogeneity of variance

Homogeneity of variance assumption was checked by Levene's Test of Equality of Error Variance. The results of the test were found non-significant ($p > .05$) and given in the Table 4.13. According to this result, homogeneity of variance assumption has not been violated ($F = 2.91$, $p > .05$).

Table 4.13

Levene's Test of Equality of Error Variances

F	df_1	df_2
2.91	2	150

p>.05

4.2.2.2 Results of Analysis of Variance

The one-way ANOVA results presented Table 4.14 indicated that there was no significant difference between schools with respect to students' number of steps during five consecutive school days. To conclude, it can be said that schools (school A, school B and school C) have no significant effect on students' number of step during school days F (2, 150) = 1.08, $p > .05$.

Table 4.14

One-Way ANOVA Results for Number of Step

Source	*SS*	*df*	*MS*	*F*	η^2
School	3791286.56	2	1895643.28	1.08	.01
Error	264526836.55	150	1763512.24		
Total	268318123.12	152			

$p > .05$

4.3 Research Question 3

Is there a significant difference on the physical activity level of students between during "compulsory Physical Education & Sport" and "elective Sport & Physical Activities" courses?

4.3.1 Descriptive Statistics

Descriptive statistics were applied before the analysis, and then means and standard deviations were presented in Table 4.15. Results showed that mean step numbers of students during elective Sport & Physical Activities course (M = 2512.78, SD = 1358.14) were lower than during compulsory Physical Education & Sport course (M = 3114.60, SD = 1460.29).

Table 4.15

Descriptive Statistics for Number of Step during PE & Sport and Sport & PA Courses

	M	*SD*	*N*
Physical Education & Sport	3114.60	1460.29	88
Sport & Physical Activities	2512.78	1358.14	88

4.3.2 Paired Sample T-Test

Paired sample t test was used to examine physical activity level of students during compulsory Physical Education & Sport course and elective Sport & Physical Activities course.

4.3.2.1 Assumptions of Paired Sample t Test

The main assumptions underlying paired sample t test consist of random sampling, independent observations and normality. Regarding normality, Field (2009) expressed that the t test is quite robust over moderate violations of this assumption.

4.3.2.1.1 Normality

To test the normality assumption of this research question, Kolmogorov-Smirnov and Shapiro-Wilk Test, Skewness and Kurtosis Test, histograms and Q-Q plots were applied.

Kolmogorov-Smirnow and Shaphiro-Wilk test results showed that both compulsory Physical Education & Sport and elective Sport & Physical Activities courses' significance were lower than the critical value ($p < .05$). In other words, the results were significant (Table 4.16). It means there was a violation of normality assumption. Although results of Kolmogorov-Smirnov and Shaphiro-Wilk tests indicated some normality problems, the Skewness and Kurtosis values for both courses were satisfied as indicated in Table 4.17. In addition, visual inspection of histograms (see *Figure* 4.23, 4.24 on Appendix E) and Q-Q plots (see *Figure* 4.25, 4.26 on Appendix E) indicated no great deviations from normality. For that reason, it can be said that the distributions are normal.

Table 4.16

Kolmogorov-Smirnov & Shapiro-Wilks Tests Results for Number of Step during PE & Sport and Sport & PA Courses

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	*df*	*p*	*Statistic*	*df*	*p*
Physical Education & Sport	.13	88	.00*	.93	88	.00*
Sport & Physical Activities	.17	88	.00*	.91	88	.00*

*$p < .05$

Table 4.17

Skewness and Kurtosis Values for Number of Step during PE & Sport and Sport & PA Courses

	Skewness	*Kurtosis*
Physical Education & Sport	.99	.69
Sport & Physical Activities	1.09	.72

4.3.2.2 Results of Paired Sample t Test

In order to examine physical activity level of students during compulsory Physical Education & Sport course and elective Sport & Physical Activities course, paired sample t test was conducted. The test resulted in a significant difference between compulsory Physical Education & Sport course (M = 3114.60, SD = 1460.29) and elective Sport & Physical Activities course (M = 2512.78, SD = 1358.14). The students' physical activity level were higher during compulsory Physical Education & Sport course than during elective Sport & Physical Activities course, t (87) = 4.11, p < .05, r^2 = .16, large effect.

4.4 Research Question 4

What are the experiences of physical education teachers after the Health-Related Physical Education Reform?

Semi structured interview findings indicated that teachers' practices in physical education setting influenced by their "perception of administrators (school principals), students, other physical education teachers and parents' expectations", "perception of physical education related educational policies, social setting and physical setting in the school", "knowledge of physical education curriculum" and "knowledge of subject matter".

Regardless of the school and type of course (compulsory "Physical Education & Sport" or elective "Sport & Physical Activities"), all teachers indicated that "*their usual*

physical education practices depends on unstructured free play (students do whatever they want by using the available material and physical activity infrastructure in the school) and sport specific skill teaching (eg. basketball, volleyball, football, badminton)". Those practices were not directly rooted on the current Physical Education & Sport (MoNE, 2013a) and Sport & Physical Activities Curriculum (MoNE, 2013b) goals. The only stated difference between compulsory "Physical Education & Sport" and elective "Sport & Physical Activities" course practices were the specific emphasis of the "Sport & Physical Activities" course on "*teaching a single sport such as basketball or volleyball*". On the other hand, during the "Physical Education & Sport" course, teachers were using "*variety of physical activities or sports as the content of the instruction*". According to the teacher reports, "*health related physical activity knowledge, skills and attitude were not specifically targeted or explicitly connected to the out of class/school time in neither courses*". There were "*no clearly identified or regularly applied measurement and evaluation practices for checking the student learning based on the course goals*".

Teachers' reported that school principals, students, other physical education teachers and parents' expectations were the main reason for their current teaching practices in both compulsory and elective courses. Generally, "*school principals' expectations from the teachers were school team success*". However, in one of the school, teachers' also criticized their principal about "*not supporting them for school teams*". Teachers were very proud of their school team success in this school and according to teachers' perception, school principal was not appreciating their coaching success. None of teachers indicated that school principals were following the student learning by the specific curricular goals of the courses stated in the MoNE documents. According to teacher perceptions, "*principals were expecting student relaxation during the physical education courses*". Therefore, if the students were busy, happy and obey the school rules that was enough for course success.

All teachers also reported the students' expectation of unstructured play without any instruction during the classes. According to them, "*students had positive attitudes*

toward physical education". However, "*they (students) were not seeing the physical education classes as real classes similar to other academic subject matter courses in which the aim, content, implementation and measurement and evaluation was aligned and structured*". Students' no learning expectations from the course was a critical reason for the teachers to let the students play as they want during the classes. Interestingly, in all three schools "*students' selection of additional elective Sport & Physical Activities course was very high (more than 30%)*".

Teachers criticized other physical education teachers for "*not being enthusiastic about applying the curriculum*". They (teachers) were "*not seeing themselves to be responsible from the learning of all students in the class*". Instead, they were believing that "*physical education is a talent centered course and if the students were not athletically talented there would be little to do for them (students)*". Although the teachers criticized other teachers' practices, they reported *"teaching physical education in a similar way with their colleagues*".

Importance of the parents' expectations in the physical education practices also indicated by some of the teachers. They (teachers) were believing that "*most of the parents were happy with their students sport participation"*. However, when the exams (such as TEOG) become close "*most of the parents were not supportive for their children' participation in physical education and sport*".

According to the teachers view, their "Physical Education & Sport" and "Sport & Physical Activities" course practices were influenced by the related educational policies, and social and physical setting of their school. Teachers' perception of educational policies were not clear. During the interviews only two out of six teachers could be able to identify the educational policies indicating the importance of health-related physical activity/education in school physical education related courses (such as preventing childhood obesity, meeting the age appropriate optimum level of physical activity and fitness, being a critical consumer of physical activity and sport). However, all of the teachers stated "*the importance of identification of athletically*

talented students in physical education classes" (main sport development policy of by General Directory of Sport).

School differences in the physical infrastructure and the quantity/quality of sport equipment/materials were clearly differentiated in the teachers' reports. Teachers in the school with better physical infrastructure and sport equipment/materials were "*very proud of the school setting*". These teachers also indicated the positive effect of the better infrastructure on the social setting in physical activity. They told that "*school was called as active/sport school and all students and parents knew it*". However, teachers from the other two school (moderate and limited) were "*upset with their poor infrastructure/limited equipment and reported the negative influence of the situation on their physical education practices*".

Knowledge of physical education curriculum was limited by all teachers. Most of the teachers reported their "*lack of information about the recent curriculum changes*" in the "Physical Education & Sport" and "Sport & Physical Activities" courses. Some of the teachers were supposing the previous "training" and "sport-skill" based physical education curriculum in action.

Interview data indicated very limited knowledge of subject matter in all teachers. They were not following the new and scientific knowledge in their field of study. Most of teachers were using the knowledge that they had learned their university education. Teachers who transferred from the classroom teaching to physical education teaching had "*poor self-confidence on their knowledge of physical education subject matter*".

Table 4.18

Summary Table of Teachers Experiences in Physical Education Setting and the Factors Influencing Their Teaching Experiences

Teacher experiences	Compulsory "Physical Education & Sport" Course	• Unstructured free activity • Sport specific skill teaching • Variety of sport and physical activities
	Elective "Sport & Physical Activity" Course	• Unstructured free play • Sport specific skill teaching in a single sport • Sport specific fitness training in a single sport
Factors influencing the teachers' teaching experiences	• Teachers' perception of school principals, students, other physical education teachers and parents' expectations from the course • Teachers' perception of physical education related educational policies, social setting and physical setting of the school • Teachers' knowledge of physical education curriculum • Teachers' knowledge of subject matter and how to teach	

CHAPTER 5

DISCUSSION AND CONCLUSION

In this chapter, the findings of the research are displayed and discussed for each research question, respectively.

5.1 Research Question 1

According to the pedometer application findings, student' average number of step were 3362 for girls and 4748 for boys during school time in five consecutive school days after the health related physical education reform in secondary schools. Moreover, in terms of course type students attended compulsory physical education & sport course accumulated average 3357 steps (means of step counts of girls and boys were 3000 and 4137, respectively), students participated elective sport & physical activities course in addition to compulsory course accumulated average 4494 steps (3812 steps for girls and 5010 steps for boys) during school time. Findings also showed that there was no significant interaction between gender and course type with regard to physical activity levels of students in school hours. However, there was significant main effect for gender and course type that means these variables have an effect on physical activity level of secondary school students.

