

PHYSICAL ACTIVITY BEHAVIORS AND NEIGHBORHOOD WALKABILITY
PERCEPTIONS OF TURKISH WOMEN IN LOW AND HIGH
SOCIO-ECONOMIC ENVIRONMENTS

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF SOCIAL SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

GÜLŞEN YILDIRIM

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF SCIENCE
IN THE DEPARTMENT OF
PHYSICAL EDUCATION AND SPORT

SEPTEMBER 2010

Approval of the Graduate School of Social Sciences

Prof. Dr. Meliha Altunışık
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Science.

Prof. Dr. Settar Koçak
Head of Department

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science in Physical Education and Sports.

Assoc. Prof. Dr. Mustafa
Levent İnce Supervisor

Examining Committee Members

Prof. Dr. Erdal Zorba (Gazi, PES) _____
Prof. Dr. Settar Koçak (METU, PES) _____
Assoc. Prof. Dr. Mustafa Levent İnce (METU, PES) _____

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.

Name, Last name: Gülşen Yıldırım

Signature :

ABSTRACT

PHYSICAL ACTIVITY BEHAVIORS AND NEIGHBORHOOD WALKABILITY PERCEPTIONS OF TURKISH WOMEN IN LOW AND HIGH SOCIO-ECONOMIC ENVIRONMENTS

Yıldırım, Gülşen

M.S., Department of Physical Education and Sports

Supervisor: Assoc. Prof. Dr. Mustafa Levent İnce

September 2010, 65 pages

The purposes of this study were to compare (a) the physical activity (PA) levels, (b) exercise stages of change levels and (c) neighborhood walkability perceptions of Turkish women who are living in Low and High socio-economic (SES) environments. Initially, Low SES and High SES neighborhoods in Ankara were identified by using the classification of Turkish Statistical Institute. Participants were randomly selected 394 women (Low SES=188, High SES=206) between the ages of 18-65 living in these neighborhoods. For data collection, International Physical Activity Questionnaire-Short Form (IPAQ); Physical Activity Stages of Change Questionnaire (PASCQ), and Neighborhood Environment Walkability Scale-Abbreviated (NEWS-A) were used. Descriptive statistics, nonparametric statistical methods (Mann Whitney U test, Pearson chi-square test) and MANOVA were used for the data analysis. According to the IPAQ results, there was no significant difference in walking and vigorous levels by women's neighborhood SES ($p>0.05$). However; moderate and total PA level of women living in High SES neighborhoods

were significantly higher than the related levels of women living in Low SES neighborhoods ($p < 0.05$). The results on exercise stages of change levels indicated that the women in Low SES neighborhoods had a higher percentage at pre-contemplation stage than those of women in High SES neighborhoods ($p < 0.05$). On the other hand, a higher percentage of women in High SES neighborhoods were at maintenance stage ($p < 0.05$). NEWS-A results revealed that there were significant differences in women's neighborhood walkability perception by their neighborhood SES, Wilk's $\lambda = .33$, $F(8,382) = 97.57$, $p < .05$, $\eta^2 = .67$. According to further univariate analyses, there were significant differences in all NEWS-A subscales by neighborhood SES in favor of High SES neighborhood, except for the "pedestrian/traffic safety" subscale ($p < 0.05$). There were no significant difference in pedestrian/traffic safety scale by neighborhood SES ($p > 0.05$). In conclusion, women who live in Low SES neighborhood have a higher risk of physical inactivity. Moreover, perceptions of neighborhood environment for the promotion and support of PA were lower in Low SES neighborhood residents as compared to their High SES neighborhood counterparts. Intervention programs for women living in these areas should be provided by considering their PA level, exercise stages of change level and neighborhood walkability perceptions.

Keywords: women, physical activity, exercise stages of change, neighborhood walkability, socio-economic status

ÖZ

DÜŞÜK VE YÜKSEK SOSYO-EKONOMİK ÇEVRELERDE YAŞAYAN KADINLARIN FİZİKSEL AKTİVİTE DAVRANIŞLARI VE YAKIN ÇEVREDE YÜRÜNEBİLİRLİK ALGILARI

Yıldırım, Gülşen

Yüksek Lisans, Beden Eğitimi ve Spor

Tez Yöneticisi: Doç. Dr. Mustafa Levent İnce

Eylül 2010, 65 sayfa

Bu çalışmanın amaçları düşük ve yüksek sosyoekonomik (SES) çevrelerde yaşayan kadınlarının (a) fiziksel aktivite düzeylerini, (b) egzersiz davranışı değişim basamaklarını ve (c) yakın çevrede yürüyebilme algılarını yaşadıkları çevrenin ekonomik düzeyine göre karşılaştırmaktır. Öncelikle, Türkiye İstatistik Kurumundan Ankara iline ait adrese dayalı düşük ve yüksek SES çevreleri belirlenmiştir. Bu bölgelerden rastgele seçim yöntemi ile belirlenen 18-65 yaş aralığında toplam 394 kadın (düşük SES=188 , yüksek SES =206) çalışmanın örneklemini oluşturmuştur. Veri toplama aracı olarak “Uluslararası Fiziksel Aktivite Anketi-Kısa Form”, “Fiziksel Aktivite Davranışı Değişim Basamakları Anketi” ve “Yakın Çevrede Yürüyebilme Anketi” kullanılmıştır. Veri analizinde tanımlayıcı istatistik, Mann Whitney U , Pearson ki-kare ve MANOVA testlerinden yararlanılmıştır. Fiziksel aktivite düzeyi açısından yürüyüş ve şiddetli fiziksel aktivite düzeylerinde düşük ve yüksek SES bölgelerinde yaşayan kadınlar arasında fark bulunmamıştır ($p>0.05$). Orta şiddette ve toplam fiziksel aktivite düzeyleri açısından ise yüksek SES

bölgelerinde yaşayan kadınlar lehine anlamlı fark bulunmuştur ($p < 0.05$). Egzersiz Değişimi Basamakları anketi sonuçlarına göre düşük SES bölgelerinde yaşayan kadınların çoğunluğu “Eğilim Öncesi” basamağında yer almaktadır. “Devamlılık” basamağında olan kadın yüzdesi yüksek SES bölgelerinde yaşayan kadınlarda düşük SES grubuna göre daha fazladır ($p < 0.05$). Yakın Çevrede Yürüeyilme anketi sonuçlarına göre yakın çevrede yürünebilirlik algısı açısından düşük ve yüksek SES bölgelerinde yaşayan kadınlar arasında anlamlı fark vardır [Wilk’s $\lambda = .33$, $F(8,382) = 97.57$, $p < .05$, $\eta^2 = .67$]. Yakın çevrede yürüeyilme anketinin bir boyutu hariç (trafik güvenliği), diğer bütün altboyutlarında yüksek SES bölgelerinde yaşayan kadınlar lehine anlamlı fark bulunmuştur ($p < 0.05$). Sonuç olarak düşük SES çevrelerinde yaşayan kadınların düşük fiziksel aktiviteye bağlı risklerinin daha yüksek olduğu bulunmuştur. Kadınların fiziksel aktiviteye katılımını artırmak için hazırlanacak eğitim ve destek programları, bu grubun fiziksel aktivite düzeyleri, egzersiz değişim basamakları ve yakın çevrede yürünebilirlik algıları dikkate alınarak hazırlanmalı ve sunulmalıdır.

Anahtar Kelimeler: kadın, fiziksel aktivite, egzersiz değişim basamakları, yakın çevrede yürünebilirlik, sosyo-ekonomik düzey.

To My Mother

ACKNOWLEDGMENTS

I would like to acknowledge the great effort of very important people from a variety of perspectives, all of whom made this research possible. First of all, I would like to thank sincerely to my supervisor Assoc. Prof. Dr. M. Levent İnce for providing me with the support, knowledge, advice, and criticism needed to accomplish and fulfill the degree of Master of Science in Physical Education and Sports. I would also thank for his invaluable encouragement, endless effort and patience, sincerity, tolerance, and understanding.

I also want to thank to the members of thesis committee, Prof. Dr. Erdal Zorba, and Prof. Dr. Settar Koçak for their valuable feedback, suggestions and their sincerity.

I would also give special thanks to my friends Mine Müftüleri, Deniz Hünük, Cevdet Cengiz and Recep Ali Özdemir for their assistance during designing the questionnaire and the data analyzing procedure of this study. I would also like to give sincere thanks to all the subjects who volunteered to participate in this study.

Finally, I am grateful to my family : Sakine,Ahmet,Birkan,Pınar Yıldırım , and to Zafer Baykal for the invaluable support and encouragement, never-ending patience, understanding, and tolerance.

TABLE OF CONTENTS

PLAGIARISM	iii
ABSTRACT	iv
ÖZ	vi
DEDICATION	viii
ACKNOWLEDGMENTS	ix
TABLE OF CONTENTS	x
LIST OF TABLES	xii
CHAPTER	
1. INTRODUCTION.....	1
1.1. Background of the study	1
1.2. Purpose of the study	5
1.3. Research questions	6
1.4. Hypothesis	6
1.5. Significance of the study	6
1.6. Assumptions of the study	7
1.7. Limitations of the study	8
1.8. Definition of the terms	8
2. LITERATURE REVIEW	10
2.1. Physical activity, public health and women’s health.....	10
2.2. Stages of change model and physical activity.....	14
2.3. Social-ecological model and physical activity.....	18
3. METHOD	24
3.1. Design and sampling	24
3.2. Participants	24
3.3. Data collection procedures	25
3.4. Data collection instruments	25
3.5. Data analysis	28

4. RESULTS	29
4.1. Demographic characteristics of the participants	29
4.2. Research question 1	32
4.3. Research question 2	34
4.4. Research question 3	35
5. DISCUSSION	37
5.1. Demographic indicators of women in Low and High SES neighborhoods	37
5.2. Research question 1.....	39
5.3. Research question 2.....	41
5.4. Research question 3.....	42
6. CONCLUSION & RECOMMENDATIONS.....	44
6.1. Conclusions.....	44
6.2 Recommendations.....	45
REFERENCES	47
APPENDICES	55
Appendix A. Questionnaires	56
Appendix B. Approval of Human Research Ethics Committee.....	66

LIST OF TABLES

TABLES

Table 1. Descriptive characteristic of the participants.....	30
Table 2. Frequencies and percentages of the some demographic characteristic of the participants.....	31
Table 3. Mann – Whitney U test results of the physical activity levels (IPAQ) by neighborhood SES.....	33
Table 4. Physical activity levels (MET) by neighborhood SES.....	33
Table 5. Categorized PA levels (low, moderate, high) based on the IPAQ classification by neighborhood SES	34
Table 6. Frequencies and percentages of the participants’ exercise stages of change levels.....	35
Table 7. Univariate analysis of variance results of the participants’ walkability perceptions.....	36
Table 8. Descriptive statistics of the women’s walkability perceptions by neighborhood SES.....	36

CHAPTER 1

INTRODUCTION

1.1. Background of the study

The health reports of World Health Organization and other National Health Authorities indicate a dramatic increase in the prevalence of obesity and other physical inactivity related diseases (USDHHS, 2000; WHO, 2010; Turkish National Burden of Disease, 2004). Overweightness and obesity, mainly resulted in physical inactivity and nutritional habits with high caloric intake, are important determinants of health and lead to adverse metabolic changes, including increases in blood pressure, unfavorable cholesterol levels and increased resistance to insulin. They raise the risks of coronary heart disease, stroke, diabetes mellitus, and many forms of cancer. There is plenty of research evidence that support the positive effect of regular physical activity on primary and secondary prevention of cardiovascular diseases (Manson & Rich-Edwards, 1999).

Therefore, it is generally accepted that physical activity (PA) can improve quality of life and is a critical component in reducing or eliminating health disparities through lowering resting heart rate and blood pressure; reducing hypertension and blood glucose; decreasing fat body mass; increasing lean body mass, bone mass, bone strength and muscle strength; preventing arthritis, some type of cancer and type 2 diabetes (Kramer, et al., 1996; USDHHS, 2000; WHO, 2010; Turkish National Burden of Disease, 2004). There is also evidence that regular PA may reduce or prevent from mild or moderate depression (USDHHS, 2000).

Because of its role in health promotion and disease prevention and its influence on morbidity and mortality, PA is a particularly important health behavior and warrants an increased effort to identify variables that predict a person's likelihood of engaging in and maintaining regular PA. Mullineaux et al. (2000) identified the age, educational level, motivation, perceived benefits of PA, lifestyle, and opportunities to participate in PA as the best predictor of engaging and maintaining regular PA. Other studies also indicated the sex, socioeconomic status (SES) and opportunities in the neighborhood environment as the critical variables in predicting the regular PA habit. (Sallis, et al., 1985; Eyster & Vest, 2002; Ball et al., 2006; Cengiz et al, 2009; Sallis et al., 2009).