In this study pedometer recommendations (for girls 12.000 steps/day and boys 15.000 steps/day) were specified according to criterion standard set by Tudor-Locke et al. (2004). Findings indicated that girl and boy students met approximately 28% and 31% of daily physical activity recommendations in schools, respectively. In addition, these findings revealed that boys were more physically active compared to girls during school time.

Similarly, Chia (2010) examined the physical activity of youth from Singapore and showed that students aged 9-12 have met 28% and 38% (girls and boys) of daily physical activity during school time. In another study, conducted with 10-12 years Cyprian students to investigate their physical activity during the segmented school day, findings showed that in school physical activity of students represented approximately 37% in girls and 40% in boys of daily pedometer-based recommendations (Loucaides & Jago, 2008). Also, a review study by Tudor-Locke et al. (2009) indicated that students accumulated roughly 41-47% and 42-49% (girls and boys, respectively) of daily steps while they were at school. Thus, it can be said that students in this study were not physically active enough during the school time when compared to previous studies. Therefore, it can be concluded that there is a need to increase secondary school students' physical activity level during the school time after the health related physical education reform in Turkey.

It is commonly believed that physical activity level of boy students is higher than girl students' and also so many studies advocate this notion (Alderman et al., 2012; Kahan & Nicaise, 2012; Loucaides & Jago, 2008; Tudor-Locke et al., 2006). Therefore, a significant gender effect on physical activity level was not surprising in this study. One of the reasons may be physical activity preference of students during their free play time in physical education courses and recess. Since observation results indicated that while most of boys were engage in vigorous intensity physical activities during physical education courses and recess (i.e. football and basketball), many of girls were engage in moderate intensity physical activities (i.e. walking, volleyball and dodgeball with a large group).

Also related studies showed that physical activity level differences between girls and boys root in the amount of time that spend for moderate to vigorous activities (Fairclough & Stratton, 2005; Trost et al., 2002; van Mechelen, Twisk, Post, Snel, & Kemper, 2000). Fairclough & Stratton (2005) found that boys spent a greater amount of course time involved in vigorous physical activity than girls. In addition, Trost et al. (2002) indicated that the majority of the gender gap in overall physical activity was

accounted for by the girl's low participation in vigorous-intensity activities. For that reason, it can be said that inclusion of girls to vigorous intensity physical activities may be increase their overall physical activity level.

Another reason of gender effect on physical activity level may be maturational difference between girl and boy students. Studies showed that physical activity of both gender decreases with increasing age (Riddoch, Savage, Murphy, Cran, & Boreham, 1991; Thompson, Baxter-Jones, Mirwald, & Bailey, 2003; Trost et al., 2002). However, as known girls mature approximately 2 years earlier than boys (Malina, 2014). According to study of Thompson et al. (2003), males were more active than females at similar chronological ages, however, when maturational differences between the sexes were paid regard to, this physical activity level difference between genders disappeared. Therefore, it can be conclude that lower physical activity level of girls in this study can be explained with the early maturation.

With regard to course type, students who participated (elective) sport & physical activities course (roughly 32% in girls and 34% in boys) were more physically active than students attended only (compulsory) physical education & sport course (roughly 25% in girls and %28 f in boys) during school time. This may be related to course hours allocated for these courses in the curriculum. Although two hours (80 min.) were allocated for both courses in the curriculum, elective course provided extra two hours physical activity (totally 160 min. in a week) in addition to compulsory course. That's why elective course may increase total physical activity level of students' more than compulsory course.

Dauenhauer and Keating (2011) conducted a supporting study indicated a significant difference between 30 min. and 60 min. physical education courses. While students accrued 1244-1355 steps (in girls and boys, respectively) during 60 min. physical education course, they just accrued 758 and 785 steps in 30 min. course (Dauenhauer & Keating, 2011). Also, in their study Morgan et al. (2007) and Graser et al. (2011) presented the contributions of 30 min. physical education course for daily physical

activity. According to the Graser et al. (2011) a 30 min. course including quality activity and instruction can provide an extra 10-12 min. (for girls-boys) of physical activity daily.

Findings of the current study showed that if the more time are allocated for physical education courses, student could get the more daily physical activity. Therefore, it can be said that elective sport & physical activities course included to new health related physical education curriculum has a positive effect on physical activity level of secondary school students. In other words, this course may be an effective intervention to increase students' total physical activity levels during school time.

5.2 Research Question 2

According to the findings, there was no effect of schools' physical infrastructure on secondary school students' physical activity level during school time. That is to say whether a school have limited, moderate or good physical infrastructure, this situation have no influence on physical activity level of students. However, students enrolled in school with moderate physical infrastructure accumulated more steps (mean 4167 steps/day) than students enrolled schools with good and limited physical infrastructure (mean 4037 and 3790 steps/day, respectively).

In this study, schools were classified according to their physical infrastructure (sport material and gymnasium), especially size of playground. While school with limited physical infrastructure provided 1.56 m^2 space for physical activity per student, schools with good and moderate physical activity infrastructure provided 2.63 m^2 and 1.19 m^2 for each students, respectively. Although school with moderate physical infrastructure had a bigger playground than school with limited physical infrastructure, it provided smaller space for each student because of the total number of students. Because it was being used both secondary and elementary school. However, findings of this study showed that size of school playground was not significant for students' physical activity level.

A study by Cohen et al. (2008) examined the physical activity of girls aged 11.8 years with regard to footprints of school building and school grounds' size. They reported that there was no relationship between the size of the school ground and physical activity. In addition, a partial relevant study by Sallis et al. (2001) revealed that area size was not significantly related with physical activity. On the other hand, Ridgers et al. (2010) stated that as play space per child aged 9-10 years increased, vigorous intensity physical activity increased and sedentary activity decreased. According to an explorative study by Harten et al. (2008), boys aged 9.3 years (*SD* = 0.5) in large-space areas (130.4-157.9 m^2) were more objectively active with regard to boys in small-space areas (13.0-15.8 m^2 per child). This difference between current study and Ridgers et al. (2010) and Harten et al. (2008) studies may be root in variation of samples' age and playgrounds size (Harten et al., 2008).

Despite there was a little mean difference between schools with good and moderate infrastructure in terms of students' physical activity level, findings showed that students enrolled in the school with moderate physical infrastructure were more active compared to students enrolled in the school with good physical infrastructure. This situation is not usual because it is expected that schools with good physical infrastructure provide more physical activity opportunities (i.e. suitable playground, sport materials, and a gymnasium) for students and so physical activity level of students should be higher in these schools. However, current study failed to satisfy this expectation.

According to the findings it can be said that being a good school with regard to physical infrastructure may not be sufficient to effect physical activity level of students more than an moderate school. Although school with moderate physical infrastructure was disadvantageous in terms of sport equipment, existence a gym, and total size of school, its only advantage was absence of block scheduling. Therefore, in this study, schools recess time differences among schools may be the reason of students physical activity level variances. Because all schools were double shift schooling and schools with limited and good physical infrastructure were applied block scheduling that limit to

additional opportunities for physical activity such as recess. For that reason, recess time of these schools were shorten 30 min. and only the school with moderate physical infrastructure have six recess, totally 60 min. Therefore, this 30 min. recess time deficiency may affect the physical activity level of students enrolled in school with good and limited physical infrastructure.

A supported study by Ridgers, Stratton, Fairclough, and Twisk, (2007) stated that longer recess time is related with higher physical activity participation. Also, the effect of recess on physical activity level of students has been well documented in the literature (Chin & Ludwig, 2013; Erwin et al., 2012; Hasken & Temme, 2010; Tudor-Locke et al., 2006). The study by Ervin et al. (2012) investigated that unstructured recess' contribution on physical activity level of student during school day and found that students accumulated 17% to 44% (roughly 1000 steps) of their physical activity in school through a 15 min. recess. In addition, Tudor-Locke et al. (2006) showed that scheduled recess (15 min.) comprised 8% to 9% of students' daily physical activity level. To conclude, increasing the amount of recess time in school hours may be an effective intervention to increase physical activity level of students.

In addition to this, although school with good physical infrastructure can provide great opportunities (sufficient sport material, large and suitable playground, a well-kept gymnasium) for physical activity, it does not make a difference in terms of student' physical activity level. It can be said that, students enrolled this school did not benefit from those opportunities effectively.

5.3 Research Question 3

The findings of this study showed that there was a significant difference between during (compulsory) Physical Education & Sport course and (elective) Sport & Physical Activities course in terms of physical activity level of students. More specifically, students accumulated more steps during compulsory course (M = 3114 steps) than elective course (M = 2512 steps).

Although the effect of elective course on total physical activity level of students in school time was higher than compulsory course, students were more active during compulsory physical education & sport course. This can be explained by implementation differences between these courses. Hence, it can be said that implementation of compulsory course more effective than elective course. Instruction differences or expertise of teachers in these courses may be the reason of this.

According to observation of the researcher, teachers spent at least 20-25 minutes for instruction in compulsory course and then gave time to students for free play. As for elective course, teachers did not give any instruction, just provided some sport materials and released the student for free play. However this free play time was not organized by teachers, so student could engage whatever they want such as playing volleyball, basketball, football and also various ball games. While in this free play time some students engaged moderate to vigorous physical activities (i.e. basketball, football), the rest of the students (especially girls) displayed sedentary behaviors such as sitting, have a talk etc. Also, absence of sport materials at schools with limited and moderate physical infrastructure may cause these sedentary behaviors during elective course. All of those may be the reasons of the low step count means of students who participated elective course.

Moreover, student' perception of courses related physical education may affect their physical activity levels. Physical education & sport course may be perceived more formal because it is a compulsory course and provides structured physical activity participation for students. In contrast sport & physical activities course may be perceived as a free play time since it is an elective course and supplies unstructured physical activity environment. As mentioned before, the reason of this may be given them any instruction and let them free play throughout the elective course by teachers. To conclude, physical education teachers' content knowledge related to elective Sport & Physical Activities course and its implementations should be supported by authorities. By this way, teachers can give suitable and effective instruction, and physical activity level of students can increase during elective course.