In the PA literature, studies indicated a decrease in physical activity as people get older (Mullineaux et al., 2000; Aktener et al., 2006), especially moving from adolescence to adulthood seems to be an identical time span for the decline in exercise level (Leslie et al., 2001; Kin-İsler et al., 2009). PA behavior has been linked with an increased likelihood of the more educated to be physically active (Dishman, et al., 1985). Mullineaux et al. (2000) links this condition to development of self-perception and knowledge which might be related with a better understanding of the benefits of exercise.

Intention to do regular PA as well as participating and maintaining in regular PA may be accepted as an extension of understanding and valuing the benefits of PA. Exercise stages of change model, a part of Transtherotical theory and examines the PA by focusing on individual and psychology of the change process, depends on this assumptions (Hagger and Chatzisarantis, 2005; Prochaska, DiClemente, and Norcross, 1992). Active lifestyle behaviors in a family seem to be effective in

children's PA behaviors. Shannon & Shaw (2008) indicated the influence of mothers on their daughters' leisure time activity behaviors as a role model. This evidence presents the effects of social environment on the exercise habits of individuals. Opportunities to participate in PA are related with the physical environment. Availability and accessibility of PA facilities and programs are related with the exercise behavior of the people (Mullineaux et al., 2000).

Sex differences in PA level presented in a number of studies previously (WHO, 2010; Trost et al., 2002; Cengiz et al., 2009; Ince & Ebem 2009). These studies indicated a higher PA level in men as compared to women population. Findings of Crespo et al. (1999) and Dowler (2001) presented a lower PA behavior in socio-economically disadvantaged populations. Ball et al. (2006) identified a number of key influences on PA behaviors by SES. These were negative early life/family PA experiences, greater priority given to television viewing, lack of time due to work commitments, neighborhood level barriers in low SES group, and participation in a wider range of PA in leisure time in high SES group.

Recently, effects of neighborhood environment on PA participation have been receiving great interest from the researchers. A large scale study by Sallis et al (2009) including data from 11 different countries indicated that richness of neighborhood environment for PA participation is very influential for active living. Findings of a higher neighborhood level barriers to exercise in low SES as compared to high SES environments by Ball et al. (2006) also provides insights about neighborhood conditions for PA in different SES groups.

The above mentioned studies indicated that women, low SES groups and people living in non-supportive neighborhood environment for exercise are more disadvantaged groups with respect to PA participation. These evidences also presented that examination of PA behavior should include individual, social, physical and policy level aspects to have a deeper understanding in exercise adherence of people. Social-ecological model provides a good framework to deal with all four aspects in explaining the PA behavior of people (Stokols, 1992; Eyster & Vest, 2002; Cochrane et al., 2008; Sallis et al., 2009).

Social-ecological model includes individual, social environment, physical environment and policy level components (Stokols, 1992). Individual level is at the centre of the model and includes factors that influence exercise behaviors such as knowledge, attitudes, behaviors, beliefs, motivation, PA skills, age, sex, education, SES, employment and self-efficacy. Social environment component includes the relationships, culture and the society with whom individual interacts such as family, spouse, peers, institutions and organizations, social networks, cultural background and SES of the community. Physical environment comprise the natural living environment and the built environment. Natural factors such as weather or geography; availability and access to facilities such as parks, playgrounds, gymnasiums, walking or cycling tracks; community design such as density of housing or land use; and public transport are some of the factors that considered within the physical environment. Policy component includes the legislation, regulatory or policy making actions that have the potential to affect PA such as urban planning policies, transport policies, school physical education policies, health policies, environmental policies, workplace policies and funding policies.

Even though studies examining the PA behavior with the social-ecological framework have been increasing in the literature especially in the western countries, to my knowledge, no study has been conducted in Turkey with this framework except a small number of studies focusing on the individual (Turkish National Burden of Disease, 2004; Koçak, 2005; Daskapan et al., 2006; Savci et al., 2006; Aktener et al., 2006; Cengiz et al., 2009; İnce & Ebem, 2009; Haşıl-Korkmaz & Arabacı, 2008; Kin-İşler et al., 2009; Karaca et al. 2009) or social environment components (Kulakac et al., 2006; Koca et al., 2009) independently.

In addition, most of the above mentioned previous studies in Turkish context conducted in school aged population (Daskapan et al., 2006; Savci et al., 2006; Cengiz et al., 2009; İnce & Ebem, 2009; Koca et al., 2009; Kin-İşler et al., 2009; Karaca et al. , 2009). This causes a serious limitation in the generalization of the findings to older adult population. Lack of knowledge on different components of social-ecological model can influence the quality of interventions for the PA promotion in the population. Therefore, there is an immediate need for the examination of PA behaviors and neighborhood walkability perceptions of adult women population who are living in different SES neighborhoods in Turkey.

1.2. Purpose of the study

The purposes of this study were to compare the PA levels, exercise stages of change levels and neighborhood walkability perceptions of Turkish women who are living in Low and High SES neighborhood environments.

1.3. Research questions

- 1) Is there a difference in the PA levels of women who are living in Low and High SES neighborhood environments?
- 2) Is there a difference in the exercise stages of change levels of women who are living in Low and High SES neighborhood environments?
- 3) Is there a difference in the neighborhood walkability perceptions of women who are living in Low and High SES neighborhood environments?

1.4. Hypothesis

- 1) There is no significant difference between the women who are living in Low and High SES neighborhood environments in terms of PA levels.
- 2) There is no significant difference between the women who are living in Low and High SES neighborhood environments in terms of exercise stages of change levels.
- 3) There is no significant difference between the women who are living in Low and High SES neighborhood environments in terms of neighborhood walkability perceptions.

1.5. Significance of the Study

PA is an important public health issue that has received increasing attention in recent years. The relationships among physical activity, leisure, and health as well as other dimensions like nutrition and environmental conditions, have implications for everyone's quality of life. Previous studies indicated that rates of leisure-time PA

are lowest among women, people with low SES, older adults, and people living in poor neighborhood settings for active living (Jones et al., 1998; Cassidy 1996).

Even though, there are studies in different components of social-ecological framework including, individual, social environment, physical environment and policy level, especially in western countries, there is a lack of evidence for the Turkish context except limited number of studies focusing of individual (Turkish National Burden of Disease, 2004; Koçak, 2005; Daskapan et al., 2006; Savci et al., 2006; Aktener et al., 2006; Cengiz et al., 2009; İnce & Ebem, 2009; Haşıl-Korkmaz & Arabacı, 2009) and social environment (Kulakac et al., 2006; Koca, 2009). Lack of such information can decrease the effectiveness of intervention programs targeted in women population for PA promotion.

Therefore, findings of the current study can provide critical information for 1) the researchers to identify the physical activity needs of woman population in Turkey and to provide data for cross cultural comparisons; 2) the public health authorities and policy makers to provide community based PA promotion programs and to prepare need based policies; 3) people who are responsible for PA promotion including adult education specialist, fitness instructors, sport managers to increase the quality of their practices.

1.6. Assumptions of the study

It is assumed that the participants of the study understand the purpose of the study and answer the questions accordingly, unbiased. It is assumed that the participants of the study followed the instructions of the survey carefully. The surveys used in this study were clear and understandable for the participants.

1.7. Limitations of the study

This study included participants from 18 to 65 years old women population from Low and High SES environments in a metropolitan city. Findings can only be generalized to this population. Survey method was used for data collection. This study carries all the limitations of survey data collection technique.

1.8. Definition of the terms

Physical activity (PA): It is any form of bodily movement produced by skeletal muscles that result in expenditure of energy. PA may include a planned activity like walking, running, basketball or daily activities such as household chores, yard work etc. (IPAQ, 2005).

Physical activity(PA) levels: These are categorized in three levels, low, moderate and high level, based on the “International Physical Activity Questionnaire” scoring method (Craig et al., 2003).

Exercise stages of changes: It is the stage of readiness to change of individuals’ physical activity behavior (Marcus et al., 1992). The stages were classified according to the readiness to change. There are five stages: precontemplation, contemplation, preparation, action, and maintenance.

Low & High socio-economic environments (SES): Classification of neighborhood environment by the Turkish Statistical Institute with addressing household SES.

Neighborhood walkability perception: Individuals perceptions of their local environment (Cerin et al., 2006). It includes the following environmental

characteristics: constructs of residential density, proximity to stores and facilities, street connectivity, facilities for walking and cycling, aesthetics, and safety from crime and traffic.

CHAPTER 2

LITERATURE REVIEW

The aim of this study was to examine the PA behaviors and neighborhood walkability perceptions of women who are living in Low SES and High SES neighborhoods. In this section, firstly, the literature related with effects of PA on public health, and women's' health, and studies related with the PA level of different populations are presented. Secondly, use of stages of change model in understanding the exercise process of change of people with related literature is discussed. Thirdly, uses of social-ecological model in understanding the PA behaviors of people are presented with a stress on the influence of SES and neighborhood environment.

2.1. Physical activity, public health and women's health

PA is bodily movement produced by the skeletal muscles that expends energy beyond resting levels. It includes occupational activities (walking, sweeping, lifting, etc.), transportation activities (walking to work, cycling to school, etc.), recreational activities (skating, rowing, gardening, etc.), and exercise (Ward et al, 2007). Intensity of PA is usually calculated as metabolic equivalents (MET). One MET is equivalent to an oxygen uptake of 3.5 ml/kg/min. International Physical Activity Questionnaire (IPAQ) classifies PA of a person less than 600 MET-min/weeks as low level; 600-3000 MET-min/week as moderate level; and accumulation of more than 3000 MET-min/week as high level (IPAQ, 2005).

PA plays an essential role in public health since it protects the body against diseases, preventing obesity, slowing down the organic regression caused by aging,

reducing neural tension, providing social contact, preventing posture defects and improving quality of life (Biddle et al., 2001; Crone et al., 2005; WHO, 2010). Physical inactivity is ranked as the fourth leading risk factor for all deaths globally, contributing to 1.9 million deaths each year (WHO, 2010). Therefore, promoting regular PA has been a public health priority in many developed and developing countries including United States of America, United Kingdom, New Zealand, and Turkey (USDHHS, 2000; Turkish National Burden of Disease, 2004; Sinclair, et al., 2005; WHO, 2010). ACSM (1995) recommends at least 30 minutes of moderate to vigorous PA, all or more of the days of a week to improve the health.

While the importance of PA is well established, the studies indicated that people are not active enough to achieve the health benefits of PA. For example, a survey across member states of the European Union found that about 30% of adults in these countries do not perform sufficient PA for health benefits (Sjöström, 2006). A Canadian national survey showed that 90% of Canadian children and youth are not active enough (Canadian Fitness and Lifestyle Research Institute, 2005) and also approximately one-third of Canadian children are overweight (Shields, 2006). Moreover, the average 20- to 39-year old man and woman are overweight. If these trends continue for another 25 years, half of males and females over the age of 40 years will be obese, with commensurate increases in the personal and economic burden of avoidable noncommunicable disease (Shields, et al., 2010).

Even though there are not enough longitudinal data to evaluate population level trends about increasing rate overweightness and obesity in Turkey, a report about national burden of disease of Turkey by Ministry of Health indicate the physical inactivity as one of the most serious health risk concern for the Turkish

population (Turkish National Burden of Disease, 2004). According to this report, both poor PA and overweightness are more common in woman population as compared man. Low level of PA participation in 15-29, 30-44, 45-59, and 60-69 age ranges in man population is reported as 27.0, 33.0, 43.7, and 40.0%, respectively. Low level of PA participation in 15-29, 30-44, 45-59, and 60-69 age ranges in woman population is reported as 70.0, 68.7, 80.0, and 40.0%, respectively. Mean BM in 30-44, 45-59, and 60-69 age ranges in man population is reported as 25.6, 26.3, and 26.3%, respectively. Mean BM in 30-44, 45-59, and 60-69 age ranges in man population is reported as 27.7, 29.6, and 29.4%, respectively (Turkish National Burden of Disease, 2004).

Women and physical activity

Regular PA can improve women's' health and help prevent many of the diseases and conditions that are major causes of death and disability for women. Despite this, physical inactivity is generally more prevalent among girls and women than their male counterparts (Turkish National Burden of Disease, 2004; WHO, 2010).

Over half of all women are sedentary in their lives. Many women suffer from disease processes that are associated with inadequate participation in physical activity (Turkish National Burden of Disease, 2004; WHO, 2010);

- Cardiovascular diseases account for one-third of deaths among women around the world and half of all deaths in women over 50 years old in developing countries.

- Diabetes affects more than 70 million women in the world and its prevalence is projected to double by 2025.
- Osteoporosis is a disease in which bones become fragile and more likely to break and is most prevalent in post-menopausal women.
- Breast cancer is the mostly commonly diagnosed cancer in women.

Nationally representative and longitudinal surveys among school-aged children illustrate that boys are more likely to participate in sports and PA as compared with girls (Turkish National Burden of Disease, 2004; Sallis et al., 2000; Klomsten et al., 2005; Coleman et al., 2007). Also, this gap between the genders becomes more pronounced with advanced age. These findings are supported by additional studies and reviews of PA participation in Turkey (Kin-İsler et al., 2009; Karaca et al., 2009; Cengiz et al., 2009), similar to the other developed countries (Sallis et al., 2000; Klomsten et al., 2005; Coleman et al., 2008).

Kin İsler et al. (2009) studied the age and gender differences in PA levels and various PA patterns of 11-14 year old Turkish adolescents in 650 girls and 666 boys by a self-reported weakly activity checklist. Findings of this study indicated an age-related decline in PA level, a decrease in participation in moderate and vigorous activities, and lower PA participation in girls as compared to boys.

Karaca et al. (2009) examined the PA levels of university students in 1027 university students with respect to gender by Physical Activity Assessment Questionnaire. According to the findings, men spent more time in both vigorous and non-vigorous sport activities than their women counterparts. Women spent more time on housework activities than their men counterparts. Another study by Cengiz et al.

(2009) studied the physical activity level of 953 university students by International Physical Activity Questionnaire. This study finding also indicated that male students were more physically active than women students.

There are few studies examining the PA behaviors of adult women in Turkey. Except the evidence reported in Turkish National Burden of Disease report, I only reached two studies (Aktener et al., 2006; Haşıl-Korkmaz & Arabacı, 2008) . In the study of Haşıl-Korkmaz & Arabacı (2008), PA behaviors of 439 women with a 18-69 age range was examined by International Physical Activity Questionnaire. They found that women's mean PA was 1725 MET-min/week, and approximately 30% of the participants were physically inactive. Aktener et al. (2006) examined the risk factors for obesity among 297 women aged between 20-64 years in a semi-urban area. According to the findings, 25.9% of 20-64 years old women were obese and obesity increased with age.

Considering the above mentioned studies (Turkish National Burden of Disease, 2004; Aktener, 2006; Haşıl-Korkmaz & Arabacı, 2008; Kin-İsler et al., 2009; Karaca et al., 2009; Cengiz et al., 2009), it can be stated that woman population in Turkey have a high risk of physical inactivity related health problems. Moreover, more evidence for the PA level of adult women is required to reach a stronger conclusion.

2.2. Stages of change model and physical activity

Stages of change model is one of the parts of a broader model namely Transtherotical model (TM) (Prochaska, DiClemente and Norcross, 1994). TM was developed to determine the structure of change, and it is initially used for smoking

cessation and alcoholism treatment. Then, it has been used for wide variety of health behaviors including exercise behaviors. TM includes three dimensions; temporal (i.e. stages of change), mechanistic (i.e. self-efficacy, processes of change, decisional balance, and temptation), and contextual (interrelated levels of psychological problems that may be addressed in treatment (Dannecker et al., 2003).

According to the temporal dimension (stages of change), people move through a series of stages as they attempt to eliminate unwanted behavior and adopt a desired behavior (Prochaska, DiClemente and Norcross, 1994). Stages of change model describe the behavioral change as a process involving a series of five stages; 1) Pre-contemplation stage: no intention to change behavior in the near future, 2) Contemplation: aware of the problem and seriously thinking about overcoming it. However, no commitment to take action, 3) Preparation: intend to take action in the next month, 4) Action: successfully changed the problem behavior for a period of from one day to six months, and 5) Maintenance: stabilize the gains attained during action, continues to do more than 6 months to last a lifetime period.

The focus of the current study is on PA and stages of change, therefore following parts of the discussion will address “exercise stages of change” related literature rooted in “stages of change model” of “TM”.

Marcus et al. (1992) extended the five stages of changes for the exercise context as follows: a) Pre-contemplation: includes someone who does not exercise and is not planning to start exercising within six months; b) Contemplation: describes a person who does not exercise but is planning to start within six months; c) Preparation: include a person who is planning to start exercise within one month and

has taken some initial steps toward it; d) Action: describes a person who has been exercising regularly less than six months; and e) Maintenance: includes a person who has been exercising for six months or more.

In the literature, three advantages of using the exercise stages of change model in understanding the components of exercise behavior are stated. These are: 1) it could provide interventions to particular motivational needs of individuals in each of the stages, 2) it could help in identifying the target individuals who are least likely to act to PA programs, and 3) it could help in finding the readiness of an individual and it could help adopting and maintaining of the exercise program (Prapavessis et al., 2004).

Previously, exercise stages of the changes have been studied with different population in many countries around the world, including United States, Canada, Australia, United Kingdom, 15 European Union countries, the Netherlands, China, Malaysia, Japan, and Mexico. (Juniper et al., 2004; Nigg and Corneya, 1998; Prapavessis et al., 2004; Wakui et al., 2002). A meta-analysis by Spencer et al. (2006) stated that United States, Scandinavians, Canadians, and Australians were similar and in upper stages, more Mexican women were in lower stages.

Riebe et al. (2005) studies the elderly population by exercise stages of change questionnaire. Findings of this study indicated that most of the participants were either in upper stages (Maintenance=50.4%, Action=4.8%) or lower stages (Pre-contemplation=21.0%, Contemplation=5.8%). Another study in Netherlands with an adult sample (mean age=46 years) indicated the following stage distribution: Pre-contemplation stage=(29.6%), Contemplation=10.4%, Preparation= 18.3%, Action=

10.1%, and Maintenance= 31.6% (Ronda et al., 2001). Similar to the PA level findings in presented in previous section, Umstatted and Hallam (2006) reported a higher stage level in men participants' as compared to their women counterparts in general population.

Other studies conducted in university students exercise stages of change are more clearly identified the higher exercise stages of change level in men than their women counterparts (Wallace et al., 2000; Wakui et al., 2002;). A related finding was found in the study of Suminski and Petosa (2002). According to the findings of this study, percentage of men in upper exercise stages of change levels (Action=12.5%, Maintenance=25.0%) than their women counterparts (Action=13.6%, Maintenance=16.0%). Higher percentages of women were in lower stages (Pre-contemplation=16.0%, Contemplation=20.5%) than their men counterparts.

Even though there are plenty of studies on the exercise stages of change level in other countries, there is a lack of study on this model in Turkish context except a study on university students. Cevdet et al. (2009) examined the exercise stages of change level of 953 university students in a Turkish university. This study indicated that men were at the upper stages (Pre-contemplation=18.3%; Contemplation=27.2%; Preparation=22.0%; Action=7.3%; and Maintenance=25.2%) as compared to woman counterparts (Pre-contemplation=11.8%; Contemplation=36.1%; Preparation=28.9%; Action=7.6%; and Maintenance=15.6%).

The above mentioned studies indicated that there is an immediate need to examine the exercise stages of change levels of Turkish adult women population to identify the PA intervention needs based on their related stages.

2.3. Social-ecological model and physical activity

The term ecology refers to the interrelationships between organisms and their environments. Social refers to relating society and the way it is organized. Ecological and social-ecological models of human behavior evolved by focusing on the nature of people's interactions with their environments. Social-ecological model assumed that, physical activity behavior as well as the other health behaviors is improved when environment and policies support the people behaviors (Stokols, 1992). There are 4 main components of social-ecological model. These are individual, social environment, physical environment, and policy components (McLeroy et al., 1998) (See Figure 1).

The core principals of social-ecological model are: 1) Multiple factors influence behaviors, 2) Environments are multidimensional and complex, 3) Human-environment interactions can be described at varying levels of organizations, and 4) The interrelationships between people and their environments are dynamic (Stokols, 1992).

The social-ecological model has become the predominant theoretical model in neighborhood studies of PA promotion (Sallis, et al., 2006). From a social-ecological perspective, the increasing rates of television viewing, car ownership, computer use and other technological tools encourage people to have sedentary lifestyles (Sallis & Owen, 1999; Owen et al., 2000).

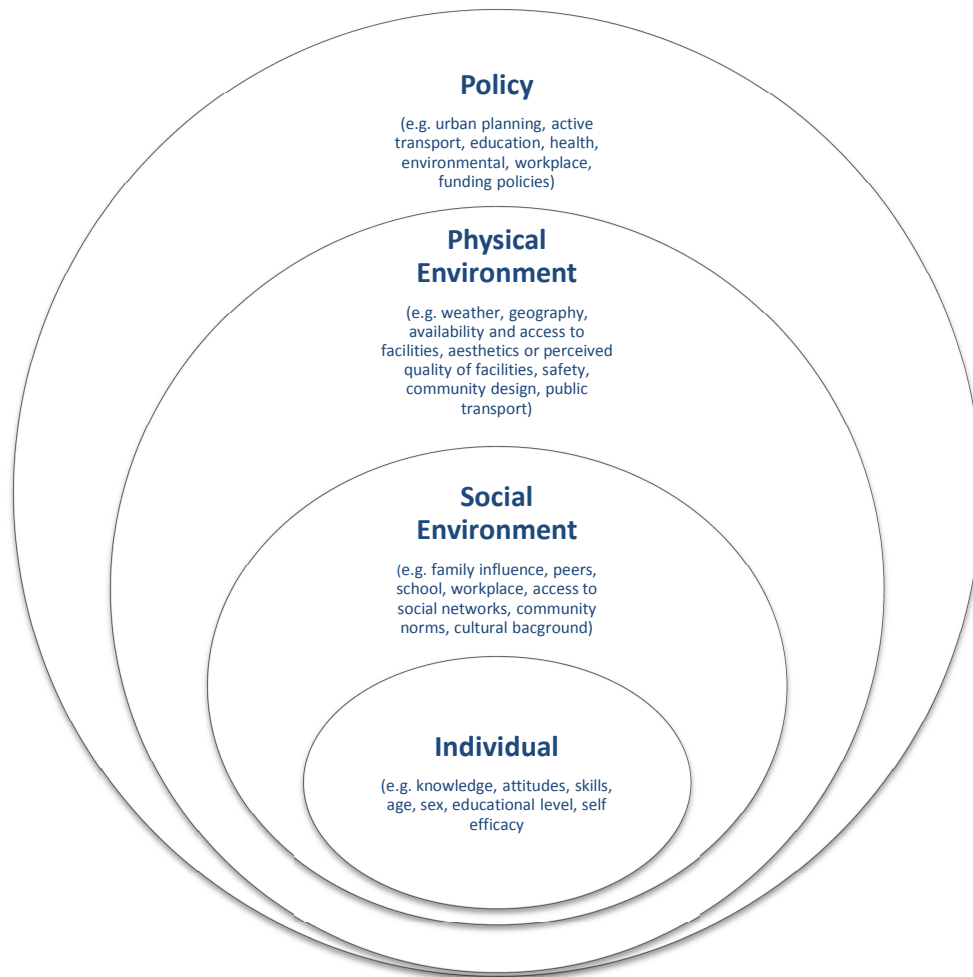


Figure 1. Components of social-ecological model

In a social-ecological approach, sociocultural environments such as culture, economy, and public policies also play a vital role in the decision to be physically active. To illustrate, a person may be encouraged to be more physically active if services such as parks and recreation centers are available and accessible, friends or neighbors are physically active, the surrounding area is safe and clean, and the services are financially reasonable (Sallis et al., 2006).

Most of the previous studies related with PA behaviors of people have been focused on the examination of individual level variables so far, including most of the studies presented in previous section of this literature review. However, with the light of social-ecological model, more interest has been stressed in other PA related social, physical, and policy variables too.

In support of social-ecological model, current research has shown that the environment where people live is particularly influential on physical activity level, especially walking behavior around the neighborhood (De Bourdeaudhuij et al., 2003; Sallis et al., 2009; Inoue, 2009). Bourdeaudhuij et al. (2003) studied the environmental correlates of PA in 521 Belgian people with an age range of 18-65. They collected the data by IPAQ and a questionnaire developed to measure neighborhood design and recreational environmental variables. According to the findings, both neighborhood design and recreational environment variables had significant associations with different types of PA.

Inoue et al. (2009) examined the association of PA and neighborhood environment among 492 Japanese adults with an age range of 20-74 years. They used IPAQ and its environmental module. Findings indicated association of PA with four environmental variables, including residential density, access to shops, presence of sidewalks and presence of bike lanes.

Recently Sallis et al. (2009) have examined the neighborhood walkability in 11 different countries with a neighborhood walkability scale. Results of this study indicated that the more supportive the reported built-environment attributes were for the neighborhood, the more likely the person was to be sufficiently physical active.

Another study by Cochrane et al., (2008) examined the effects of a social-ecological model based intervention to increase PA in an urban community in England. Intervention included changing the environment and peer influences to promote health-enhancing PA within the community. Findings supported the social-ecological model by a positive change in the PA behavior and attitudes in the community.