5.4 Research Question 4

Findings indicated that teachers in this study need professional development in health-related physical education approaches. Their current physical education practices were far from the practices recommended by the "Physical Education & Sport" and "Sport & Physical Activity" course curriculums.

Physical education practices of the teachers in this study seems to be mainly influenced by their personal physical education and sport coaching histories. Previous studies indicated that teachers' professional educations rooted on sport skill teaching with a teacher-centered approach (Ince & Hunuk, 2013) and their health-related physical education knowledge is limited (Castelli & Williams, 2007; Ince & Hunuk, 2013; Keating et al., 2009). This study findings on the teacher weaknesses in health-related physical education content knowledge and how to teach that content is in line with the findings of those studies.

However, this study further indicated that school physical education practices were shaped by teachers perception of other stakeholders' (eg. school principals, parents, students) expectation from them in physical education, their understanding (or misunderstanding) of physical, social and policy setting, knowledge of curriculum and knowledge of subject matter and its' teaching.

5.5 Recommendations

- Physical activity level of secondary schools students should be examined during the school days. By this way effect of physical education courses on daily physical activity can be determined and compared with recommended physical activity.
- Physical activity level of girls and boys during compulsory Physical Education & Sport and elective Sport & Physical Activities courses should be compared to get knowledge about gender differences with regard to physical activity level during courses.

- Recess time is an important opportunity to increase physical activity level of students. Therefore, after the Health Related Physical Education Reform students' physical activity level should be examined during the recess time. By this way, knowledge can be obtained about the effect of recess time on physical activity level of students. Also, gender differences can be investigated during recess.
- Physical activity level of secondary school students should be examined at weekends to find out the effect of physical education courses on weekend days.
- This study findings showed that physical education teachers' content knowledge related to elective Sport & Physical Activities course were limited and they had implementation problems. Therefore, in service training activities should be organized in this direction. In addition, physical education teacher education programs should be revised based on the health related physical education curriculum.

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APPENDICES

A: Approval Letter from Middle East Technical University Human Subjects Ethics Committee

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER

ORTA DOĞU TEKNİK ÜNİVERSİTESİ
MIDDLE EAST TECHNICAL UNIVERSITY

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F: +90 312 210 79 59
ueam@metu.edu.tr
www.ueam.metu.edu.tr

Sayı: 28620816/140-360

13.04.2015

Gönderilen : Doç.Dr. Levent İnce
Beden Eğitimi ve Spor Bölümü

Gönderen : Prof. Dr. Canan Sümer
IAK Başkan Vekili

İlgi : Etik Onayı

Danışmanlığını yapmış olduğunuz Beden Eğitimi ve Spor Bölümü yüksek lisans öğrencisi Serap Sarıkaya 'nın "**Ortaokullarda Sağlıkla İlgili Beden Eğitimi Öğretim Programı Reformu Sonrası Öğrencilerin Fiziksel Aktivite Düzeylerinin ve Öğretmen Deneyimlerinin Değerlendirilmesi**" isimli araştırması "İnsan Araştırmaları Komitesi" tarafından uygun görülerek gerekli onay verilmiştir.

Bilgilerinize saygılarımla sunarım.

Etik Komite Onayı

Uygundur

13/04/2015

Prof.Dr. Canan Sümer
Uygulamalı Etik Araştırma Merkezi
(UEAM) Başkan Vekili
ODTÜ 06531 ANKARA

B: Consent Letter of Ministry of National Education

T.C.
ANKARA VALİLİĞİ
Milli Eğitim Müdürlüğü

ÖĞRENCİ İŞLERİ DAİRESİ BAŞK.

Sayı : 14588481-605.99-E.5063107 15.05.2015
Konu: Araştırma izni

ORTA DOĞU TEKNİK ÜNİVERSİTESİNE
(Öğrenci İşleri Daire Başkanlığı)

İlgi: a) MEB Yenilik ve Eğitim Teknolojileri Genel Müdürlüğünün 2012/13 nolu Genelgesi.
b) 28/04/2015 tarihli ve 4392 sayılı yazınız.

Üniversiteniz Yüksek Lisans Öğrencisi Serap SARIKAYA' nın **"Ortaokullarda sağlıkla ilgili beden eğitimi öğretim programı reformu sonrası öğrencilerin fiziksel aktivite düzeylerinin ve öğretmen deneyimlerinin değerlendirilmesi"** başlıklı tezi kapsamında çalışma yapma talebi Müdürlüğümüzce uygun görülmüş ve araştırmanın yapılacağı İlçe Milli Eğitim Müdürlüğüne bilgi verilmiştir.

Görüşme formunun (1 sayfa) araştırmacı tarafından uygulama yapılacak sayıda çoğaltılması ve çalışmanın bitiminde bir örneğinin (cd ortamında) Müdürlüğümüz Strateji Geliştirme (1) Şubesine gönderilmesini arz ederim.

Ali GÜNGÖR
Müdür a.
Şube Müdürü

Güvenli Elektronik İmzalı
Aslı İle Aynıdır.
15/6/2015

Yaşar SUBAŞI
Şef

18.05.2015 - 8126

Atatürk Blv. 06648 Kızılay/ANKARA
Elektronik Ağ: www.meb.gov.tr
e-posta: adsoyad@meb.gov.tr

Ayrıntılı bilgi için: Ad SOYAD Ünvan
Tel: (0 312) XXX XX XX
Faks: (0 312) XXX XX XX

Bu evrak güvenli elektronik imza ile imzalanmıştır. http://evraksorgu.meb.gov.tr adresinden bffc-c08d-32d6-96f7-ff9f kodu ile teyit edilebilir.

C: Parent Consent Letter

Veli Onay Mektubu

Sayın Veli

Orta Doğu Teknik Üniversitesi (ODTÜ), Eğitim Fakültesi Beden Eğitimi ve Spor Bölümünde araştırma görevlisi olarak çalışmaktayım. Yüksek lisans bitirme projesi kapsamında ortaokul öğrencilerinin fiziksel aktivite düzeylerinin değerlendirilmesi hedeflenmektedir. Bu mektubun gönderilmesi sizleri çalışma hakkında bilgilendirmek ve tarafınızdan izin verilmesi amacını içermektedir.

Bu çalışmanın amacı, 2012-2013 yıllarında ortaokullarda "Beden Eğitimi ve Spor" (haftada 2 saat zorunlu) dersi öğretim programının güncellenmesi ve "Spor ve Fiziki Etkinlikler" (haftada 2 veya 4 saat seçmeli) dersinin ortaokul ders programı kapsamına alınarak öğretim programının geliştirilmesi ve uygulanması sonrasında öğrencilerin fiziksel aktivite düzeylerinin ve öğretmen deneyimlerinin değerlendirilmesidir. Öğrencilerin fiziksel aktivite düzeyi bir hafta süresince adımsayarla takip edilecektir. Araştırmanın sonunda öğrencilerin fiziksel aktivite düzeylerinin Dünya Sağlık Örgütü'nün (DSÖ) çocuk ve gençler için tanımladığı sağlığı koruyacak düzeye ne ölçüde ulaştığı ve öğretmenlerin bu konudaki düşüncelerinin anlaşılması beklenmektedir. Bulgular doğrultusunda "Beden Eğitimi ve Spor" ve "Spor ve Fiziki Etkinlikler" derslerinin içeriği, uygulamaları ve ilgili öğretmenlerin mesleki gelişim ihtiyaçları konularında önerilerde bulunulacaktır.

Katılım sonunda herhangi bir maddi kazanç sağlanmayacaktır. Velisi bulunduğunuz öğrencilerden kimlik belirleyici hiçbir bilgi istenmemektedir. Elde edilen veriler tamamen gizli tutulacak ve sadece araştırmacı tarafından değerlendirilip bilimsel yayınlarda kullanılacaktır.

Yapılacak olan çalışmaya öğrencilerin katılımı tamamen gönüllülük esasına dayanmaktadır. Arzu edildiği takdirde, herhangi bir yaptırıma maruz kalmadan katılımdan vazgeçme hakkına sahiptirler. Sizin onayınızın yanı sıra çocuğunuzun kendi gönüllülüğü de bir ön koşuldur.

Çalışmaya ya da çocuğunuzun katılımına yönelik daha fazla bilgi için başvurulacak kişinin adresi, telefon numarası ve e-posta adresi aşağıdadır.

Saygılarımla

Teşekkürler.

Araştırmacı: Serap Sarıkaya

Adres: Çankaya İlçesi Üniversiteler Mah. Dumlupınar Bulvarı No: 1 Ankara

Tel: (0312) 210 40 22

E-posta: serapusta5306@gmail.com

Yukarıda açıklamasını okuduğum çalışmaya, oğlum/kızım _____'nin katılımına izin veriyorum. Ebeveynin:

Adı, soyadı: _____ İmzası: _____ Tarih: _____

İmzalanan bu formu lütfen öğrencimiz aracılığı ile beden eğitimi ve spor öğretmeninize ulaştırın.

Çocuğunuzun katılımı ya da haklarının korunmasına yönelik sorularınız varsa ya da çocuğunuz herhangi bir şekilde risk altında olabileceğine, strese maruz kalacağına inanıyorsanız Orta Doğu Teknik Üniversitesi Etik Kuruluna (312) 210-37 29 telefon numarasından ulaşabilirsiniz.

D: Informed Consent Form

Gönüllü Katılım Formu

Orta Doğu Teknik Üniversitesi (ODTÜ), Eğitim Fakültesi Beden Eğitimi ve Spor Bölümünde araştırma görevlisi olarak çalışmaktayım. Yüksek lisans bitirme projesi kapsamında, 2012-2013 yıllarında ortaokullarda "Beden Eğitimi ve Spor" (haftada 2 saat zorunlu) dersi öğretim programının güncellenmesi ve "Spor ve Fiziki Etkinlikler" (haftada 2 veya 4 saat seçmeli) dersinin ortaokul ders programı kapsamına alınarak öğretim programının geliştirilmesi ve uygulanması sonrasında öğrencilerin fiziksel aktivite düzeylerinin ve öğretmen deneyimlerinin değerlendirilmesi amaçlanmaktadır. Araştırmanın sonunda öğrencilerin fiziksel aktivite düzeylerinin Dünya Sağlık Örgütü'nün (DSÖ) çocuk ve gençler için tanımladığı sağlığı koruyacak düzeye ne ölçüde ulaştığı ve öğretmenlerin bu konudaki düşüncelerinin anlaşılması beklenmektedir. Bu amaçla, öğrencilerin fiziksel aktivite düzeyi bir hafta süresince adımsayarla takip edilecek ve öğretmenlerle yarı yapılandırılmış görüşmeler yapılacaktır.

Çalışmaya katılım tamamen gönüllülük esasına dayanmaktadır. Arzu edildiği takdirde, herhangi bir yaptırıma maruz kalmadan katılımdan vazgeçme hakkına sahipsiniz. Sizlerden kimlik belirleyici hiçbir bilgi istenmemektedir. Elde edilen veriler tamamen gizli tutulacak ve sadece araştırmacı tarafından değerlendirilip bilimsel yayınlarda kullanılacaktır. Araştırmaya yönelik daha fazla bilgi için başvurulacak kişinin adresi, telefon numarası ve e-posta adresi aşağıdadır.

Araştırmacı: Serap Sarıkaya
Çankaya İlçesi Üniversiteler Mah. Dumlupınar Bulvarı No: 1 Ankara
Tel: (0312) 210 40 22
E-posta: serapusta5306@gmail.com

Bu çalışmanın amacı hakkında bilgilendirildim ve tamamen gönüllü olarak katılmak istiyorum. Sağladığım bilgilerin bilimsel amaçlı yayınlarda kullanılmasını kabul ediyorum.

İsim Soyadı Tarih İmza

-----/-----/--------

E: Figures

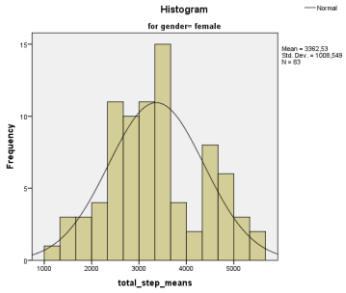


Figure 4.1 Distribution Graph for Female

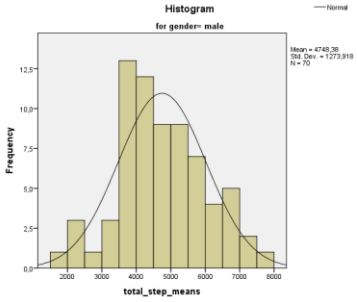


Figure 4.2 Distribution Graph for Male

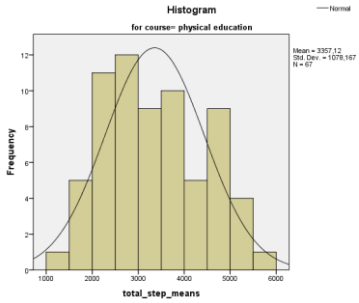


Figure 4.3 Distribution Graph for PE

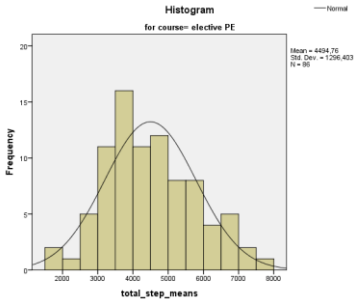


Figure 4.4 Distribution Graph for SPA

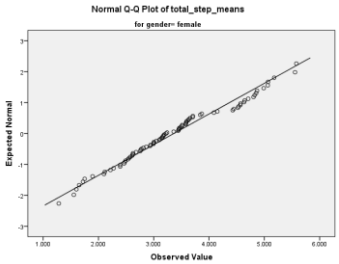


Figure 4.5 Q-Q Plot for Female

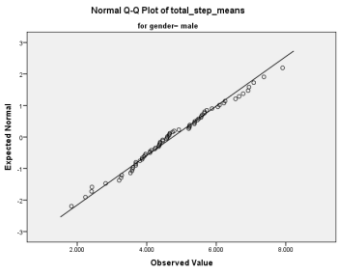


Figure 4.6 Q-Q Plot for Male

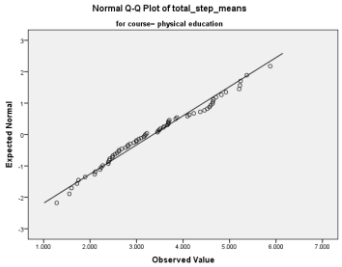


Figure 4.7 Q-Q Plot for PE

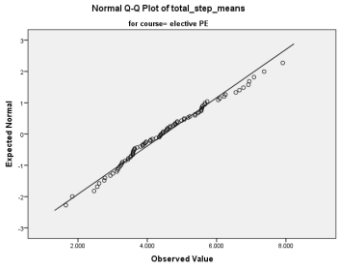


Figure 4.8 Q-Q Plot for SPA

Continued…

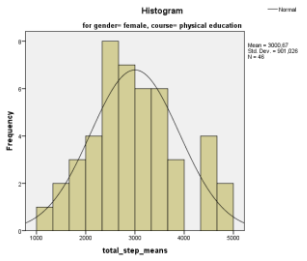


Figure 4.9 Distribution Graph for Female Attended PE

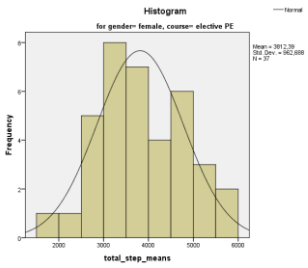


Figure 4.10 Distribution Graph for Female Enrolled SPA

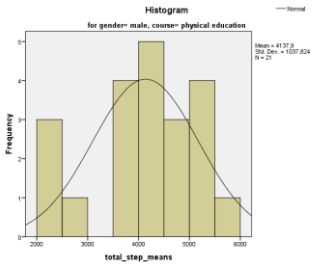


Figure 4.11 Distribution Graph for Male Attended PE

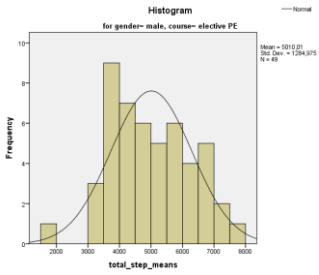


Figure 4.12 Distribution Graph for Male Enrolled SPA

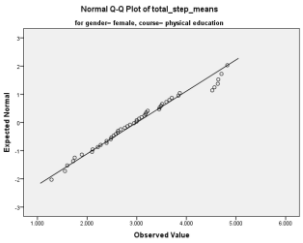


Figure 4.13 Q-Q Plot for Female Attended PE

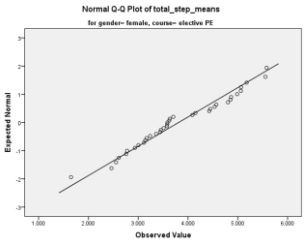


Figure 4.14 Q-Q Plot for Female Enrolled SPA

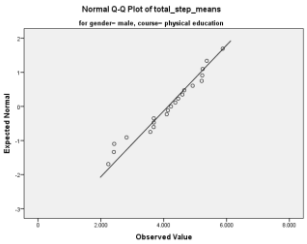


Figure 4.15 Q-Q Plot for Male Attended PE

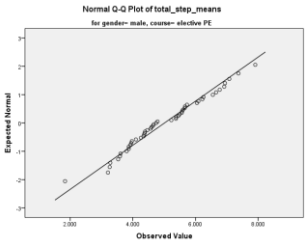


Figure 4.16 Q-Q Plot for Male Enrolled SPA

Continued…

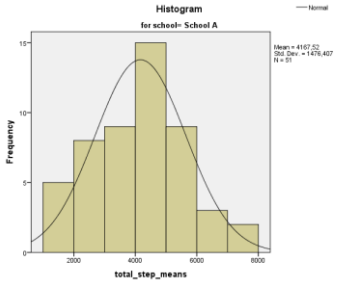


Figure 4.17 Distribution Graph for School A

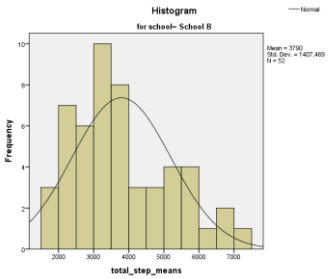


Figure 4.18 Distribution Graph for School B

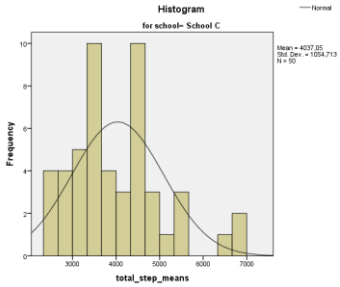


Figure 4.19 Distribution Graph for School C

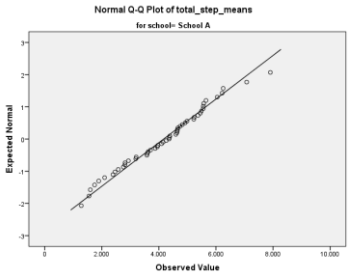


Figure 4.20 Q-Q Plot for School A

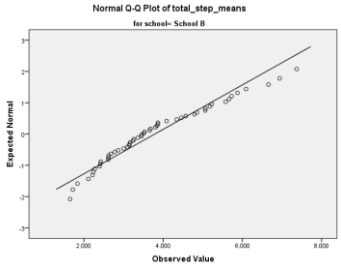


Figure 4.21 Q-Q Plot for School B

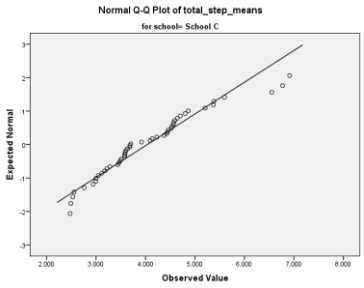


Figure 4.22 Q-Q Plot for School C

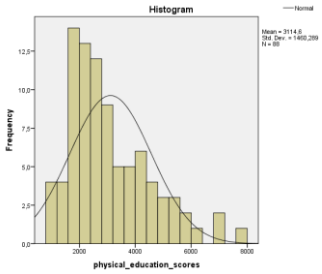


Figure 4.23 Distribution Graph for PE Scores

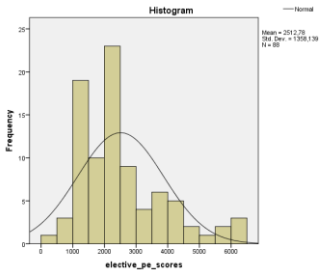
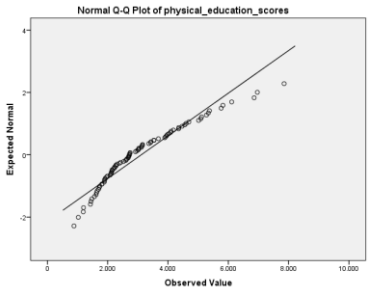
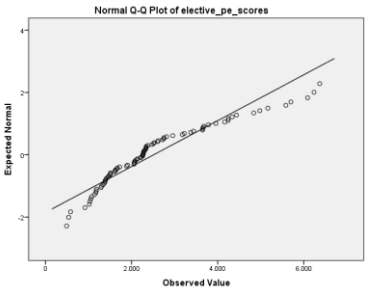