Based on the research evidence, designing neighborhoods to support PA can now be defined as an international public health issue. Especially certain characteristics of the neighborhood environment that positively support PA behavior were proposed for urban design, including accessibility and availability of PA facilities & services (Fisher & Li, 2004; Wendel-Vos et al., 2007); aesthetics (King et al., 2006); street connectivity (Hoehner et al., 2005); presence of sidewalks (Eyler et al., 2003; Michael et al., 2006; Berke et al., 2007); safety (Fisher & Li, 2004; Addy et al., 2004; Suminski et al., 2005; Lees et al., 2007; Taylor et al., 2007), and neighborhood poverty (Yen & Kaplan, 1998; Giles-Corti & Donovan, 2002).

Neighborhood poverty is connected to SES of the people living in neighborhood. Estabrooks et al. (2003) examined the neighborhood environment to determine whether the availability and accessibility of PA activity resources differed by neighborhood SES. Using the census tracts, neighborhoods were categorized into high, medium, or low SES on the basis of unemployed individuals, per capita income, and the percentage of the population below the poverty threshold. With a geographic information system, comprehensive list of PA resources available for each neighborhood category were collected in a US city. Findings indicated that Low

and Medium SES neighborhoods had significantly fewer free for use resources than high SES neighborhoods.

Another study by Franzini et al. (2010) investigating the neighborhood SES and racial/ethnic disparities in neighborhood characteristics that are associated with outdoor PA, surveyed 632 parents of the 5th graders. They found that higher poverty neighborhoods and non-White neighborhoods have better accessibility for outdoor PA.

Considering the lower PA level in women and poor PA facilities in the Low SES area findings in previous studies, several researches examined the PA behaviors of women in Low SES areas by qualitative research methods (Eyler & Vest, 2002; Ball et al. 2006). Eyler & Vest (2002) identified environmental and policy determinants to PA among rural white women. Using focus groups with physically inactive 6 women aged 20-50 years, they concluded that the social environment had a strong impact on PA level. Social environment included guilt, family responsibility, and social support. Environmental and policy barriers such as lack of access to places to exercise and safety concerns were also presented in this study.

Ball et al. (2006) investigated why women of Low SES are less physically active than women of Higher SES. As a result of interviews with women from 19 High, 19 Mid, and 18 Low SES women, they identified a number of key influences on PA that varied by SES. These were: negative early life/family PA experiences with Low and Mid SES women; participation in a wider range of PA in leisure time with High SES women; greater priority given to television viewing by Low SES

women; lack of time due to work commitments with Low SES women; and neighborhood barriers with Low SES women.

Even though, there are above mentioned studies in neighborhood environment and PA behaviors of people in especially developed countries, there is a lack of study in this topic in Turkey. Therefore, there is an immediate need to examine the perceptions neighborhood environment by especially women population in from different SES neighborhoods in Turkish context.

CHAPTER 3

METHOD

This chapter includes information about the study design and sampling, participants, data collection instruments, data collection procedures, and data analysis.

3.1. Design and sampling

A cross sectional study design with survey method was used in this study. Self-reported survey data collected from the selected Low and High neighborhood environments in the city center of Ankara. The neighborhoods were classified according to SES classification of Turkish Statistical Institute addressing households as Low and High SES. Three Low SES neighborhoods (Burç, Güventepe, Çiğdemtepe) and three High SES neighborhoods (Prof. Dr. Ahmet Taner Kışlalı, Ümitköy, Çayyolu) were selected randomly in this study.

3.2. Participants

Totally 394 women (Low SES=188, high SES=206) between the ages of 18-65 living in Low SES (N=188) and High SES (N=206) neighborhood environments were the participants in this study. The mean age of the participants was 38.89 (SD=13.47) years [Low SES= 37.68 (SD=0.98) years; High SES= 40.00 (SD=0.93) years].

3.3. Data collection procedures

After the Low and High SES neighborhoods were identified by Turkish Statistical Institute classification of Low and High SES environments in Ankara city, surveyors visit these areas. Surveyors knocked on one in seven consecutive home doors in the target areas. If a resident was at home, the study was explained to them and woman's between the ages of 18-65 living in the home was invited to participate. If no one was at home, the surveyor knocked the next chosen door until completing the survey.

3.4. Data collection instruments

The survey used in this study included four components; 1) International Physical Activity Questionnaire-Short Form (IPAQ) (Craig et al., 2003; Öztürk, 2005); 2) Physical Activity Stages of Change Questionnaire (PASCQ) (Marcus et al., 1992; Marcus & Lewis, 2003; Cengiz et al., 2010); 3) Neighborhood Environment Walkability Scale-Abbreviated (NEWS-A) (Cerin et al. 2006); and 4) Demographic variables.

International Physical Activity Questionnaire-Short Form (IPAQ)

IPAQ is a validated instrument to determine the participants' physical activity level by Craig et al. (2003). IPAQ measures the frequency, duration, and level of intensity of physical activity in the last seven days across all contexts and allows for the calculation of metabolic equivalents (MET). MET represents the weekly amount of physical activity. It is a product of frequency, duration, and intensity of the physical activity performed in the last seven days. Physical activity related METs as hours per week (MET-hours/week) were calculated according to the existing

guidelines (IPAQ, 2005). Based on the self-reported MET, frequency and intensity of the physical activity, people can be classified into a low, moderate and high level of physical activity group (Appendix A).

In the current study, participants' PA level was evaluated through Turkish short version of IPAQ (Öztürk, 2005). Translation and validation study of Turkish version for the indicated an evidence for construct validity, criterion validity (accelerometer-IPAQ short form) ($r=0.30$), and test-retest reliability ($r=0.69$) (Öztürk, 2005).

Physical activity stages of change questionnaire (PASCQ)

Physical activity stages of change is a questionnaire to evaluate the individuals process of change in physical activity behaviors (Marcus et al., 1992; Marcus & Lewis, 2003). Questionnaire differentiate individuals into five different stages of change, namely precontemplation (*someone who does not exercise and is not planning to start exercising within six months*), contemplation (*a person who does not exercise but is planning to start within six months*), preparation (*a person who is planning to start exercise within one month and has taken some initial steps toward it*), action (*a person who has been exercising or less than six months*), and maintenance (*a person who has been exercising for six months or more*). PASCQ is a binary type (yes/no) questionnaire. Participants answer each question related to their physical activity participation as “yes” or “no”. Based on their responses, they classified in five different stages by using a scoring algorithm.

In the current study, participants' exercise stages of change level was evaluated with a validated Turkish version of PASCQ (Cengiz et al., 2010),

(Appendix A). Reported test test-retest reliability of the Turkish version was high (ICC=0.80).

Neighborhood Environment Walkability Scale- Abbreviated (NEWS-A)

The Neighborhood Environment Walkability Scale-Abbreviated (NEWS-A) questionnaire measures the resident's perception of the neighborhood environment (Cerin et al. 2006). NEWS-A has 6 sections: access to services, street connectivity, and infrastructure for walking/cycling, aesthetics, traffic safety, and crime safety. The answers to questions have a 4-point scale ranging from 1 (strongly disagree) to 4 (strongly agree) with higher values corresponding to a more walkable neighborhood for access to services, street connectivity, and infrastructure for walking/cycling, aesthetics, and higher values corresponding to a less walkable neighborhood for traffic safety, and crime safety .

NEWS-A was translated into Turkish for the current study. Before the translation process, permission of the scale developers was obtained. Then, two independent translators translated the English version of NEWS-A into Turkish. After having a consensus on each item, another translator translated back the questionnaire into English so as to check the translation quality into Turkish, and the final version of the questionnaire was prepared. Then, questionnaire was applied to 20 women (10 Low SES, 10 High SES) by different neighborhood SES to check the item clearness. In addition, Turkish version was applied to another 15 person for test-retest reliability with 10 days of interval. According to Intra-class coefficient (ICC) analysis, following r values were obtained for each subscale of NEWS-A: Residential density, $r=0.85$; Land use mix-diversity, $r=0.90$; Land use mix-access, $r=0.71$; Street connectivity, $r=0.77$; Walking/cycling facilities, $r=0.71$; Aesthetics

(Neighborhood surroundings), $r=0.83$; Pedestrian/Traffic safety, $r=0.72$; Crime safety, $r=0.94$.

Demographic Variables

Questions related with the following demographic variables were included into the survey: age, educational status, occupational status, marital status, number of children, height, weight, family income, length of residence in the neighborhood, and reason to move the neighborhood.

3.5. Data analysis

Initially, demographic variables were analyzed by using descriptive statistical methods using central tendency analyses (mean, standard deviations, and frequencies). In order to understand the Low and High SES neighborhood group similarities and differences by age, Body Mass Index (researcher calculated the Body Mass Index of the participants by using the participants self-reported weight and height), number of children, family income, and length of residence in the neighborhood independent t-test was used. Pearson chi-square test was used to compare educational status of the groups.

Mann Whitney U test was used to compare the physical activity levels by Low and High SES neighborhood groups for the first research question. Analyses of exercise stages of changes was performed using the Pearson chi-square test for the second research question. Neighborhood walkability perceptions were analyzed by MANOVA for the third research question.

CHAPTER 4

RESULTS

In this study, a survey including demographic characteristics of subjects, International Physical Activity Questionnaire (IPAQ) , Physical Activity Stage of Change Questionnaire (PASCQ) and Neighborhood Walkability Scale-Abbreviated Version(NEWS-A) was administered to 394 women living in low and high socioeconomic environments in Ankara. Descriptive statistics, independent t-test, Pearson chi-square, Mann-Whitney U test, and Multivariate Analysis of Variance (MANOVA) were used for data analysis where appropriate. Initially, demographic characteristics of the participants, then findings for each research question are presented below.

4.1. Demographic characteristics of the participants

Central tendency analysis of the participants by age, Body Mass Index (BMI), number of children, monthly family income, and length of residence in the neighborhood area are presented in Table 1. According to the independent t-test results, there was a no significant difference in the age [$t(392)=1.71$, $p= 0.088$], and length of residence [$t(390)=1.35$, $p= 0.177$] of Low SES and High SES neighborhood participants ($p>0.05$). However, independent t-test findings indicated a significant difference in the BMI [$t(389)=-3.23$, $p= 0.001$], number of children [$t(392)=-6.83$, $p= 0.001$], and monthly family income [$t(392)=25.48$, $p= 0.001$] of Low SES and High SES neighborhood participants ($p<0.05$).

Analysis of mean BMI and mean number of children findings indicated that Low SES neighborhood participants were higher mean BMI and higher mean

number of children as compared to High SES counterparts. However, mean monthly family income of the High SES neighborhood participants were significantly higher than their Low SES counterparts (See Table 1).

Table 1.
Descriptive characteristic of the participants

Variables	Neighborhood SES					
	High (n = 206)			Low (n = 188)		
	<i>M</i>	<i>SD</i>	<i>Range (min-max)</i>	<i>M</i>	<i>SD</i>	<i>Range (min-max)</i>
Age (years)	40.0	13.3	18-65	37.4	13.4	18-65
BMI [weight(kg)/height ² (m)]*	24.6	4.1	17.3-38.5	26.5	7.2	15.2-73.8
Number of children *	1.3	1.1	0-5	2.1	1.5	0-6
Family Income (monthly/TL)*	5734.2	2581.4	1200-20000	884.0	385.5	350-2000
Length of residence (years)	6.4	4.7	1-22	5.6	6.9	1-40

* *Significant differences, p<0.05*

Other demographic characteristics of the participants including marital status, educational level, occupation, home ownership, the reason for living in the neighborhood are presented in Table 2. Within these variables, educational level is compared between Low SES and High SES groups by Pearson chi-square test. Finding indicated that there was significant difference in educational level of the groups $\chi^2(2, N = 394) = 153.09, p = .001$. High SES group educational level was significantly higher as compared to their Low SES neighborhood group counterparts ($p<0.05$).

Table 2.
Frequencies and percentages of the some demographic characteristic of the participants

	Neighborhood SES			
	High		Low	
	<i>f</i>	%	<i>f</i>	%
Marital status				
Married	149	72.3	169	89.9
Single	57	27.7	19	10.1
Educational level				
Elementary school	22	10.7	132	70.2
High school	85	41.3	39	20.7
University	99	48.0	17	9.1
Occupation				
Unemployed	84	40.8	159	84.6
Retired	30	14.6	3	1.6
Officer	35	17.0	8	4.3
Worker	13	6.3	6	3.2
Student	35	17.0	11	5.8
Other	9	4.3	1	0.5
Home Ownership				
Rental	101	49.0	79	42.2
Owner	105	51.0	108	57.8
The reason for living in neighborhood				
Near to school	32	15.6	15	8.0
Near to work	11	5.4	20	10.7
Near to sport facilities	1	0.5	0	0
Safety	114	55.6	47	25.1
Near to park and recreational areas	21	10.2	0	0
Other	26	12.7	105	56.2

Further analysis of the other characteristics indicate that percentage of married woman, percentage of elementary school graduates, percentage of unemployment, and percentage of home ownership was higher in Low SES group as

compared to their High SES counterparts. The reason for living in neighborhood was answered with a high percentage of High SES group participants as safety (55.6%). Higher percentage of Low SES participants answered same question as other (56.2%) (See Table 2).

4.2. Research question 1

Is there a difference in the physical activity levels of women who are living in Low and High SES neighborhood environments?

Mann-Whitney U test revealed there were no significant differences in walking and vigorous levels by neighborhood SES ($p > 0.05$). However, there was a significant difference in moderate and total physical activity scores in favor of High SES neighborhood group ($p < 0.05$) (See Table 3). Descriptive analysis of IPAQ physical activity scores by neighborhood SES are presented in Table 4. Categorized PA levels (low, moderate, high) based on the IPAQ classification by SES Neighborhoods is presented in Table 5.

Categorized PA levels indicated that 63.3% of Low SES neighborhood residents PA level was low. Only 36.7% of them had moderate and high level of PA. However, 44.7% of the High SES neighborhood residents had low PA level, and 55.3% of them moderate and high level of PA (See Table 5).

Table 3.

Mann – Whitney U test results of the physical activity levels (IPAQ) by neighborhood SES

Mann – Whitney U Test						
IPAQ	Neighborhood SES	<i>n</i>	Mean rank	<i>U</i>	<i>z</i>	<i>p</i>
Walking	High	206	200.68	18132.00	-0.853	0.394
	Low	188	190.95			
Moderate	High	204	221.94	13987.00	-5.452	0.001*
	Low	188	168.90			
Vigorous	High	206	196.08	19656.50	0.460	0.645
	Low	188	199.06			
Total IPAQ	High	206	219.19	14.895.00	-3.962	0.001*
	Low	188	173.73			

* Significant difference, $p < 0.05$.

Table 4.

Physical activity levels (MET) by neighborhood SES

Subscale	Neighborhood SES					
	High			Low		
	Mean	Median	SD	Mean	Median	SD
Walk	843.4	445.0	1314.4	646.9	330.0	1012.0
Moderate *	535.8	0.0	946.5	211.1	0.0	750.5
Vigorous	222.1	0.0	766.7	294.4	0.0	1313.9
Total IPAQ *	1601.1	1161.0	1825.7	1146.0	362.3	2195.8

* Significant difference, $p < 0.05$.

Table 5.
Categorized PA levels (low, moderate, high) based on the IPAQ classification by neighborhood SES

IPAQ Categories	Neighborhood SES			
	High		Low	
	<i>f</i>	%	<i>f</i>	%
Low (lower than 600 MET-min/week)	92	44.7	119	63.3
Moderate (601-3000 MET-min/week)	8	41.3	51	27.1
High (higher than 3000 MET-min/week)	29	14.0	18	9.6

4.3. Research question 2

Is there a difference in the exercise stages of change levels of women who are living in Low and High SES neighborhood environments?

Pearson chi-square analysis indicated that there were significant differences in the stage of change levels by neighborhood SES, $\chi^2 (4, 393) = 56.50, p < 0.05$. Descriptive statistics (frequency and percentages) are presented in Table 5. Central tendency statistics revealed that Low SES neighborhood group had a higher percentage at pre-contemplation (77.5%) stage than their High SES neighborhood counterparts (49%). On the other hand, a higher percentage of High SES neighborhood group (36.9%) was at maintenance stage than their Low SES neighborhood counterparts (5.9%). There were no identical percentage differences between the groups in contemplation, preparation and action stages (See Table 6).

Table 6. *Frequencies and percentages of the participants' exercise stages of change levels*

Exercise stage of change levels	Neighborhood SES			
	High		Low	
	<i>f</i>	%	<i>f</i>	%
Pre-contemplation	101	49.0	145	77.5
Contemplation	12	5.8	16	8.6
Preparation	9	4.4	9	4.8
Action	8	3.9	6	3.2
Maintenance	76	36.9	11	5.9

Research question 3

Is there a difference in the neighborhood walkability perceptions of women who are living in Low and High SES neighborhood environments?

Multivariate Analysis of Variance (MANOVA) results revealed that there were significant differences in women's neighborhood walkability perceptions by neighborhood SES, Wilk's $\lambda = .33$, $F(8,382) = 97.57$, $p < .05$, $\eta^2 = .67$. Further univariate analyses indicated that there were statistically significant differences in all subscales of NEWS by SES, except for the "pedestrian/traffic safety" subscale (See Table 7).

Mean subscale scores by neighborhood SES indicated that residential density, land use mix-diversity, land use-mix-access, street connectivity, walking/cycling facility perceptions of High SES neighborhood group were higher as compared to their Low SES neighborhood counterparts. However, crime safety perception of Low SES neighborhood group was higher as compared to their High SES neighborhood counterparts (See Table 8).

Table 7.
Univariate analysis of variance results of the participants' walkability perceptions

	NEWS-A	SS	df	F
SES	Residential density	751888.30	1	58.77*
	Land use mix-diversity	102.20	1	293.63*
	Land use mix-access	3.93	1	18.09*
	Street connectivity	17.88	1	78.45*
	Walking/cycling facilities	29.02	1	330.27*
	Aesthetics (Neighborhood surroundings)	30.89	1	147.40*
	Pedestrian/Traffic safety	.55	1	1.30
	Crime safety	14.23	1	68.10*

*Significant difference, $p < .05$

Table 8.
Descriptive statistics of the women's walkability perceptions by neighborhood SES

	Neighborhood	M	SD
NEWS-A Subscales	SES		
Residential density *	High	521.87	87.83
	Low	434.04	135.85
Land use mix-diversity *	High	3.72	.58
	Low	2.70	.61
Land use mix-access *	High	2.96	.42
	Low	2.76	.52
Street connectivity *	High	2.89	.43
	Low	2.46	.52
Walking/cycling facilities *	High	2.95	.24
	Low	2.41	.35
Aesthetics (Neighborhood surroundings) *	High	2.59	.46
	Low	2.03	.45
Pedestrian/Traffic safety	High	2.42	.34
	Low	2.50	.87
Crime safety *	High	1.95	.43
	Low	2.34	.48

* Significant difference ($p < 0.05$)

CHAPTER 5

DISCUSSION

The purposes of this study were to compare the PA levels, exercise stages of change levels and neighborhood walkability perceptions of women who are living in Low and High SES neighborhoods. In this chapter, firstly demographic indicator findings by neighborhood SES, and then findings for each specific research question are discussed.

5.1. Demographic indicators of women in Low and High SES neighborhoods

SES is mainly identified by income, educational level and occupations in the sociology literature. Low level of income, lower educational level and unskilled occupations or occupations that need lower level of educational attainment are generally accepted as the indicators of Low SES; and high level of income, higher educational level and skilled occupations that need higher level of educational attainment are generally accepted as the indicators of High SES.

In this study, Low and High SES Neighborhoods in Ankara were decided from the Turkish Statistical Institution census data. SES indicators of participants provided data on the validity of Low and High SES neighborhood classification used in this study. Other demographic variables that are collected such as age, BMI, marital status, home ownership status, the reason for living in neighborhood, and length or residence in the neighborhood provided additional information about; the appropriateness of Low SES and High SES groups to compare, and the other important demographic information for the study purposes.

Demographic indicators by SES of participants indicated that Low and High SES neighborhood groups were clearly different from each other by monthly family income, occupation and educational level. Women who were living in Low SES neighborhoods had significantly lower income (mean monthly income=884.0TL), were mostly unemployed (unemployment rate =84.6%), and had lower educational level (elementary school degree=70.2%). Women who were living in High SES neighborhoods had significantly higher income (mean monthly income=5734.2TL); were retired, officer, worker or student (54.9%) with a higher educational level (university degree= 48.0%).

Low and High neighborhood SES group were also indicated differences in BMI, and reason for living in neighborhood. Higher BMI findings in Low SES group as compared to those of High SES group is parallel with studies indicating BMI differences between SES groups previously (Baum & Ruhm, 2007; Groth et al., 2009). The reason for living in the neighborhood for High SES group was mainly related with safety issue (55.6%). However, same question was answered as “other” with most of the Low SES neighborhood participants (56.2%). Even though it is not possible to identify the actual reason of living in Low SES neighborhood by the given answer “other”, it can be assumed that financial issue was the main concern. Unfortunately this item was not in the list of options. Therefore, it is not possible to give a concrete reason for Low SES group reason to live in the neighborhood. Further studies should consider to adding more answer options to this question when examining the Low SES areas, including “financial concerns” option.

Even though, there were differences in the above mentioned variables of Low and High SES groups, age, marital status, home ownership (rental or owner), length

of residence in the neighborhood variables were not indicate differences. Representation of similar mean age, and age range patterns by both Low and High SES groups is actually indicate the appropriateness of data for group comparison, and it is related with quality of sampling process. Similarities in other variables in Low and High SES groups, including marital status, home ownership, and length of residence indicated the related patterns in these neighborhoods.

5.2. Research question 1

Is there a difference in the PA levels of women who are living in Low and High SES neighborhood environments?

Findings of this study showed that PA levels of women living in High SES neighborhoods had significantly higher moderate and total PA level than those of women who live in Low SES Neighborhoods. However, there was no significant difference between the groups by walking and vigorous PA levels. Categorized PA level findings indicated that a higher percentage of Low SES neighborhood residents were physically inactive (63.3%) as compared to their High SES neighborhood counterparts (44.7%).

Current study findings in PA level differences in favor of High SES neighborhood residents were parallel to the findings of previous studies indicating higher PA level in High SES groups (Crespo et al., 1999; Dowler, 2001). Study of Crespo et al. examined the US population while the study of Dowler (2001) examined the 15 European countries. This study extended the related body of literature by presenting a similar pattern in Turkish context.

This study also indicated a similar high percentage of Low PA in women population with the previous studies in Turkey (Turkish National Burden of Disease, 2004; Aktener, 2006; Haşıl-Korkmaz & Arabacı, 2008; Cengiz et al, 2009). In Turkish National Burden of Disease (2004), reported physical inactivity percentages for women in 15-29, 30-44, 45-59, and 60-69 age ranges were 70.0, 68.7, 80.0, and 40.0%, respectively. Aktener et al. (2006) indicated 25.9% of women with a 20-64 years age range in a semi-urban area. Haşıl-Korkmaz & Arabacı (2008) found 30.5% of the women in 18-69 age range as physically inactive. Cengiz et al. (2010) indicated 22.6% of the women university students as physically inactive. Considering the above mentioned studies in Turkey, percentage of physical inactive women in this study was closer to findings in Turkish National Burden of Disease report (2004).

MacIntyre et al. (2000) relates the lower PA participation in Low SES neighborhood residents to lack of both personal and neighborhood resources supporting PA behaviors. Negative social-cultural beliefs and attitudes toward the women's PA participation specific to Turkish context may also be a critical reason for the higher physical inactivity rate in Low SES areas (Koca et al, 2009).

Based on the PA findings of this study, it could be argued that both women in Low SES and High SES neighborhoods are at risk of physically inactive lifestyles. However, the problem is more serious in women in Low SES neighborhoods. Developing intervention programs for these neighborhoods by considering individual, social environment, physical environment and policy level variables are important to support them (Stokols, 1992; Cochrane et al., 2008).

5.3. Research question 2

Is there a difference in the exercise stages of change levels of women who are living in Low and High SES neighborhood environments?

Analysis of exercise stages of change levels showed that there was a significant difference between women living in Low and High SES neighborhood environments. Further analysis indicated that higher percentages of women in Low SES neighborhoods (77.5%) were in the Pre-contemplation stage as compared to their High SES counterparts (49.0%). A higher percentage of women in High SES neighborhoods (36.9%) were in the Maintenance stage as compared to their Low SES counterparts (5.9%).

High Pre-contemplation stage findings presented that 77.5% of the women in Low SES, and 49.0% of the women in High SES neighborhoods were not exercising and were not planning to start exercising within the six months. Higher percentage in Maintenance stage in women of High SES neighborhoods (36.9%) indicated that these women were regular exercise participants for more than six months.

Percentage of Pre-contemplation stage participants in both Low SES and High SES groups were higher than the previous reports in the literature in other countries in general population. Ronda et al. (2001) presented 29.6% of people in Netherlands (including both sexes) Pre-contemplation stage and 31.6% in Maintenance stages. Umstatted & Hallam (2006) reported 10.9% of women in Pre-Contemplation stage in their study. The only study available in Turkey in exercise stages (Cengiz et al., 2009) reported that 11.8% of women studying at university were in Pre-contemplation stage.