Figure 4.24 Distribution Graph for SPA Scores

Continued…


Normal Q-Q Plot of physical_education_scores
Expected Normal
Observed Value


Normal Q-Q Plot of elective_pe_scores
Expected Normal
Observed Value

F: Turkish Summary

GİRİŞ

Çocukluk ve gençlik dönemlerinde fiziksel hareketsizlik ve sedanter davranışlar toplumda obezite görülme sıklığını artıran unsurların başında gelmektedir (Prentice-Dunn & Prentice-Dunn, 2012; Strong ve diğerleri, 2005). Çalışmalar obezite sorunu yaşayan çocuk ve ergenlerin, normal kilodaki akranlarından daha yüksek olasılıkla obez yetişkinler olacağını ve olumsuz sağlık sonuçlarını erken deneyimleyeceklerini göstermektedir (Craigie, Lake, Kelly, Adamson, & Mathers, 2011; Gordon-Larsen, Nelson, & Popkin, 2004; Guo, Wu, Chumlea, & Roche, 2002; Singh, Mulder, Twisk, van Mechelen, & Chinapaw, 2008; Wright, Parker, Lamont, & Craft, 2001). Buna rağmen çocukluk ve ergenlikte obezite riski, obeziteden kaynaklanan masraflı ve ölümcül kronik rahatsızlıklar, gençlik dönemlerindeki düzenli fiziksel aktivite yoluyla engellenebilir. Halk sağlığı otoriterine göre çocuklar ve ergenler günde 60 ya da daha fazla dakikadan oluşan orta-yüksek şiddette aerobik fiziksel aktivitelere katılmalı ve yüksek şiddette fiziksel aktiviteler haftanın en az üç günü yapılmalıdır (WHO, 2010).

Son zamanlarda, adımsayarlar kullanılarak gençlerin günlük fiziksel aktivitelerinin nesnel bir şekilde değerlendirilmesi kolaylaşmıştır (Brusseau & Hannon, 2013; Hands & Parker, 2008; Lubans ve diğerleri, 2009). Araştırmacılar adımsayarları küçük ve hafif oldukları, aynı zamanda dikkat çekmedikleri için pratik fiziksel aktivite ölçüm aletleri olarak kabul etmektedir (Bassett, 2000; Sirard & Pate, 2001; Tudor-Locke ve diğerleri, 2002). Adımsayarlar beden eğitimi derslerinde de ders boyunca öğrencilerin fiziksel aktivite düzeylerini ölçmek için faydalı olabilirler. Dolayısıyla adımsayarlar programın etkililiği için izlenebilirlik sağlar ve öğrencileri aktif katılımcı olmaları için motive eder (Dunn & Tannehill, 2005).

Çocukların fiziksel aktivite düzeyleri ile ilgili çalışmalar 60 dakika ya da daha fazla orta-yüksek şiddetli veya buna eş değer günlük adım sayısı fiziksel aktivite tavsiyelerinin çocuklar tarafından karşılanmadığı göstermektedir (Beighle, Erwin, Morgan, & Alderman, 2012; Strong ve diğerleri, 2005; Troiano ve diğerleri, 2008). Okullar bu tavsiyelerin karşılanması için çocukların fiziksel aktivitelerini etkileyecek uygun ortamlardır. Çünkü çocuklar evleri haricinde zamanlarının büyük bir kısmını okullarda harcarlar. Öğrenciler aktif okul ulaşımı (Buliung, Mitra, & Faulkner, 2009; van Sluijs ve diğerleri, 2009), okul gününe dahil edilmiş ders arası aktiviteler (Efrat, 2013; Erwin ve diğerleri, 2012) ve beden eğitimini (Elliot, Erwin, Hall, & Heidorn, 2013; Lee, Burgesson, Fulton, & Spain, 2007; Trudeau & Shephard, 2005) içeren okuldaki fiziksel aktivite fırsatları aracılığıyla tavsiye edilen günlük fiziksel aktivitenin çok büyük bir miktarını karşılamak için fırsat elde ederler. Özellikle beden eğitimi, çocukların fiziksel aktivite davranışlarını olumlu bir şekilde etkileyen ve yaşam boyu fiziksel aktivite alışkanlıklarını teşvik eden temel unsur olarak tanımlanmaktadır (Morgan, Beighle, & Pangrazi, 2007).

Eğitim alanı, hızlı bilimsel ve teknolojik gelişmelerden diğer bir çok alan gibi etkilenmektedir. Bu yüzden eğitim, modern toplumlarda karşılaşılan yeni zorlukları karşılamak için gözle görülür derecede yeniden düzenlenmektedir. Beden eğitimi programları da mevcut sosyal ve mesleki bakış açıları tarafından oldukça etkilenmektedir (Darst & Pangrazi, 2006).

Son yıllarda fiziksel aktivite, sağlıklı ve aktif yaşam biçimlerini arttırmadaki okulların ve beden eğitiminin rolü üzerinde tüm dünyada artan akademik, siyasi ve medya ilgisi bulunmaktadır (Kulinna, McCaughtry, Martin, Cothran, & Faust, 2008; MEB, 2013a; WHO, 2010). Bundan dolayı, beden eğitimi öğretim programının temel amacı motor beceri ya da spora özgü yetenek gelişiminden sağlıkla ilgili fiziksel aktivite kaymıştır (Gao, Newton, & Carson, 2008; Payne & Isaacs, 2005).

Sağlıkla ilgili fiziksel aktivite ya da zindeliğin temel amacı yaşam boyu fiziksel aktivite alışkanlığı geliştirmektir. Bu nedenle beden eğitimi, zevkli fiziksel aktivitelere

katılmak, motor ve davranışsal yetenekler edinmek ve fiziksel olarak zinde olmak için öğrencilere fırsatlar sunmaya öncelik verir. Beden eğitiminin öğrencilerin fiziksel aktivite düzeylerine önemli katkı sağlaması için beden eğitimine derslerine daha fazla zaman ayrılmalıdır. Ayrıca, sağlıkla ilgili beden eğitiminin amaçları okullardaki beden eğitimi öğretimine ayrılan zamanın arttırılmasıyla karşılanabilir (Fairclough & Stratton, 2005).

Bu bağlamda Türkiye'de beden eğitimi politikaları sağlıkla ilgili fiziksel aktivite ve zindelik vurgusuyla yeniden düzenlenmiştir. Ortaokul beden eğitimi ile ilgili en dikkat çekici düzenleme haftada 2 saat olan zorunlu beden eğitimi dersine ek olarak haftada 2 ya da 4 saat sunulan seçmeli "Spor ve Fiziki Etkinlikler" dersinin oluşturulmasıdır (MEB, 2013a; MEB, 2013b). Türkiye ortaokul beden eğitimi öğretim programının odak noktası spordan sağlıkla ilgili fiziksel aktiviteye kaymıştır. Öğretim programının yaklaşık %40'ında yaşam boyu fiziksel aktivite, aerobik dayanıklılık, kas dayanıklılığı, esneklik ve vücut ağırlığı yönetimini içeren sağlıkla ilgili fiziksel aktivite ve zindelik başlıkları üzerine vurgu yapılmıştır (MEB, 2012; MEB, 2013a; MEB, 2013b).

Öğretim programının yeniden düzenlenmesinden sonra öğretmenler ve öğrenciler bakımından beden eğitimi dersinin etkililiği ve uygulanabilirliği ile ilgili çalışma yapılmamıştır. Bundan dolayı bu çalışmanın amacı ortaokullarda sağlıkla ilgili beden eğitimi reformu sonrası öğrencilerin fiziksel aktivite düzeylerinin ve öğretmen deneyimlerinin incelenmesidir.

YÖNTEM

Araştırma Deseni

Hem nicel hem de nitel yöntemler bu çalışmaya dahil edilmiştir. Nicel veri (fiziksel aktivite) adımsayar kullanılarak toplanmıştır. Nitel veri için öğretmenlerle yarı-yapılandırılmış görüşmeler yapılmıştır.

Örneklem ve Katılımcılar

Bu çalışma Ankara'nın Sincan bölgesinde yapılmıştır. Zorunlu "Beden Eğitimi & Spor" dersine ek olarak seçmeli "Spor & Fiziki Etkinlikler" dersi yapılan üç devlet ortaokulu amaçlı örneklem yöntemi ile araştırma ortamı olarak seçilmiştir. Bu okullardan her biri sınırlı, orta ve iyi seviyede fiziksel aktivite ile ilgili altyapı içeren farklı ortamları temsil etmiştir. Daha belirgin bir şekilde, sınırlı olarak tanımlanan okulda uygun bir okul bahçesi (1240 m^2 – her bir öğrenci için 1.56 m^2), spor salonu ve yeterli spor malzemesi bulunmamaktadır. Orta seviyeli olarak tanımlanan ikinci okulda ise uygun bir okul bahçesi (2100 m^2-her bir öğrenci için 1.19 m^2) bulunmaktadır fakat spor salonu ve yeterli spor malzemesi bulunmamaktadır. Buna karşılık, iyi olarak tanımlanan üçüncü okulda uygun bir okul bahçesi (3029 m^2 – her bir öğrenci için 2.63 m^2), spor salonu (700 m^2) ve bunlara ek olarak yeterli miktarda temin edilen spor malzemeleri bulunmaktadır.

Tüm okullar ikili öğretimdir. Okullardan biri hem ilkokul hem de ortaokul olarak kullanılmaktadır. Sınıflardaki toplam öğrenci sayısı 30-35 aralığında olup, ders süresi tüm okullar için 40 dakikadır. İki okulda blok ders uygulaması olduğu için bu okulların teneffüs süreleri diğer okulunkinden toplamda 30 dakika daha kısadır.