No intention to exercise with a high percentage of women in this study is a very interesting finding. Previous studies recommends that interventions programs should be prepared based on the people exercise stages of change level. For the intervention programs focusing on Pre-contemplation level, activities developing personal awareness on the value of PA, learning personal health related fitness characteristics, improving personal attitudes and practices toward PA are suggested (Marcus & Forsyth, 2003). In this respect, intervention programs targeting especially women in Low SES areas should involve the above mentioned characteristics. Intervention programs targeting High SES group should also focus on the needs of Maintenance stage.

Current study is first in the examination of exercise stages of changes in adult women population in Turkey. There is a need to identify the exercise stages of other populations in Turkey.

5.4. Research question 3

Is there a difference in the neighborhood walkability perceptions of women who are living in Low and High SES neighborhood environments?

According to MANOVA results there were significant differences in all subscales of Neighborhood Walkability Questionnaire in favor of high SES except “pedestrian/traffic safety” scale. There was no significant difference between the groups in “pedestrian/traffic scale”. Further analysis indicated that neighborhood walkability perceptions of women in Low SES neighborhood was lower ($p < .05$). This finding implies that women living in Low SES neighborhoods have a higher risk of inactivity because their environments do not encourage them to do PA.

This finding supports the earlier studies examining the neighborhood characteristics by SES. Previously, Estabrooks et al. (2003) indicated limited ability to control their PA in the face of inaccessible environments by lower SES neighborhoods. Franzini et al. (2010) reported the lower accessibility to PA facilities. This study is the first study dealing with the neighborhood walkability perception of an adult population in Turkey by identifying a similar weakness in Low SES neighborhood in other countries.

Considering the above mentioned poor neighborhood perception for PA by the women residents of Low SES neighborhoods, it can be recommended that intervention programs should be prepared both to improve the physical environment to support physically active lifestyle and the knowledge, attitudes and beliefs toward PA of the residents in these areas. Municipalities, institutions of public health promotion, and professionals responsible from PA education should collaborate for this goal.

CHAPTER 6

CONCLUSION & RECOMMENDATIONS

6.1. Conclusions

Research question 1: Is there a difference in the PA levels of women who are living in Low and High SES neighborhood environments?

Findings revealed that there were significant differences in moderate and total PA level by neighborhood SES in favor of women in High SES neighborhood. However, there were no significant differences in walking and vigorous PA levels by neighborhood SES.

Research question 2: Is there a difference in the exercise stages of change levels of women who are living in Low and High SES neighborhood environments?

The findings revealed that there was a significant difference in the exercises stages of change levels of women by neighborhood SES. Percentage of women in Pre-contemplation stage was higher in Low SES neighborhood as compared those of High SES neighborhood. Percentage of women in Maintenance stage was higher in High SES neighborhood as compared those of Low SES neighborhood.

Research question 3: Is there a difference in the neighborhood walkability perceptions of women who are living in Low and High SES neighborhood environments?

According to the findings, there were significant differences in all subscales of Neighborhood Walkability Questionnaire in favor of high SES except “pedestrian/traffic safety” scale. There was no significant difference between the

groups in “pedestrian/traffic scale”. Further analysis indicated that neighborhood walkability perceptions of women in Low SES neighborhood were lower.

6.2. Recommendations

The following recommendations for the future practices would enhance current knowledge toward increasing the PA levels, exercise stages of change levels and neighborhood walkability perceptions of Turkish women who are living in Low and High SES neighborhoods.

Environment and women’s physical activity levels

There is an immediate need for intervention programs to increase PA level of women who live in both Low and High SES neighborhoods. However, priority should be given to women in Low SES group. PA interventions should focus on individual, social environment, physical environment related with PA. Moreover, Neighborhood PA facilities in Low SES neighborhoods should be reconsidered by the local authorities and also the potential public health burden related to low-walkable neighborhoods needs to be studied to prepare policy decisions.

Researchers, professionals responsible from PA promotion, public health authorities, and municipalities should work collaboratively toward this aim.

According to stage of change level findings, most of women in Low SES neighborhood are at Pre-contemplation stage. Therefore, intervention programs should focus on increasing personal awareness on PA, learning personal health related fitness characteristics and providing appropriate PA programs based on the individual needs.

For Future Studies

Further studies should study the role of the personal and environmental factors on PA behavior of different populations in Turkey and because Turkey has a unique profile of environmental supports and cultural background, surveys related with neighborhood environment should be adopted or designed for Turkish context.

More studies should investigate the role of different cultures on PA engagement and environment perception and also should investigate whether activity preferences of particular social segments influence where people choose to live or not.

Direct means of measuring PA such as accelerometer may be used in further studies.

REFERENCES

- Addy, C.L., Wilson, D.K., Kirtland, K.A., Ainsworth, B.E., Sharpe, P., & Kimsey, D. (2004). Associations of perceived social and physical environmental supports with physical activity and walking behavior. *American Journal of Public Health*, 94 (3), 440-443.
- Aktener, A.Y., Dülger, H.İ., Erkayhan, G.E., Görmeli, G., Kafadar, F.S., Yıldız, M., Keskinoglu, P., Soyer, A. (2006) Obesity prevalence in reproductive age and postmenopausal women aged between 20-64 years in semi-urban area. *Medical Journal of Trakya University*, 23 (3), 119-126.
- American College of Sports Medicine (1995) *ACSM's Guidelines for Exercise Testing and Prescription*, Baltimore, MD: Williams& Wilkins.
- Ball, K., Salmon, J., Giles-corti, B., Crawford, D. (2006) How Can Socio-Economic Differences in Physical Activity Among Women Be Explained? A Qualitative Study *Women& Health*, 43:1.93-113
- Berke, E.M., Koepsell, T.D., Moudon, A.V., Hoskins, R.E., & Larson, E.B. (2007) Association of the built environment with physical activity and obesity in older persons. *American Journal of Public Health*, 97 (3), 486-492.
- Biddle S.J.H., Mutrie N. (2001) *Psychology and Physical Activity Determinants, Well-Being and Interventions*, London: Routledge.
- Canadian Fitness and Lifestyle Research Institute, (2005) Physical activity among Canadians: The current situation available from :
(http://www.cflri.ca/eng/statistics/surveys/documents/pam2005_sec1.pdf.)
- Cassidy, T. (1996) All work and no play: A focus on leisure time as a means for promoting health. *Counselling Psychology Quarterly*, 9(1), 14 p.
- Cengiz, C., Aşçı F.H., İnce, M.L. (2010) Egzersiz davranışları değişim basamakları anketi: Geçerlik ve güvenilirlik çalışması. *Türkiye Klinikleri Spor Bilimleri Dergisi*, 2: 1, 32-37.
- Cengiz, C., Ince, M.L.,& Cicek, S. (2009) Exercise stage of change in Turkish university students by sex, residence and department. *Perceptual and Motor Skills*, 108, 411-421.
- Cerin, E., Saelens, B.E., Sallis, J.F., & Frank, L.D. (2006) Neighborhood environment walkability scale: validity and development of a short form. *Medical Science Sports Exercise*, 38 (9),1682-1691.

- Cochrane, T., Davey, R.C. (2008) Increasing uptake of physical activity: a social ecological approach. *Journal of Royal Society for the Promotion of the Health*, 128 (1), 31-40.
- Coleman, L., Cox, L., & Roker, R. (2008) Girls and young women's participation in physical activity: psychological and social influences. *Health Education Research*, 23(4), 633-647
- Craig, C.A., Marshall, A.L., Sjostrom, M., Bauman, A.E., Booth, M.L., Ainsworth, B.E., Pratt, M., Ekelund, U., Yngve, A., Sallis, J.F., & Oja, P. (2003) International physical activity questionnaire: 12-country reliability and validity. *Medical Science Sports Exercise*, 35(8), 1381-1395.
- Crespo, C., Ainsworth, B., Keteyian, S., Heath, G., & Smit, E. (1999) Prevalence of physical inactivity and its relation to social class in U.S. adults: results from the Third National Health and Nutrition Examination Survey, 1988-1994. *Medicine & Science in Sports & Exercise*, 31(12), 1821-1827.
- Dannecker, E.A., Hausenblas, H.A., Connaughton, D.P., & Lovins, T.R. (2003) Validation of exercise stage of change questionnaire. *Research for Quarterly Exercise and Sport*, 74 (3), 236-247.
- Daskapan, A., Tuzun, E.H. and Eker, L. (2006) Perceived barriers to physical activity in university students. *Journal of Sports Science and Medicine*, 5, 615-620.
- De Bourdeaudhuij, I., Sallis, J.F., & Saelens, B.E., (2003) Environment correlates of physical activity in a sample of Belgian adults. *American Journal of Health Promotion*, 18 (1) 83-92.
- Dishman, R., Sallis, J., & Orenstein, D. (1985) The determinants of physical activity and exercise. *Public Health Reports*, 100(2), 158-171.
- Dowler, E. (2001) Inequalities in diet and physical activity in Europe. *Public Health and Nutrition*, 4, 701-709.
- Estabrooks, P.A., Lee, N.C., Gyurcsik, N.C., (2003) Resources for Physical Activity Participation: Does Availability and Accessibility Differ by Neighborhood Socioeconomic Status, *The Society of Behavioral Medicine*, 25 (2): 100-104.
- Eyler, A. A., Vest, J. R., (2002) Environmental and Policy Factors Related to Physical Activity in Rural White Women', *Women & Health*, 36:2, 109 – 119.
- Eyler, A.A., Brownson, R.C., Bacak, S.J., & Housemann, R. A., (2003) The epidemiology of walking for physical activity in the United States, *Medical Science Sports Exercise*, 35 (89), 1529-1536.

- Eyler, A.A., Vest, J.R., Sanderson, B., Wilbur, J., Matson-Koffman, D., Evenson, K.R., Thompson, J. L., Wilcox, S., and Young, D.R.,(2002) Environmental, Policy, and Cultural Factors Related to Physical Activity in a Diverse Sample of Women: The Women's Cardiovascular Health Network Project-Introduction and Methodology, *Women & Health*,36:2, 1-15
- Fisher, K.J., Li, F., Michael, Y., & Cleveland, M. (2004) Neighborhood-level influences on physical activity among older adults: a multilevel analysis. *Journal of Aging Physical Active*, 11,45-63.
- Franzini, L., Taylor, W., Elliot, M. N., Cuccaro, P., Tortolero, S.R., Gilliland, M.J., Grunbaum, J., Schuster, M.A. (2010) *Journal of Health & Place*, 16, 267-274.
- Giles-Corti, B., Donovan,J.R., (2002) Socioeconomic status differences in recreational physical activity levels and perceived access to a supportive physical environment. *Prevalence Medicine*, 35 (6), 601-611.
- Hagger, M. and Chatzisarantis, N. (2005) *The Social Psychology of Exercise and Sport*. Open University Press, New York.
- Haşıl Korkmaz, N., Arabacı, R. (2008). Study on The Physical Activity Level of Turkish Women in Bursa, *e-Journal of New World Sciences Academy Sport Sciences*, 4, (2), 134-142.
- Hoehner, C.M., Ramirez, L.K.B., Elliot, M.B., Handy, S.L., & Brownson, R.C. (2005) Perceived and objective environmental measures and physical activity among urban adults. *American Journal of Prev. Medical*, 28 (2S2), 105-116.
- Ince, M., & Ebem, Z. (2009). Role of exercise stages in self-reported health-promoting behaviors of a group of Turkish adolescents at transition to university. *Perceptual & Motor Skills*, 108(2), 399-404.
- Inoue, S., Murase, N., Shimomitsu, T., Ohya, Y., Odagiri, Y., Takamiya, T., Ishii, K., Katsamura, T., Sallis, J.F. (2009) Association of physical activity and neighborhood environment among Japanese adults. *Preventive Medicine*,48, 321-325.
- IPAQ research committee Guidelines for data processing and analysis of International Physical Activity Questionnaire (online), <http://www.ipaq.ki.se>.
- Jones, D. A., Ainsworth, B. E., Croft, J. B., Macera, C. A., Lloyd, E. E., & Yusuf, H. R. (1998). Moderate leisure-time physical activity: Who is meeting the public health recommendations? A national cross-sectional study. *Archives of Family Medicine*, 7, 285-289.

- Juniper, K.C., Oman, R.F., Hamn, R.M., & Kerby, S.S. (2004) The relationships among constructs in the health belief model and the transtheoretical model among african-american college women for physical activity. *American Journal of Health Promotion*, 18 (5), 354-357.
- Karaca A., Caglar, E., Cinemre, S.A., (2009) Physical activity levels of the young adults in an economically developing country: The Turkish sample. *Journal of Human Kinetics*, 22,91-98.
- King, D., Toobert, d., Ahn, D., Resnicow, k., Coday, M., Riebe, D., Garber, C.E., Hurtz, S., Morton, J., & Sallis, J.F. (2006) Perceived environments as physical activity correlates and moderators of intervention in five studies. *American Journal Health Promotion*, 21(1), 24-35.
- Kin-Isler, A., Asci, F., Altintas, A., & Guven-Karahan, B. (2009). Physical activity levels and patterns of 11-14 year-old Turkish adolescents. *Adolescence*, 44(176), 1005-1015.
- Klomsten A, Marsh H, Skaalvik E. (2005) Adolescents' perceptions of masculine and feminine values in sport and physical education: a study of gender differences. *Sex Roles* , 52: 625–36.
- Koca, C. (2009) Gender Interaction in Coed Physical Education A Study in Turkey *Adolescence*, Vol. 44, No. 173, Libra Publishers, Inc., 3089C Clairemont Dr., PMB 383, San Diego, CA 92117
- Koca, C., Henderson, K.A., Asci, F.H, Bulgu, N. (2009) Constraints to Leisure-Time Physical Activity and Negotiation Strategies in Turkish Women, *Journal of Leisure* , Vol. 41, No.2, pp. 225-251
- Koçak, S. (2005) Perceived barriers to exercise among university members. *International Council for Health, Physical Education, Recreation, Sport and Dance*, XLI (1), 34-36.
- Kramer, MM., Wells CL.,(1996) Does physical activity reduce risk of estrogen-dependent cancer in women?, *Med Sci Sports Exerc.*, 28:322-334.
- Kulakac, O., Buldukoglu, K., Yilmaz, M., & Alkan, S, (2006), An analysis of the motherhood concept in employed women in south Turkey. *Social Behavior and Personality*, 34, 837-852.
- Lees, E., Taylor, W.C., Hepworth, J.T., Feliz, K., Cassels, A., & Tobin, J.N. (2007) Environmental changes to increase physical activity : perceptions of older urban ethnic minority women. *Journal of Aging Physical Act.*, 15(4), 425-438.

- Leslie, E., Fotheringham, M.J., Owen, N. and Bauman, A. (2001) Age related differences in physical activity levels of young adults. *Med Sci Sports and Exerc.*, 33, 255-258.
- MacIntyre, S. (2000) The social patterning of exercise behaviors: The role of personal and local resources. *British Journal of Sports Medicine.* 34:6.
- Manson, J.E., Rich-Edwards J.W. (1999) A prospective study of walking as compared with vigorous exercise in the prevention on coronary heart disease in women. *N. Engl J Medical*, 341, 650-658.
- Marcus, B.H., & Lewis, B.A. (2003) Physical activity and stages of change of motivational readiness for change model. *President's Council on Physical Fitness and Sport Research Digest*, 4 (1), 1-8.
- Marcus, B.H., Selby, V.C., Niaura, R.S., & Rossi, J.S. (1992) Self-efficacy and the stages of exercise behavior change. *Research Quarterly for Exercise and Sport*, 63 (1), 60-66.
- McLeroy, K.R., Bibeau, D., Steckler, A., & Glanz, K. (1998) An ecological perspective on health promotion programs. *Health Education Quarterly*, 15, 351-377.
- Michael, Y., Beard, T., Choi, D., Farquhar, S., & Carlson, N. (2006) Measuring the influence of built neighborhood environment on walking in older adults. *Journal of Aging Physical Act.*, 14, 302-312.
- Mullineaux, D., Barnes, C., & Barnes, E. (2001). Factors affecting the likelihood to engage in adequate physical activity to promote health. *Journal of Sports Sciences*, 19(4), 279-288.
- Nigg, C.R., & Corneya, K.S. (1998) Transtheoretical model : examining adolescent exercise behavior. *Journal of Adolescent Health*, 22, 214-224.
- Owen, N., Leslie, E., Salmon, J., & Fotheringham, M.J. (2000) Environmental determinants of physical activity and sedentary behavior. *Exercise Sport Science Rev.*, 28(4), 153-158.
- Öztürk M., Üniversitede eğitim-öğretim gören öğrencilerde Uluslararası Fiziksel Aktivite anketinin geçerliliği ve güvenilirliği ve fiziksel aktivite düzeylerinin belirlenmesi. [Bilim Uzmanlığı Tezi]. *Ankara: Hacettepe Üniversitesi Sağlık Bilimleri Enstitüsü*; 2005.
- Prapavessis, H., Maddison, R., & Brading, F. (2004) Understanding exercise behavior among New Zealand adolescents: a test of the transtheoretical model. *Journal of Adolescent Health*, 35 (2), 17-27.

- Prochaska, J.O., DiClemente, C.C., & Norcross, J.C. (1994) *Changing for good*. NY, NY. William Morrow.
- Prochaska, J.O., DiClemente, C.C., & Norcross, J.C. (1992) In search of how people change: Applications to addictive behaviors. *American Psychologist*, 47, 1103-1114.
- Riebe, D., Garber, C.E., Rossi, J.S., Greaney, M.L., Nigg, C.R., Lees, F.D., Burmank, P.M., & Clark, P.G.(2005) Physical activity, physical function, and stages of change in older adults. *American Journal of Health Behavior*, 29 (1), 70-80.
- Ronda, G., Assema, P.V., & Brug, J. (2001) Stage of change, Psychological factors and awareness of physical activity levels in the Netherlands. *Health Promotion International*, 16 (4), 305-314.
- Sallis JF. (2000) Age-related decline in physical activity: a synthesis of human and animal studies. *Medical Science Sports Exercise*, 32: 1598–600
- Sallis, J., Bowles, H., Bauman, A., Ainsworth, B., Bull, F., Craig, C., et al. (2009). Neighborhood Environments and Physical Activity Among Adults in 11 Countries. *American Journal of Preventive Medicine*, 36(6), 484-490.
- Sallis, J., Haskell, W., Wood, P., Fortmann, S., Rogers, T., Blair, S., et al. (1985). Physical activity assessment methodology in the Five-City Project. *American Journal of Epidemiology*, 121(1), 91-106.
- Sallis, J.F., & Owen, N. (1999) *Physical activity & behavioral medicine*. Thousand Oaks, California: SAGE.
- Sallis, J.F., Cervero, R.B., Ascher, W., Henderson, K.A., Kraft, M.K., & Kerr, J., (2006) An ecological approach to creating active living communities, *Annual Review of Public Health*, 27, 297-322.
- Savcı, S., Öztürk, M., Arıkan, H., _nal_ nce, D. and Tokgözoğlu, L. (2006) Physical activity levels of university students. *Archives of Turkish Cardiology*, 34, 166-172. (In Turkish: English abstract).
- Shannon, C.S., Shaw, S.M. (2008) Mothers and daughters: Teaching and learning about leisure. *Leisure Sciences*, 30, 1-16.
- Shields, M., (2006) Overweight and obesity among children and youth. *Health Reports*, 17,27-42.

- Shields, M., Tremblay, M.S., Laviolette, M., Craig, C.L., Janssen, I., & Gorber, S.C., (2010) Fitness of Canadian adults: Results from the 2007-2009 Canadian Health Measures Survey, Statistics Canada, Catalogue no. 82-003-XPE. *Health Reports*, 21.
- Sinclair, K.M., Hamlin, M.J., & Steel, G.D. (2005) Physical activity levels of first year New Zealand university student: a pilot study. *Youth Studies Australia*, 24 (1), 38-42.
- Sjöström, M., Oja, P., Hagstromer, M., Smith, B., Bauman, A.E., (2006) Health-enhancing physical activity across European Union countries: the Euro barometer study. *Journal of Public Health*, 14, 291-300.
- Spencer, L., Adams, T.B., Malone, S., Roy, L., & Yost, E (2006) Applying the transtheoretical model to exercise : a systematic and comprehensive review of the literature. *Health Promotion Practice*, 7 (4), 428-443.
- Stokols, D. (1992) Establishing and maintaining health environments : Toward a social ecology of health promotion. *American Psychology*, 47, 6-22.
- Suminski, R.R., & Petosa, R. (2002) Stages of change among ethnically diverse college students. *Journal of American College Health*, 51 (1), 26-31.
- Suminski, R.R., Poston, W.S., Petosa, R.L., Stevens, E., & Katzenmoyer, L.M., (2005) Features of neighborhood environment and walking by U.S. adults. *American Journal of Preventive Medicine*, 28 (2), 149-155.
- Taylor, W.C., Sallis, J.F., Lees, E., Hepworth, J.T., Feliz., Volding, D.C., Cassels, A., & Tobin, J.N. (2007) Environmental changes to increase physical activity : perceptions of older urban ethnic-minority women. *Journal of Physical Active Health*, 4(1) 54-65.
- Trost, S.G., Owen, N., Bauman, A.E., Sallis, J. F., & Brown, W. (2002). Correlates of adults' participation in physical activity: Review and update. *Med Sci Sports & Exerc.*, 34, 1996-2001.
- Turkish National Burden of Disease. (2004). *Turkish National Burden of Disease Study*. Turkish Republic Ministry of Health Refik Saydam Institute and Baskent University, Retrieved July 24, 2010 from <http://www.tusak.saglik.gov.tr/pdf/nbd/raporlar/burdenofdiseaseENG.pdf>
- U.S. Department of Health and Human Services. (2000). *Healthy People 2010: Understanding and improving health*. Washington, D.C: US Government Printing Office.

- Umstatted, M.R., & Hallam, J.S. (2006) Use of social cognitive theory variables across exercise stage of change of employed women. *American Journal of Health Studies*, 21 (1), 44-48.
- US Department of Health and Human Services. (1996). Physical activity and health: A report of the Surgeon General. Public Health Service, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion: Atlanta.
- Wakui, S., Shimomitsu, T., Odagiri, Y., Inoue, S., Takamiya, T., & Ohya, Y. (2002) Relation of the stage of change for exercise behaviors, self-efficacy, decisional balance, and diet-related psycho-behavioral factors in young Japanese women. *The Journal of Sport Medicine and Physical Fitness*, 42, 224-232.
- Wallace, L.S., Buckworth, J., Kirby, T.E., & Sherman, W.M. (2000) Characteristics of exercise behavior among college student: application of social cognitive theory to predicting stage of change. *Preventive Medicine*, 31, 494-505.
- Ward, D.S., Saunders, R.P., Pate, and R.R., (2007) Physical activity Interventions in Children and Adolescents, *Human Kinetics*.
- Wendel-Vos, W., Droomers, M., Kremers, S., Brug, L., & Van Lenthe, F., (2007) Potential environmental determinants: systematic review. *Obes. Rev.*, 8, 425-440.
- World Health Organization (WHO) (2010). Physical Inactivity: A Global Public Health Problem,
http://www.who.int/dietphysicalactivity/factsheet_inactivity/en/index.html
- Yen, I.M.& Kaplan, G.A. (1998) Poverty area residence changes in physical activity level : Alameda country study. *American Journal of Public Health*, 88(11), 1702-1712.

APPENDICES

APPENDIX A

1. BÖLÜM

Yakın Çevrede Yürüebilme Anketi (YÇYA) - Kısa Form

Yaşadığınız yakın çevrenizi nasıl algıladığınız ya da çevreniz hakkında ne düşündüğünüz ile ilgili bilgi edinmek istiyoruz. Lütfen yakın çevreniz ve sizin hakkınızdaki soruları cevaplayınız.



A. Yakın çevrenizde bulunan konut çeşitleri

Lütfen, sizi ve sizin yakın çevrenizi en iyi tanımlayan cevabı daire içine alınız.

1. Yakın çevrenizde, ayrık nizam tek aileli konut (müstakil ev) ne kadar yaygındır?

1	2	3	4	5
Hiç	Az	Biraz	Çoğunlukla	Her zaman
2. Yakın çevrenizde, 1-3 katlı sıra evler ne kadar yaygındır?

1	2	3	4	5
Hiç	Az	Biraz	Çoğunlukla	Her zaman
3. Yakın çevrenizde, 1-3 katlı apartmanlar ne kadar yaygındır?

1	2	3	4	5
Hiç	Az	Biraz	Çoğunlukla	Her zaman
4. Yakın çevrenizde, 4-6 katlı apartmanlar ne kadar yaygındır?

1	2	3	4	5
Hiç	Az	Biraz	Çoğunlukla	Her zaman
5. Yakın çevrenizde, 7-12 katlı apartmanlar ne kadar yaygındır?

1	2	3	4	5
Hiç	Az	Biraz	Çoğunlukla	Her zaman
6. Yakın çevrenizde, 13 ve daha fazla katlı apartmanlar ne kadar yaygındır?