Bu çalışmanın katılımcılarını sadece zorunlu beden eğitimi & spor dersine katılan 67 öğrenci (46 kız ve 21 erkek) ve ayrıca seçmeli spor ve fiziki etkinlikler dersine katılan 86 öğrenci (37 kız ve 49 erkek), toplamda 153 (83 kız ve 70 erkek) 7. sınıf öğrencisi oluşturmaktadır. Hem zorunlu beden eğitimi & spor dersi hem de seçmeli spor & fiziki etkinlikler dersi haftada iki ders saati olarak uygulanmıştır. Öğrencilere ek olarak altı kadrolu beden eğitimi öğretmeni araştırmaya katılmıştır.

Veri Toplama Süreci

Bu çalışma 2015-2016 eğitim-öğretim yılı ekim ayında yapılmıştır. Çalışmanın öncesinde Orta Doğu Teknik Üniversitesi Uygulamalı Etik Araştırma Merkezi'nden gerekli izinler alınmıştır. Araştırmacı çalışma yapmak üzere seçilmiş ortaokulların öğretmen ve müdürleriyle çalışmanın amacı hakkında bilgi vermek ve gerekli izinleri

almak için iletişime geçmiştir. Milli Eğitim Bakanlığından yasal izinler alınmıştır. Çalışmaya katılan tüm öğrenciler ve ailelerinden yazılı izinler edinilmiştir.

Veri toplamanın ilk gününde, araştırmacı tarafından çalışmaya katılan öğrencilerin boy ve vücut ağırlığı bilgilerini edinilmiştir. Katılımcıların boy ve vücut ağırlıkları mezura ve dijital tartı (Omron BF511) kullanılarak ayakkabıları olmadan ölçülmüştür. Araştırmaya başlamadan önce katılımcılara adımsayarın işleyişi hakkında bilgi verilmiş ve adımsayarın uygun kullanımı gösterilmiştir (ör. aletin bel hizasında giyilmesi ve gereksiz yere adımsayarın sallanmaması). Daha sonra adımsayarlar öğrencilerin boy ve kilo ölçümlerine göre ayarlanmış ve araştırmacı tarafından katılımcılara dağıtılmıştır. Öğrenciler okul saatleri boyunca adımsayarları giymeleri, kendi rutin okul günleri ya da aktivitelerine devam etmeleri ve okul günü sonunda adımsayarları geri vermeleri konularında bilgilendirilmiştir. Öğrenciler bu protokolü takip eden dört okul günü için de uygulamıştır.

Araştırmacı tarafından öğrencilerin adım sayıları birinci dersin başından son dersin sonuna kadar kaydedilmiştir. Ayrıca, öğrencilerin adım sayıları zorunlu Beden Eğitimi & Spor ve seçmeli Spor & Fiziki Etkinlikler derslerine katıldıkları günlerde bu derslerin başında ve sonunda kağıt-kalem tekniği kullanılarak kaydedilmiştir. Veri toplamanın son gününde öğrencilerin son adım skorları araştırmacı tarafından kaydedilmiş ve adımsayarlar okul saatinin sonunda toplanmıştır. Tüm veriler açıkhava fiziksel aktiviteler için olanak sağlayan hava koşullarının olduğu günler boyunca toplanmıştır.

Veri Toplama Araçları

Adımsayar

Bu çalışmada adımsayarlar (Omron HJ-321-E) zorunlu Beden Eğitimi & Spor ve seçmeli Spor & Fiziki Etkinlikler dersleri boyunca ortaokul öğrencilerinin fiziksel aktivite düzeylerinin ölçülmesi için kullanılmıştır. Adımsayarlardan öğrencilerin fiziksel aktivite düzeylerini arttırmak için bu derslerin etkililiğini hakkında bilgi vermek amacıyla da okul saatleri boyunca bir hafta süresince (beş ardışık okul günü)

yararlanılmıştır. Çocukların fiziksel aktivite şekilleri yetişkinlerinki gibi sabit değildir. Bu yüzden ölçüm yapılan gün sayısı doğru sonuçların çıkması için büyük önem taşır. Önceki araştırmalarda belirtildiği gibi 3-5 günlük izleme çocukların fiziksel aktivite düzeyleri hakkında güvenilir tahmin elde etmek için yeterlidir (Hands & Parker, 2008; Trost ve diğerleri, 2002).

Görüşmeler

Uzman bir görüşmeci tarafından öğretmenlerin Sağlıkla İlgili Beden Eğitimi Reformu sonrası öğretmenlik deneyimleri hakkında bilgi edinmek için beden eğitimi öğretmenleriyle yarı yapılandırılmış görüşmeler yapılmıştır. Tüm görüşmeler katılımcıların izniyle ses kaydına alınmıştır. Görüşmeler doğal akışına ve öğretmenlerin konu hakkındaki ilgilerine bağlı olarak 20-30 dakika arasında sürmüştür. Beden eğitimi öğretmenlerinin fikirlerini ve deneyimleri doğal bir şekilde ve rahat bir ortamda ifade etmeleri için açık uçlu sorular kullanılmıştır.

Verilerin Analizi

Bu çalışmada nicel veri için hem betimleyici hem de çıkarımsal istatistik kullanılmıştır. Tüm değişkenler için tanımlayıcı istatistik uygulanmış, ortalama ve standart sapma olarak sunulmuştur. Çıkarımsal istatistik için varyans analizi (ANOVA) ve t test uygulanmıştır. Bunun yanında, tek değişkenli analiz için varsayımlar herhangi bir çıkarımsal analiz uygulanmadan önce kontrol edilmiştir (Field, 2009). Bu çalışma için alfa değeri .05 olarak belirlenmiştir. Tüm analizler Sosyal Bilimler için İstatistik Paketi versiyon 23 kullanılarak yapılmıştır.

Nitel veri için içerik analizi yöntemi kullanılmıştır (Hsieh & Shannon, 2005). Öncelikle görüşme verileri tamamen yazıya aktarılmıştır. Sonrasında iki bağımsız kodlayıcı tarafından veriler kodlanmıştır. Kodlayıcıların tamamen uzlaşmasından sonra, kodlar kategorilere ayrılmıştır. Bu ortaya çıkan kategoriler kodları anlamlı kümelere göre düzenlemek ve gruplamak için kullanılmıştır. Son olarak bulgular kümeler altında rapor edilmiştir.

Sınırlılıklar

Bu çalışma Ankara Sincan'da (düşük-orta sosyo-ekonomik çevre) ortaokul ortamında yapılmıştır. Çalışma kapsamındaki tüm okullar ikili öğretim yapmaktadır. Veri, ortaokul öğrencilerinden ve onların öğretmenlerinden ekim ayı içerisinde üç ard arda haftada (her bir okul için bir hafta) toplanmıştır. Hava koşulları çalışma boyunca öğrencilerin açık hava aktivitelerine katılmaları için uygundur. Çalışmanın bulguları sadece benzer ortamlara genellenebilir.

BULGULAR

Araştırma Sorusu 1: Türkiye'de ortaokul beden eğitimi reformu sonrası okul saatleri boyunca öğrencilerin fiziksel aktivite düzeyleri nedir?

Alt sorular

1. Cinsiyet okul saatleri boyunca öğrencilerin fiziksel aktivite düzeylerini etkiler mi?
2. Ders türü (zorunlu Beden Eğitimi & Spor ve seçmeli Spor & Fiziki Etkinlikler) okul saatleri boyunca öğrencilerin fiziksel aktivite düzeylerini etkiler mi?
3. Cinsiyet ve ders türü okul saatleri boyunca öğrencilerin fiziksel aktivite düzeylerini etkiler mi?

Bu araştırma sorusunda beş ardışık okul günü boyunca öğrencilerin adım sayılarının cinsiyet ve ders türünden etkilenip etkilenmediğini incelemek amacıyla 2x2 ANOVA kullanılmıştır. ANOVA test sonucuna göre cinsiyet ve ders türü arasında istatistiksel olarak anlamlı bir ilişki bulunmamıştır, F (1, 149) = .03, $p > .05$, fakat cinsiyet F (1, 149) = 40.74, $p < .05$, $\eta^2 = .22$ ve ders türü F (1, 149) = 21.19, $p < .05$, $\eta^2 = .13$ için anlamlı ana etki bulunmuştur. Bulgulara göre, erkekler (M = 4748.38, SS = 1273.92) beş ardışık okul günü boyunca kızlardan (M = 3362.53, SS = 1008.55) fiziksel olarak daha aktiftir. Ders türü için seçmeli Spor & Fiziki Etkinlikler dersine katılan öğrenciler (M = 4494.76, SS = 1296.40) sadece zorunlu Beden Eğitimi & Spor dersine katılan

öğrencilerden beş ardışık okul günü boyunca fiziksel olarak daha aktiftir (*M* = 3357.12, *SS* = 1078.17).

Araştırma Sorusu 2: Fiziksel aktivite için okulun fiziksel altyapısı (sınırlı, orta, iyi) okul saatleri boyunca öğrencilerin fiziksel aktivite düzeylerini etkiler mi?

Bu araştırma sorusunda, tek yönlü varyans analizi farklı fiziksel altyapıya sahip üç okul arasında beş ardışık okul günü boyunca öğrencilerin adımsayıları bakımından aralarında fark olup olmadığını incelemek için kullanılmıştır. Çıkarımsal analizden önce betimleyeici istatistik uygulanmıştır. Okul A'nın öğrencilerinin ortalama adım sayısı (*M* = 4167.52, *SS* = 1476.41) diğer okulların ortalamalarında yüksek çıkmıştır. Ayrıca okul C'nin öğrencilerinin adım sayısı ortalaması (*M* = 4037.05, *SS* = 1054.71) okul B'nin ortalamasından (*M* = 3790.00, *SS* = 1407.47) yüksek çıkmıştır. Fakat tek yönlü varyans analizi sonuçları okullar arasında öğrencilerin adım sayıları bakımından istatistiksel olarak anlamlı bir fark olmadığını göstermiştir. Sonuç olarak, farklı fiziksel altyapıya sahip okulların (okul A, okul B ve okul C) okul günleri boyunca öğrencilerin adım sayıları üzerinde anlamlı bir etkisi olmadığı söylenebilir, F (2, 150) = 1.08, $p > .05$.