1	2	3	4	5
Hiç	Az	Biraz	Çoğunlukla	Her zaman



B. Yakın çevrenizdeki mağazalar, tesisler ve diğerleri

Aşağıda sıralanan size en yakın işyerlerine veya tesislere, eğer yürüseydiniz, evinizden ulaşımınız yaklaşık olarak ne kadar sürerdi? Lütfen her işyeri veya tesis için sadece bir (✓) işareti koyunuz.

	1-5 dk	6-10 dk	11-20 dk	21-30 dk	31+ dk	Bilmiyorum
örnek: benzin istasyonu	1. ____	2. ____	3. <input checked="" type="checkbox"/>	4. ____	5. ____	6. ____
1. Bakkal	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
2. Süpermarket	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
3. Hırdavat dükkanı	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
4. Manav	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
5. Kuru temizleme	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
6. Giyim mağazası	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
7. Postane	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
8. Kütüphane	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
9. İlköğretim okulu	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
10. Diğer okullar	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
11. Kitapçı	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
12. Fast Food (Hamburgerci)	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
13. Kafe	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
14. Banka	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
15. Lokanta	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
16. Video dükkanı(DVD)	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
17. Eczane	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
18. Kuaför/erkek berberi	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
19. İşiniz veya okulunuz	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____

(Uygun değilse lütfen burayı işaretleyiniz ____)

		1-5 dk.	6-10 dk.	11-20 dk.	20-30 dk.	30+ dk.	Bilmiyorum
20.	Otobüs veya tren istasyonu	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
21.	Park	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
22.	Rekreasyon Merkezi (Aile Yaşam Merkezi)	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____
23.	Fitness/spor salonu	1. ____	2. ____	3. ____	4. ____	5. ____	6. ____



C. Tesislere ulaşım

Lütfen, sizi ve yakın çevrenizi en iyi tanımlayan cevabı daire içine alınız. “Kısa yürüme mesafesi” demek evinizden 10-15 dakikalık uzaklıkta anlamındadır.

1. Mağazalar evimden kısa yürüme mesafesi uzaklığındadır.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

2. Evimden kısa yürüme mesafesi uzaklığında olan birçok yer vardır.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

3. Evimden herhangi bir otobüs, tren durağına ulaşım kısa yürüme mesafesi uzaklığındadır.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum



D. Yakın çevremdeki sokaklar

Lütfen, sizi ve yakın çevrenizi en iyi tanımlayan cevabı daire içine alınız.

1. Yakın çevremde ki kavşağa (dört yol) olan uzaklık kısadır (yaklaşık 100 metre / futbol sahası uzunluğu kadar veya daha az)

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

2. Yakın çevremde bir yerden bir yere gitmek için birçok alternatif güzergah vardır (Her zaman aynı güzergahtan gitmek zorunda değilim).

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum



Çok iyi gidiyorsunuz... Lütfen devam



E. Yürüyüş ve bisiklet alanları

Lütfen, sizi ve yakın çevrenizi en iyi tanımlayan cevabı daire içine alınız

1. Yakın çevremde, sokakların çoğunda kaldırım vardır.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

2. Yakın çevremde, kaldırımlar yoldan / trafikten park etmiş arabalar tarafından ayrılmıştır.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

3. Yakın çevremde, kaldırımlar çimen veya sıkıştırılmış toprakla yollardan ayrılmıştır.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

4. Yakın çevremde, sokaklar akşamları iyi aydınlatılır.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

5. Yakın çevremde, sokaklardaki yürüyüşçüler ve bisiklet kullananlar mahalledeki insanların evlerinden kolaylıkla görülebilir.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

6. Yürüyüşçülerin yakın çevremde ki yoğun caddeleri geçmelerine yardımcı olan yaya geçidi ve ışıklı yaya işaretleri vardır.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum



F. Yakın çevremdeki estetik

Lütfen, sizi ve yakın çevrenizi en iyi tanımlayan cevabı daire içine alınız.

1. Yakın çevremde, sokaklar boyunca ağaçlar vardır.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

2. Yakın çevremde, yürürken bakılabilecek birçok ilginç şeyler vardır.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

3. Yakın çevremde, birçok ilgi çekici doğal manzaralar vardır (mesela peyzaj tasarımı).

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

4. Yakın çevremde, ilgi çekici binalar / evler vardır.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum



G. Trafik tehlikesi

Lütfen, sizi ve yakın çevrenizi en iyi tanımlayan cevabı daire içine alınız.

1. Yakın çevremdeki civar sokaklarda yürüyüşü zorlaştıran veya zevksiz hale getiren çok fazla trafik vardır.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

2. Yakın çevremdeki ara sokaklardaki trafiğin hızı genellikle yavaştır (50 km/s veya daha az).

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

3. Yakın çevremdeki birçok sürücü araç kullanırken hız sınırlarını aşar.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

H. Suç

1. Yakın çevremde suç oranı yüksektir.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

2. Yakın çevremdeki suç oranı gün içerisinde yürüyüşe çıkmayı güvensiz kılıyor.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

3. Yakın çevremdeki suç oranı akşamları yürüyüşe çıkmayı güvensiz kılıyor.

1	2	3	4
kesinlikle katılmıyorum	katılmıyorum	katılıyorum	kesinlikle katılıyorum

2. BÖLÜM

ULUSLARARASI FİZİKSEL AKTİVİTE ANKETİ

Bu bölümdeki sorular son **7 gün** içerisinde fiziksel aktivitede harcanan zamanla ilgilidir.

Lütfen son 7 günde yaptığınız şiddetli fiziksel aktiviteleri düşünün (işte, evde, bir yerden bir yere giderken, boş zamanlarda yaptığınız spor, egzersiz veya eğlence vb.)

Şiddetli fiziksel aktiviteler yoğun fiziksel efor gerektiren ve nefes alıp verme temposunun normalden çok daha fazla olduğu aktivitelerdir. Sadece herhangi bir zamanda **en az 10 dakika** süre ile yaptığınız aktiviteleri düşünün.

1. Geçen 7 gün içerisinde kaç gün ağır kaldırma, kazma, aerobik, basketbol, futbol veya hızlı bisiklet çevirme gibi şiddetli fiziksel aktivitelerden yaptınız?

Haftada ___gün

Şiddetli fiziksel aktivite yapmadım. → **(3.soruya gidin.)**

2. Bu günlerin birinde şiddetli fiziksel aktivite yaparak genellikle ne kadar zaman harcadınız?

Günde ___saat

Günde ___dakika

Bilmiyorum/Emin değilim.

3. Geçen 7 günde yaptığınız orta dereceli fiziksel aktiviteleri düşünün. Orta dereceli aktivite orta derece fiziksel güç gerektiren ve normalden biraz sık nefes almaya neden olan aktivitelerdir. Yalnız bir seferde en az 10 dakika boyunca yaptığınız fiziksel aktiviteleri

Geçen 7 gün içerisinde kaç gün hafif yük taşıma, normal hızda bisiklet çevirme, halk oyunları, dans, bowling veya çiftler tenis oyunu gibi orta dereceli fiziksel aktivitelerden yaptınız? Yürüme hariç.

Haftada ___gün

Orta dereceli fiziksel aktivite yapmadım. → **(5.soruya gidin.)**

4. Bu günlerin birinde **orta** dereceli fiziksel aktivite yaparak genellikle **ne kadar zaman** harcadınız?

Günde ___ saat

Günde ___ dakika

Bilmiyorum/Emin değilim.

5. Geçen 7 günde **yürüyerek** geçirdiğiniz zamanı düşünün. Bu işyerinde, evde, bir yerden bir yere ulaşım amacıyla veya sadece dinlenme, spor, egzersiz veya hobi amacıyla yaptığınız yürüyüş olabilir.

Geçen 7 gün, bir seferde en az 10 dakika yürüdüğünüz **gün sayısı** kaçtır?

Haftada ___ gün

Yürümedim. → (7.soruya gidin.)

6. Bu günlerden birinde yürüyerek genellikle **ne kadar zaman** geçirdiniz?

Günde ___ saat

Günde ___ dakika

Bilmiyorum/Emin değilim.

7. Son soru, **geçen 7 günde hafta içinde oturarak** geçirdiğiniz zamanlarla ilgilidir. İşte, evde, çalışırken ya da dinlenirken geçirdiğiniz zamanlar dahildir. Bu masanızda, arkadaşınızı ziyaret ederken, okurken, otururken veya yatarak televizyon seyrettiğinizde oturarak geçirdiğiniz zamanları kapsamaktadır.

Geçen **7 gün** içerisinde, günde **oturarak** ne kadar zaman harcadınız?

Günde ___ saat

Günde ___ dakika

Bilmiyorum/Emin değilim.

3. BÖLÜM

EGZERSİZ DAVRANIŞI DEĞİŞİM BASAMAKLARI ANKETİ

Her soru için EVET veya HAYIR seçeneğini işaretleyiniz. Lütfen soruları dikkatlice okuyunuz.		
Orta düzeyde fiziksel aktiviteler nefes alımında ve kalp atımında biraz artış gözlenen aktivitelerdir. Ritimli yürüyüş, dans, bahçe işleri, düşük şiddette yüzme veya arazide bisiklet sürme gibi aktiviteler orta düzeyde aktivite olarak değerlendirilir.		
1) Şu anda orta düzeyde fiziksel aktiviteye katılmaktayım.	HAYIR	EVET
2) Gelecek 6 ayda orta düzeyde fiziksel aktiviteye katılımımı arttırmak niyetindeyim.	HAYIR	EVET
Orta düzeyde fiziksel aktivitenin düzenli sayılabilmesi için, aktivitenin haftada 5 veya daha fazla günde 30 dakika veya daha fazla olması gerekir. Örneğin, 30 dakika süreyle yürüyüş yapabilir veya 10 dakikalık 3 farklı aktivite ile 30 dakikayı doldurabilirsiniz.		
3) Şu anda düzenli olarak orta düzeyde fiziksel aktivite yapmaktayım.	HAYIR	EVET
4) Son 6 aydır düzenli olarak orta düzeyde fiziksel aktiviteye katılmaktayım.	HAYIR	EVET

KİŞİSEL BİLGİLER

- Yaş: _____ 16-19: 20-29: 30-39: 40-49: 50-59: 60-65:
- Boy: _____
- Kilo: _____
- Medeni Durumunuz: Evli Bekar
- Çocuk: Yok Var
Çocuk sayısı: 1 2 3 4 5 6 veya daha fazla
- Eğitim Düzeyiniz: Okuryazar değilim Okuryazarım
 İlköğretim Lise
 Üniversite Yüksek lisans Doktora
- Mesleğiniz: Çalışmıyorum (Ev hanımı) Emekli Memur
 İşçi Öğrenci Diğer: _____

8. Aylık Geliriniz: _____

300 tl den az:

301-600:

601-1000

1001-2000

2001-3000

3001-4000

4001-5000

5001-6000

6001-7000

7001-9000

9001-10000

10001 ve üzeri

Cevap yok

9. Kaç yıldır/aydır bu evde ikamet ediyorsunuz? _____ Kira Ev sahibi

10. Bu eve taşınma sebebiniz nedir?

Okula yakın

İşe yakın

Spor tesislerine yakın

Güvenilir mahalle

Park ve yeşil alanlara yakın

Diğer

ADINIZ:

SOYADINIZ:

TEL:

ANKETÖR:

İMZA:

MAHALLE İSMİ: _____ **CADDE-SOKAK:** _____

**ANKET BİTMİŞTİR.
KATILIMINIZ İÇİN ÇOK TEŞEKKÜR EDERİZ...**

APPENDIX B

Etik Kurul Onayı



1956

Orta Doğu Teknik Üniversitesi
Middle East Technical University

Fen Bilimleri Enstitüsü
Graduate School of
Natural and Applied Sciences

06531 Ankara, Türkiye
Phone: +90 (312) 2102292
Fax: +90 (312) 2107959
www.fbe.metu.edu.tr

Sayı: B.30.2.ODT.0.AH.00.00/126/76-957

20 Ağustos 2010

Gönderilen: Yrd Doç Dr Mustafa Levent İnce

Beden Eğitimi ve Spor Bölümü

Gönderen : Prof. Dr. Canan Özgen

IAK Başkan Yardımcısı

İlgi : Etik Onayı

Canan Özgen

“Düşük ve Yüksek Sosyo-Ekonomik Çevrelerde Yaşayan Kadınların Fiziksel Aktivite Davranışlarının İncelenmesi” başlığı ile yürüttüğünüz çalışmamız “İnsan Araştırmaları Etik Komitesi” tarafından uygun görülerek gerekli onay verilmiştir.

Bilgilerinize saygularıyla sunarım.

Etik Komite Onayı

Uygundur

20/08/2010

Canan Özgen
Prof.Dr. Canan ÖZGEN

Uygulamalı Etik Araştırma Merkezi
(UEAM) Başkanı
ODTÜ 06531 ANKARA