Araştırma Sorusu 3: Okulların fiziksel altyapısına göre zorunlu "Beden Eğitimi & Spor" ve seçmeli "Spor & Fiziki Etkinlikler" dersleri boyunca öğrencilerin fiziksel aktivite düzeyleri arasında önemli bir fark var mıdır?

Zorunlu Beden Eğitimi & Spor ve seçmeli Spor & Fiziki Etkinlikler dersleri boyunca öğrencilerin fiziksel aktivite düzeylerini incelemek için bağımlı örneklem t test kullanılmıştır. Test sonuçları zorunlu Beden Eğitimi & Spor (*M* = 3114.60, *SS* = 1460.29) ve seçmeli Spor & Fiziki Etkinlikler (*M* = 2512.78, *SS* = 1358.14) dersleri boyunca yapılan ölçümler arasında istatistiksel olarak anlamlı farklılık olduğunu göstermiştir. Öğrencilerin fiziksel aktivite düzeyleri zorunlu Beden Eğitimi & Spor

dersi boyunca seçmeli Spor & Fiziki Etkinlikler dersinden daha yüksektir, t (87) = 4.11, $p < .05$, $r^2 = .16$.

Araştırma Sorusu 4: Sağlıkla İlgili Beden Eğitimi Reformu'ndan sonra beden eğitimi öğretmenlerinin deneyimleri nelerdir?

Yarı yapılandırılmış görüşmelerden elde edilen bulgulara göre öğretmenler zorunlu "Beden Eğitimi & Spor" dersinde yapılandırılmamış aktiviteler, spora özgü beceri öğretimi ve çeşitli spor ve fiziksel aktiviteleri deneyimlemiştir. Seçmeli "Spor & Fiziki Etkinlikler" dersinde ise öğretmenler yapılandırılmamış serbest oyun, tek spor branşında spora özgü beceri öğretimi ve tek spor branşında spora özgü zindelik uygulamalarını deneyimlemiştir.

Görüşme bulguları öğretmenlerin öğretim deneyimlerininin öğretmenlerin okul müdürleri, öğrenciler, diğer beden eğitimi öğretmenleri ve ebeveyn beklentileri algısından, beden eğitimi ile ilgili eğitim politikaları, sosyal çevre ve okulun fiziksel çevresi algısından, beden eğitimi öğretim programı bilgisi ile konu ve konu öğretimi bilgisinden etkilendiğini ortaya koymuştur.

TARTIŞMA VE SONUÇ

Araştırma Sorusu 1

Bu çalışmada adımsayar için tavsiye edilen adım sayısı (kızlar için 12.000 adım/gün ve erkekler için 15.000 adım/gün) Tudor-Locke ve diğerleri (2004) tarafından belirlenen standartlara göre belirlenmiştir. Bulgular kız ve erkek öğrencilerin günlük fiziksel aktivite tavsiyelerinin yaklaşık olarak sırasıyla %28 ve %31'ini okullarda karşıladıklarını göstermiştir. Ayrıca bu bulgular erkeklerin kızlarla karşılaştırıldığında okul saatleri boyunca fiziksel olarak daha aktif olduklarını ortaya çıkarmıştır.

Benzer şekilde China (2010) Singapurlu gençlerin fiziksel aktivitelerini incelemiş ve 9-12 yaşındaki öğrencilerin okul saatleri boyunca günlük fiziksel aktivitenin %28 ve %38'ini (kızlar ve erkekler) karşıladıklarını göstermiştir. Başka bir çalışma 10-12 yaşındaki Kıbrıslı öğrencilerle bölümlere ayrılmış okul günü boyunca öğrencilerin fiziksel aktivitelerini araştırmak için yapılmıştır. Bulgular öğrencilerin okul içi fiziksel aktivitelerinin günlük adımsayar bazlı tavsiyelerin yaklaşık olarak %37 kızlara ve %40 erkeklere karşılık geldiğini göstermiştir (Loucaides & Jago, 2008). Ayrıca Tudor-Locke ve diğerleri (2009) tarafından yapılan bir derleme çalışmasında öğrenciler okuldayken günlük adımı sayısının yaklaşık olarak %41-47 (kızlar) ve %42-49'unu (erkekler) biriktirdiklerini göstermiştir. Bundan dolayı, bu çalışmadaki öğrencilerin önceki çalışmalarla karşılaştırıldığında okul saatleri boyunca yeterince fiziksel olarak aktif olmadıkları söylenebilir. Türkiye'de sağlıkla ilgili beden eğitimi reformu sonrası okul saatleri boyunca ortaokul öğrencilerinin fiziksel aktivite seviyesinin arttırılmasına ihtiyaç duyulduğu sonucuna varılabilir.

Erkek öğrencilerin fiziksel aktivite düzeylerinin kız öğrencilerden daha yüksek olduğu yaygın olarak kabul görmektedir ve bir çok çalışma bu düşünceyi desteklemektedir (Alderman ve diğerleri, 2012; Kahan & Nicaise, 2012; Loucaides & Jago, 2008; Tudor-Locke ve diğerleri, 2006). Bu çalışmada da fiziksel aktivite düzeyi üzerindeki anlamlı cinsiyet etkisi şaşırtıcı değildir. Bunun bir nedeni beden eğitimi dersleri ve teneffüslerdeki serbest oyun zamanları süresince öğrencilerin fiziksel aktivite tercihleri olabilir. Çünkü gözlem sonuçları çoğu erkek öğrencilerin beden eğitimi dersleri ve teneffüslerde yüksek şiddetli fiziksel aktivitelerle meşgul olurken (ör. futbol ve basketbol), kız öğrencilerin bir çoğu orta şiddetli fiziksel aktivitelerle (ör. yürümek, büyük grupla voleybol ve yakan top oynamak) meşgul olduklarını göstermiştir.

Fiziksel aktivite düzeyi üzerindeki cinsiyet etkisinin başka bir nedeni de kız ve erkek öğrenciler arasındaki olgunlaşma farklılıkları olabilir. Çalışmalar her iki cinsiyetin fiziksel aktivitelerinin artan yaşla birlikte azaltığını göstermektedir (Riddoch, Savage, Murphy, Cran, & Boreham, 1991; Thompson, Baxter-Jones, Mirwald, & Bailey, 2003;

Trost ve diğerleri, 2002). Ancak, bilindiği üzere kızlar erkeklerden yaklaşık olarak iki yıl erken olgunlaşır (Malina, 2014). Thompson ve diğerlerine (2003) göre benzer kronolojik yaşlarda erkekler kadınlardan daha aktiftir fakat fiziksel aktivite düzeyindeki bu cinsiyet farkı cinsiyetler arasındaki olgunlaşma farklılıkları dikkate alındığında ortadan kaybolur. Bundan dolayı, bu çalışmadaki kızların düşük fiziksel aktivite düzeyleri erken olgunlaşmayla açıklanabilir sonucuna varılabilir.

Ders türü bakımından seçmeli Spor & Fiziki Etkinlikler dersine katılan öğrenciler (yaklaşık %32 kızlarda ve %34 erkeklerde) sadece zorunlu Beden Eğitimi & Spor dersine katılan öğrencilerden (yaklaşık %25 kızlarda ve %28 erkeklerde) okul saatleri boyunca fiziksel olarak daha aktiftir. Bu durum öğretim programında bu dersler için ayrılan ders saatiyle ilgili olabilir. Öğretim programında her iki ders için 2 saat (80 dakika) ayrılmasına rağmen seçmeli ders zorunlu derse ek olarak ekstra 2 saat daha fiziksel aktivite (haftada toplam 160 dakika) sağlar. Bu sebeple seçmeli ders öğrencilerin toplam fiziksel aktivite düzeylerini zorunlu dersten daha fazla arttırabilir.

Araştırma Sorusu 2

Bulgulara göre, okulların fiziksel altyapılarının okul saatleri boyunca ortaokul öğrencilerinin fiziksel aktivite düzeyleri üzerinde bir etkisi yoktur. Yani bir okulun sınırlı, orta ya da iyi seviyede fiziksel altyapıya sahip olması öğrencilerin fiziksel aktivite düzeylerini etkilememektedir. Ancak, orta seviyede fiziksel altyapıya sahip okula kayıtlı olan öğrenciler (ortalama 4167 adım/gün) iyi ve sınırlı altyapıya sahip okullara kayıtlı öğrencilerden (ortalama 4037 ve 3790 adım/gün, sırasıyla) daha fazla adım atmışlardır.

Bu çalışmada okullar fiziksel altyapılarına (spor malzemesi ve spor salonu), özellikle okul bahçesi ölçüsüne göre sınıflandırılmıştır. Sınırlı fiziksel altyapıya sahip okul her bir öğrenciye fiziksel aktivite için 1.56 m^2 alan sağlarken, iyi ve orta seviyede fiziksel altyapıya sahip okullar her bir öğrenci için sırasıyla 2.63 m^2 ve 1.19 m^2 alan sağlamıştır. Orta seviyede fiziksel altyapıya sahip okul sınırlı fiziksel altyapıya sahip okuldan daha büyük bir okul bahçesine sahip olmasına rağmen, okul mevcudunun

fazla olmasından dolayı her bir öğrenci için daha küçük alan sağlamıştır. Çünkü bu okul hem ortaokul hem de ilkokul olarak kullanılmaktadır. Fakat bu çalışmanın bulguları okul bahçesi büyüklüğünün öğrencilerin fiziksel aktivite düzeyleri için önemli olmadığını göstermiştir.

Cohen ve diğerleri (2008) tarafından yapılan bir çalışmada 11.8 yaşındaki kızların fiziksel aktiviteleri okul binasının kapladığı alan ve okul bahçesinin büyüklüğü bakımından incelenmiştir. Araştırmacılar okul bahçesinin alanı ile fiziksel aktivite arasında bir ilişki olmadığını ortaya koymuştur. Ek olarak, Sallis ve diğerlerinin (2001) yaptığı kısmen ilişkili bir çalışmada alan boyutlarının fiziksel aktivite ile önemli bir ilişkisinin olmadığı bulunmuştur. Başka bir taraftan Ridgers ve diğerleri (2010) 9-10 yaşındaki her çocuk için oyun alanı arttırılırsa, sedanter davranışların düşeceği ve yüksek şiddetli fiziksel aktivitelerin artacağını belirtmiştir. Harten ve diğerleri (2008) tarafından yapılan çalışmaya göre büyük alanlarda (130.4-157.9 m^2 her çocuk için) 9.3 yaşındaki (*SS* = 0.5) erkek çocuklar küçük alanlardaki (13.0-15.8 m^2 her çocuk için) erkek çocuklara göre daha aktiftir. Bu çalışma ile Ridgers ve diğerleri (2010) ve Harten ve diğerleri (2008) arasındaki farklılık örneklemlerin yaşları ve okul bahçelerinin ölçü farklılıklarından kaynaklanıyor olabilir (Harten ve diğerleri, 2008).

Bulgulara göre fiziksel altyapı bakımından iyi seviyede bir okul olmak öğrencilerin fiziksel aktivite seviyelerini orta seviyede bir okuldan daha çok etkilemek için yeterli olmayabileceği söylenebilir. Orta seviyede fiziksel altyapıya sahip okul spor malzemesi, spor salonu olmayışı ve okul mevcudunun fazlalığı bakımından dezavantajlı olmasına rağmen, diğer okullardan tek avantajı blok ders uygulanmasının olmamasıdır. Bu yüzden, mevcut çalışmada okullar arasındaki teneffüs süresi farklılıkları öğrencilerin fiziksel aktivite düzeyi farklılığının nedeni olabilir. Çünkü tüm okullarda ikili öğretim yapılmış, sınırlı ve iyi seviyede fiziksel altyapıya sahip okullarda fiziksel aktivite için teneffüs gibi ekstra fiziksel aktivite fırsatlarını sınırlandıran blok ders uygulanmıştır. Bu sebepten bu okulların teneffüs süreleri 30 dakika daha kısaltılmıştır ve sadece orta seviyede fiziksel altyapıya sahip olan okulda altı adet (toplam 60 dakika) teneffüs yapılmıştır. Bu 30 dakika teneffüs süresi eksikliği

iyi ve sınırlı seviyede fiziksel altyapıya sahip okullara kayıtlı öğrencilerin fiziksel aktivite düzeylerini etkilemiş olabilir.

Araştırma Sorusu 3

Bu çalışmanın bulguları (zorunlu) Beden Eğitimi & Spor ve (seçmeli) Spor & Fiziki Etkinlikler dersleri arasında ders süresince öğrencilerin fiziksel aktivite düzeyleri bakımından anlamlı bir fark olduğunu göstermiştir. Daha belirgin bir şekilde, öğrencilerin zorunlu beden eğitimi dersi (M = 3114 adım) süresince attıkları adım sayısı seçmeli derste (M = 2512 adım) attıkları adım sayısından daha fazladır.

Seçmeli dersin okul saatlerinde öğrencilerin toplam fiziksel aktivite düzeylerine etkisi zorunlu dersten daha fazla olmasına rağmen, öğrenciler zorunlu beden eğitimi & spor dersi süresince daha aktiflerdir. Bu durum, iki ders arasındaki uygulama farklılıklarıyla açıklanabilir. Bundan dolayı, zorunlu ders uygulamasının seçmeli dersten daha etkili olduğu söylenebilir. Bu derslerdeki öğretim farklılıkları ya da öğretmen uzmanlığı bunun nedeni olabilir.

Araştırmacının gözlemlerine göre, öğretmenler zorunlu derste öğretim için en az 20-25 dakika harcamış ve sonrasında öğrencilere serbest oyun için zaman verilmiştir. Seçmeli ders için öğretmenler hiç bir öğretim vermemiş, sadece bazı spor malzemeleri sağlayarak öğrencileri serbest oyun için serbest bırakmıştır. Ancak bu serbest oyun zamanı öğretmenler tarafından düzenlenmemiş, bunun için öğrenciler her ne isterlerse (ör. voleybol, basketbol, futbol ve çeşitli top oyunları oynamak) onunla meşgul olmuşlardır.

Bu serbest zamanlarda bazı öğrenciler orta-yüksek şiddetli fiziksel aktivitelerle meşgul olurken (ör. basketbol, futbol), diğer öğrenciler (özellikle kızlar) oturmak, sohbet etmek gibi sedanter davranışlar sergilemişlerdir. Ayrıca sınırlı ve orta seviyede fiziksel altyapıya sahip okullarda spor malzemelerinin olmayışı seçmeli dersler süresince bu sedanter davranışların nedeni olabilir. Tüm bunlar seçmeli derse katılan öğrencilerin düşük ortalama adım sayısının sebebi olabilir.

Ek olarak, öğrencilerin beden eğitimi ile ilgili ders algısı öğrencilerin fiziksel aktivite düzeylerini etkileyebilir. Beden eğitimi & spor dersi zorunlu bir ders olduğu ve öğrenciler için yapılandırılmış fiziksel aktivite katılımı sağladığı için daha resmi algılanabilir. Tam tersine spor & fiziki etkinlikler dersi seçmeli bir ders olduğu ve yapılandırılmamış fiziksel aktivite ortamı sağladığı için serbest oyun zamanı olarak algılanabilir. Daha önce bahsedildiği gibi bunun sebebi öğretmenler tarafından seçmeli ders boyunca öğrencilere hiç bir öğretim verilmemesi ve serbest bırakılmaları olabilir. Sonuç olarak beden eğitimi öğretmenlerinin seçmeli spor & fiziki etkinlikler dersi ile ilgili içerik bilgisi ve ders uygulamaları otoriteler tarafından desteklenmelidir. Bu şekilde öğretmenler uygun ve etkili bir öğretim verebilir ve seçmeli dersler süresince öğrencilerin fiziksel aktivite düzeyleri yükseltilebilir.

Araştırma Sorusu 4

Bulgular bu çalışmadaki öğretmenlerin sağlıkla ilgili beden eğitimi yaklaşımında mesleki gelişime ihtiyaç duyduklarını göstermiştir. Öğretmenlerin mevcut beden eğitimi uygulamaları "Beden Eğitimi & Spor" ve "Spor & Fiziki Etkinlikler" dersi öğretim programları tarafından önerilen uygulamalardan uzaktır.

Bu çalışmada öğretmenlerin beden eğitimi uygulamalarının ağırlıklı olarak öğretmenlerin kişisel beden eğitimi ve spor antrenörlük geçmişlerinden etkilendiği görülmektedir. Önceki çalışmalar öğretmenlerin mesleki eğitimlerinde öğretmen merkezli bir yaklaşımla spor beceri öğretiminin esas alındığını (Ince & Hunuk, 2013) ve öğretmenlerin sağlıkla ilgili beden eğitimi bilgisinin sınırlı olduğunu göstermektedir (Castelli & Williams, 2007; Ince & Hunuk, 2013; Keating et al., 2009). Bu çalışmanın sağlıkla ilgili beden eğitimi içerik bilgisi ve bu içeriğin nasıl öğretileceği ile ilgili öğretmen yetersizlikleri bulguları önceki çalışmaların bulgularıyla aynı doğrultudadır.

Buna rağmen, bu çalışma ayrıca okul beden eğitimi uygulamalarının öğretmenlerin diğer paydaşların (ör. okul müdürleri, ebeveynler, öğrenciler) beden eğitiminde onlardan beklentileri algısına, öğretmenlerin fiziksel, sosyal ve siyasi ortam anlayışına

(ya da yanlış anlayışına), öğretim programı bilgisine, konu bilgisi ve konu bilgisi öğretimine göre şekillendiğini göstermektedir.

Öneriler

- Ortaokul öğrencilerinin fiziksel aktivite düzeyleri okul günü boyunca incelenmelidir. Bu şekilde beden eğitimi derslerinin günlük fiziksel aktivite üzerine etkisi belirlenebilir ve önerilen fiziksel aktivite düzeyi ile karşılaştırılabilir.
- Kız ve erkek öğrencilerin zorunlu Beden Eğitimi & Spor ve seçmeli Spor & Fiziksel Etkinlikler dersleri boyunca fiziksel aktivite düzeyleri incelenebilir ve böylece dersler süresince cinsiyet farklılıkları hakkında bilgi edinmek için karşılaştırılabilir.
- Teneffüsler öğrencilerin fiziksel aktivite düzeylerini arttırmak için önemli fırsatlardır. Bundan dolayı, sağlıkla ilgili beden eğitimi reformu sonrası öğrencilerin fiziksel aktivite düzeyleri teneffüslerde incelenmelidir. Bu şekilde, ders aralarının öğrencilerin fiziksel aktivite düzeylerine etkisi hakkında bilgi edinilebilir. Ayrıca teneffüsler süresince cinsiyet arasındaki fiziksel aktivite farklılıkları araştırılabilir.
- Ortaokul beden eğitimi derslerinin öğrencilerinin hafta sonu fiziksel aktivite düzeylerine etkisini bulmak için hafta sonları incelenmelidir.
- Bu çalışmanın bulguları beden eğitimi öğretmenlerinin seçmeli Spor & Fiziki Etkinlikler dersi ile ilgili içerik bilgilerinin sınırlı olduğunu ve öğretmenlerin uygulamada problemler yaşadığını göstermektedir. Bundan dolayı hizmet içi eğitim uygulamaları bu doğrultuda düzenlenmelidir. Ayrıca, beden eğitimi öğretmen eğitimi programları sağlıkla ilgili beden eğitimi öğretim programına göre yeniden düzenlenmelidir.

G: Tez Fotokopisi İzin Formu

ENSTİTÜ

Fen Bilimleri Enstitüsü	
Sosyal Bilimler Enstitüsü	X
Uygulamalı Matematik Enstitüsü	
Enformatik Enstitüsü	
Deniz Bilimleri Enstitüsü	

YAZARIN

Soyadı : Sarıkaya
Adı : Serap
Bölümü : Beden Eğitimi ve Spor Bölümü

TEZİN ADI (İngilizce) : Physical Activity Level of Students and Experiences of Teachers After the Health-Related Physical Education Reform in Secondary Schools

TEZİN TÜRÜ : Yüksek Lisans [X] Doktora [ ]

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir. [ ]
2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir. [ ]
3. Tezimden bir bir (1) yıl süreyle fotokopi alınamaz. [X]

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: