USE OF TRANS-CONTEXTUAL MODEL BASED INTERVENTION IN DEVELOPING LEISURE-TIME PHYSICAL ACTIVITY BEHAVIOR

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

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ABSTRACT

USE OF TRANS-CONTEXTUAL MODEL BASED INTERVENTION IN DEVELOPING LEISURE-TIME PHYSICAL ACTIVITY BEHAVIOR

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The purpose of this study was to examine the effect of Trans-Contextual Model (TCM) based intervention on university students' perceived autonomy support, autonomous motivation, situational determinants of leisure-time physical activity (LTPA) behavior, need satisfaction in exercise setting and physical activity (PA) behaviors. In addition, participants' experience in TCM-based intervention was examined. An experimental research design was used. Seventy university students voluntarily participated in this study. They were randomly allocated to experimental and control groups. Experimental group followed TCM-based intervention for 12 weeks. A series of questionnaires were applied for collecting quantitative data. Individual interviews were conducted for collecting qualitative data. The quantitative data were analyzed with using paired samples *t*-test, repeated measures analysis of variance (ANOVA), mixed design multivariate analysis of variance (MANOVA), and chi-square analyses. The individual interviews were examined by systematic qualitative data

analysis. Results showed a significant effect of intervention on perceived autonomy support both from instructor and peers; on autonomous motivation in physical education setting and in LTPA setting; on more positive intention, attitudes and perceived behavioral control over LTPA behavior; and on more fulfillment of basic psychological needs. The intervention was also effective in improving PA behavior. The systematic qualitative analyses described the central phenomenon of TCM-based intervention as reflected in participants' need for PA participation, need for knowledge, and description of learning climate and how to become autonomous toward PA. These results indicated the effectiveness of TCM-based intervention on developing LTPA behavior. Further recommendations were discussed in terms of use of TCM-based intervention for physical education teachers, for leisure-time exercise instructors, and for future studies.

Keywords: Trans-contextual model based intervention, leisure-time physical activity, university students

ÖZ

SERBEST ZAMAN FİZİKSEL AKTİVİTE DAVRANIŞI GELİŞİMİNDE BAĞLAMLAR ARASI MODELE DAYALI EĞİTİMİN KULLANIMI

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Doktora, Beden Eğitimi ve Spor Bölümü
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Bu çalışmanın amacı Bağlamlar Arası Modele (BAM) dayalı eğitimin üniversite öğrencilerinin algılanan özerklik desteği, otonom motivasyon, serbest zaman fiziksel aktivite (SZFA) davranışı belirleyicileri, egzersiz ortamındaki temel psikolojik ihtiyaçlar doyumu ve fiziksel aktivite (FA) davranışı üzerine etkisini incelemektir. Buna ek olarak, katılımcıların BAM-dayalı eğitim deneyimleri de incelenmiştir. Bu çalışmada deneysel araştırma deseni kullanılmıştır. Yetmiş üniversite öğrencisi çalışmaya gönüllü olarak katılmıştır. Katılımcılar deney ve kontrol grubuna rastgele yöntemle atanmıştır. Deney grubu 12 hafta boyunca BAM-dayalı eğitimi takip etmiştir. Nicel veri için bir takım anket uygulanmıştır. Nitel veri ise bireysel görüşme yöntemiyle toplanmıştır. Nicel veri eşleştirilmiş örneklem *t*-testi, çok tekrarlı varyans analizi, karışık desen çok değişkenli varyans analizi, ve ki-kare testi ile analiz edilmiştir. Bireysel görüşmeler ise sistematik nitel veri analizi ile incelenmiştir. Elde edilen bulgular BAM-dayalı eğitimin hem eğitmen hem de arkadaşlardan kaynaklanan algılanan özerklik desteğinin, hem beden eğitimi ortamı hem de SZFA ortamı otonom motivasyonunun, SZFA davranışına

yönelik daha olumlu niyet, tutum ve algılanan davranışsal kontrolünün, ve psikolojik ihtiyaç doyumunun artmasına anlamlı derecede etkili olduğunu göstermiştir. BAM-dayalı eğitim FA davranışının olumlu yönde gelişmesine de etkili olmuştur. Nitel veri analizi bulguları BAM-dayalı eğitimin temel olguları katılımcıların FA katılım ihtiyacı, bilgi gereksinimi, öğrenme ortamının tanımlanması ve fiziksel aktiviteye katılmaya yönelik nasıl özerkleşme sağlandığı olarak tanımlamıştır. Bu bulgular BAM-dayalı eğitimin SZFA davranışının oluşturulmasında etkili olduğunu göstermektedir. BAM-dayalı eğitimin beden eğitimi öğretmenleri ve serbest zaman egzersiz danışmanları tarafından kullanımı ve gelecek çalışmalara yönelik öneriler tartışılmıştır.

Anahtar Kelimeler: Bağlamlar arası modele dayalı eğitim, serbest zaman fiziksel aktivite, üniversite öğrencileri

To my parents,

Enise & Fikret Müftüler

for your endless love and support

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LIST OF ABBREVIATIONS

α: Alpha

M: Mean

η^2: Eta Squared

χ^2: Chi-Square

V: Pillai-Bartlett Trace

CI: Confidence Interval

df: Degrees of Freedom

PA: Physical Activity

RQ: Research Question

SD: Standard Deviation

SE: Standard Error

SQ: Sub-Question

CFI: Comparative Fit Index

MET: Metabolic Equivalents

PBC: Perceived Behavioral Control

SDT: Self-Determination Theory

TCM: Trans Contextual Model

TLI: Tucker-Lewis Index

TPB: Theory of Planned Behavior

WHO: World Health Organization

BREQ: Behavioral Regulations in Exercise Questionnaire

GRAD: Graduate Ready for Activity Daily

HRPF: Health Related Physical Fitness

IPAQ: International Physical Activity Questionnaire

LTPA: Leisure Time Physical Activity

MVPA: Moderate-to-Vigorous PA

PLOC: Perceived Locus Of Causality

ANOVA: Analysis of Variance

PASCQ: Physical Activity Stages of Change Questionnaire

RMSEA: Root Mean Square Error of Approximation

BPNSES: Basic Psychological Need Satisfaction in Exercise Scale

MANOVA: Multivariate Analysis of Variance

PASSES: Perceived Autonomy Support Scale For Exercise Settings

CHAPTER I

INTRODUCTION

Over the past decades, regular physical activity (PA) participation has been considered as one of the major indicators of healthy lifestyle. The health benefits of having regular PA participation were well established for children, adolescents, adults, and older adults as well. In order to get long lasting health benefits of PA participation, it is also important to sufficiently establish regular PA behavior during childhood and adolescence because it tracks from adolescence to adulthood (Hallal, Victora, Azevedo, & Wells, 2006). A 21-year tracking study suggested that school age PA participation predicted high level of adult PA participation (Telama, Yang, Viikari, Välimäki, Wanne, & Raitakari, 2005). However, most of these tracking studies indicated that there was a decrease in PA participation during transition from adolescents to adulthood (Hirvensalo & Lintunen, 2011).

Global PA recommendations by World Health Organization (WHO) stated the importance of participating in different types of PA on a regular basis. Specifically, WHO recommended for the school-aged children (aged between 5-17 years) to participate at least 60 minutes of moderate-to-vigorous PA (MVPA) daily and muscle and bone strengthening exercises at least 3 times per week. The adults (aged between 18-64 years) should accumulate at least 150 minutes of MVPA or 75 minutes of vigorous PA per week and muscle strengthening exercises at least 2 times per week. The older adults (aged 65 and above) should do same amount of MVPA and/or vigorous PA as long as their abilities and health conditions allow (WHO, 2010).

A survey by WHO in 2005/2006 investigated the health inequalities among school-aged individuals (i.e., 11-, 13-, and 15-year olds) from different countries

including regions across Europe and North America (Currie et al., 2008). According to the survey results, the percent of young people who self-reported to participate in at least 60 minutes of MVPA daily was found to be lower than fifty percent. The average percentages of 11-, 13-, and 15-year olds participating in 60 minutes of MVPA daily was found to be 26%, 20%, and 16%, respectively. Moreover, for all of the countries, boys were found to be more active than girls across all age groups. These results pointed out that although only half of the young people were meeting the global PA recommendations, the average of PA participation was quite low and was slightly decreasing as the children gets older.

In this international survey by WHO, the school-aged children from Turkey were almost below the average and showed the similar results for gender differences and a decrease in PA participation across age groups. More specifically, in Turkey, the percent of PA participation for the global recommended levels was 21% for girls and 29% for boys at the age of 11, 17% for girls and 22% for boys at the age of 13, and 12% for girls and 16% for boys at the age of 15 (Currie et al., 2008). The national household survey by the Ministry of Health in Turkey investigated over 48.000 people, who were 18 years old and above, in terms of some health risk factors such as smoking, diet, obesity, PA as well as their demographic and socio-economic status (Ünüvar, Mollahaliloğlu, Yardım, & Bora-Başara, 2006). With regard to meeting the global PA recommendations, the survey results indicated that regardless of the age groups, 20% of the participants self-reported no PA participation and 16% were not meeting the required levels.

Considering the young adults who were aged between 18-24 years old, the results showed the similar trend. Specifically, 15% of young adults reported no PA participation at all and 14% were considered as not meeting the recommended levels of PA (Ünüvar et al., 2006). However, more recent studies conducted with Turkish young adults in university education indicated that they had nearly physically inactive lifestyle. Cengiz, İnce, and Çiçek (2009) investigated Turkish university students' PA behaviors. The authors found that 15% of them had no intention to exercise, 30% had an intention

but not doing regular exercise, and only 25% had just started to exercise. Karaca, Çaglar, and Cinemre (2009) examined PA intensities for Turkish university students. The authors demonstrated that 25% of female and 18% of male participants reported no PA participation. Overall, the national and international surveys from different countries pointed out the lower levels of PA participation amongst the children and adolescents during secondary school and a decrease in the frequency of PA as they got older.

The empirical results from national and international studies indicated that almost half of the young adults in university education were physically inactive in their leisure-time (Haase, Steptoe, Sallis, & Wardle, 2004). Recent studies conducted amongst Turkish university students demonstrated that during university education, young adults self-reported little or no intention for PA participation and an engagement of very low intensities of PA (Cengiz et al., 2009; Karaca et al., 2009).

The reasons for a decrease in PA participation during adulthood might be due to the motivational orientations, intention and attitudes toward PA participation. Thus, it is worth to comprehensively understand an individual's motivational orientations and situational determinants of PA behavior. As the researchers suggested, intrinsic forms of motivation, which is an internal state of engaging in a behavior in terms of its inherent satisfaction, can lead to a more persistent PA participation (Daley & Duda, 2006; Frederick, Morrison, & Manning, 1996). It was also clearly stated that intrinsic motivation had positive association with future intentions toward PA (Standage, Sebire, & Loney, 2009; Wilson, Rodger, Fraser, & Murray, 2004). These results indicated that as long as an individual gets intrinsic forms of motivation for PA behavior, their future intentions and attitudes would be more likely positive toward PA participation. Understanding the reasons for PA participation might help the researchers and practitioners to design and promote lifelong PA participation.

Even though regular PA participation is promoted in school setting, community setting, and/or work setting, it has not shown persistence throughout life. High prevalence of physically inactive lifestyle has led to the question of how sufficient

enough the PA promotion interventions. Many meta-analytic studies suggested that motivation-based interventions (Baranowski, Anderson, & Carmack, 1998) and behavior change interventions (Kahn et al., 2002) were amongst the effective intervention techniques for young adults to promote immediate change of PA participation. However, follow-up studies indicated that after the intervention terminated, the positive effect of intervention to sustain PA behavior was getting reduced (Calfas et al., 2000). The literature on the effectiveness of PA intervention pointed out an unclear evidence for less and/or unmotivated individuals and the strategies for increasing PA in leisure-time (Baranowski et al., 1998). Therefore, the need for designing intervention based on a theoretical framework to increase leisure-time PA (LTPA) participation has emerged.

Trans-contextual model of motivation (TCM) is a multi-theory, in which it consists of three leading theories, to comprehensively understand PA participation behavior, motivational orientations, and future intentions with the help of transfer of contextual motivation (Hagger, Chatzisarantis, Culverhouse, & Biddle, 2003; Hagger, Chatzisarantis, Barkoukis, Wang, & Baranowski, 2005). Three leading theories are Deci and Ryan's (1985; 2000) Self-Determination Theory (SDT), Ajzen's (1985; 1987) Theory of Planned Behavior (TPB), and Vallerand's (1997) hierarchical model of intrinsic-extrinsic motivation. SDT provides a framework for motivational orientations of a target behavior, and a distinction for intrinsic and extrinsic motivation. TPB explains the situational determinants of behavior in terms of intention, attitudes, subjective norms, and perceived behavioral control. Hierarchical model of intrinsic-extrinsic motivation provides a framework for examining the contextual motivation in a top-down effect and the transfer of motivation from one context to another.

Integration of these three theories has been well evidenced in health behavior domains (Hagger & Chatzisarantis, 2009a; Vallerand, 1997). This integrated model is based on a motivational sequence, which begins with perceived autonomy support. In this motivational sequence, perceived autonomy support is introduced to effect PA behavior in physical education setting, which in turn has an influence on autonomous

motivation toward PA in leisure-time setting (Barkoukis, Hagger, Lambropoulos, & Tsorbatzoudis, 2010; Hagger et al., 2009). These motives had also an influence on decision-making process on intentions toward future PA participation.

TCM has received much attention to examine young adults' health-related behaviors. Much of the studies were correlational in nature and they provided clear evidence for the validity of this model in PA and physical education contexts and for the effect of perceived autonomy support on PA participation (Chatzisarantis, Hagger, & Smith, 2007; Hagger et al., 2003). However, these studies also suggested designing an autonomy supportive context and examining the effects of this context on promoting PA behavior (Hagger et al., 2005; 2009; Lim & Wang, 2009; Wallhead, Hagger, & Smith, 2010). Based on the needs for designing a TCM-based intervention to examine the effects on PA behavior, the present study was conducted. The purpose of this study was to examine the effect of TCM-based intervention on university students' perceived autonomy support, autonomous motivation, situational determinants of leisure-time physical activity (LTPA) behavior, need satisfaction in exercise setting and physical activity (PA) behaviors and to describe the participants' experiences in TCM-based intervention. To get in-depth understanding of the climate of intervention, the experiences of participants from experimental group were qualitatively examined. The reason for collecting both types of data was to provide greater understanding of the university students' experiences in TCM-based intervention.

1.1. Research Questions

In order to achieve the aim of the study, following research questions and related sub-questions were formed.

Research Question 1: Is there an effect of trans-contextual model (TCM) based intervention on university students' perceived autonomy support?

1.1. Is there an effect of trans-contextual model (TCM) based intervention on university students' perceived autonomy support from instructor?
1.2. Is there an effect of trans-contextual model (TCM) based intervention on university students' perceived autonomy support from peers?

Research Question 2: Is there an effect of trans-contextual model (TCM) based intervention on university students' autonomous motivation?

2.1. Is there an effect of trans-contextual model (TCM) based intervention on university students' autonomous motivation in physical education setting?
2.2. Is there an effect of trans-contextual model (TCM) based intervention on university students' autonomous motivation in LTPA setting?

Research Question 3: Is there an effect of trans-contextual model (TCM) based intervention on university students' situational determinants of LTPA behavior?

3.1. Is there an effect of trans-contextual model (TCM) based intervention on university students' intention toward LTPA behavior?
3.2. Is there an effect of trans-contextual model (TCM) based intervention on university students' attitudes toward LTPA behavior?
3.3. Is there an effect of trans-contextual model (TCM) based intervention on university students' subjective norms about LTPA behavior?
3.4. Is there an effect of trans-contextual model (TCM) based intervention on university students' perceived behavioral control toward LTPA behavior?

Research Question 4: Is there an effect of trans-contextual model (TCM) based intervention on university students' basic psychological need satisfaction in exercise setting?

4.1. Is there an effect of trans-contextual model (TCM) based intervention on university students' autonomy satisfaction in exercise setting?

4.2. Is there an effect of trans-contextual model (TCM) based intervention on university students' relatedness satisfaction in exercise setting?

4.3. Is there an effect of trans-contextual model (TCM) based intervention on university students' competence satisfaction in exercise setting?

Research Question 5: Is there an effect of trans-contextual model (TCM) based intervention on university students' PA behaviors?

5.1. Is there an effect of trans-contextual model (TCM) based intervention on university students' PA level?

5.2. Is there an effect of trans-contextual model (TCM) based intervention on university students' PA stages of change?

Research Question 6: How do university students describe their experiences in trans-contextual model (TCM) based intervention?

1.2. Hypotheses

The followings were the hypotheses of the study. They were formed based on the research questions and relevant literature.

Hypothesis 1: There is a significant effect of trans-contextual model (TCM) based intervention on university students' perceived autonomy support.

Hypothesis 2: There is a significant effect of trans-contextual model (TCM) based intervention on university students' autonomous motivation.

Hypothesis 3: There is a significant effect of trans-contextual model (TCM) based intervention on university students' situational determinants of LTPA behavior.

Hypothesis 4: There is a significant effect of trans-contextual model (TCM) based intervention on university students' basic psychological need satisfaction in exercise setting.

Hypothesis 5: There is a significant effect of trans-contextual model (TCM) based intervention on university students' PA behaviors.

1.3. Definition of Terms

Attitudes: reflect an individual's favorable or unfavorable affective and cognitive orientations toward participating in the behavior (Ajzen, 1991).

Autonomous motivation: is the amount of personal desire a person has to engage in physical activities on his/her own based on his/her personal needs for personal satisfaction and enjoyment (Hagger et al., 2005).

Autonomy: is the inherent psychological need that requires support from environmental conditions and interpersonal relationships for its satisfaction (Deci & Ryan, 2004).

Autonomy support: refers to what one person says and does to enhance another's internal perceived locus of causality, volition, and perceived choice during action (Hagger et al., 2003).

Competence: refers to experiencing oneself as being able and effective when dealing with the environment (Sheldon, Elliot, Kim, & Kasser, 2001).

Intention: is the most proximal predictor of behavior. It is proposed to mediate the effect of three belief-based personal, social, and control-related social-cognitive antecedents on behavior (Ajzen, 1991).

Leisure-time physical activity (LTPA): is defined as the activities that an individual intentionally planned to participate in order to maintain or improve physical fitness (Stephens, Jacobs, & White, 1985).

Motivation: is an internal state that activates, energizes, or drives action or behavior and determines its intensity and direction (Deci & Ryan, 2004).

Perceived behavioral control (PBC): reflects the evaluation of perceived abilities and barriers toward engaging in the behavior (Hagger & Chatzisarantis, 2007).

Physical activity (PA): refers to any bodily movement produced by skeletal muscle that resulted in energy expenditure (Caspersen, Powell, & Christenson, 1985).

Relatedness: is the desire to feel connected to others, to care for others, and to feel cared for by others (Baumeister & Leary, 1995).

Self-determination theory (SDT): is a key explanatory system for understanding of the motivation behind volitional behaviors (Deci & Ryan, 2004).

Subjective norms: reflect the perceived social pressure from significant others with respect to the behavior (Ajzen, 1991).

Theory of planned behavior (TPB): is a social cognitive model for describing the processes that encourage intentional action (Ajzen, 1991).

Trans-contextual model (TCM): aims to explain how motivation in physical education context facilitates motivation, intentions and behavior in a different but related LTPA context (Hagger & Chatzisarantis, 2007).

1.4. Significance of the Study

Although the health benefits of regular PA participation were well established for across all age groups from younger to older, the extant literature indicated a significant drop in PA participation as individuals transferred from adolescence to adulthood period (Telama et al., 2005). The prevalence of physically inactive lifestyle was high amongst the university students either in the developed countries (Haase et al., 2004) or in the developing countries like Turkey (Cengiz et al., 2009). In order to overcome the physical inactivity problem amongst the university students, it has been getting much attention to understand the motivational orientations for a sustained PA behavior (Puente & Anshel, 2010).

A major significance of the study was to examine a theory-based intervention on developing PA behavior in leisure time. Nowadays, theory-driven intervention for PA promotion has achieved great attention. However, little is known about how the effect of intervention is transferred into a real setting. TCM was the main theoretical background of this study to understand the transfer of PA motivation in one setting into related but separate setting. Use of TCM as a theoretical basis would reflect the effectiveness of PA promotion into a real life adoption.

The empirical results indicated that providing autonomy supportive climate resulted in more internalized forms of motivation, stronger intention, more need satisfaction, and more frequent in-class PA participation (Christodoulis, Papaioannou, & Digelidis, 2001; Mandigo, Holt, Anderson, & Sheppard, 2008). This would also led to more PA participation in leisure-time setting, like recess time PA participation (Chatzisarantis & Hagger, 2009), selection of elective physical education course (Shen, 2010), and more frequent participation in exercise class (Edmunds, Ntoumanis, & Duda, 2008). Another significance was to develop and carry out autonomy supportive strategies into a real intervention setting in PA domain. As there were many correlational but a few amount of intervention studies in TCM related literature, this study would give an understanding of how autonomy supportive strategies be used in real PA intervention.

A final significance of the study was that in this study, data triangulation was used to have in-depth understanding of the intervention setting. Self-reports of participants, field notes either from instant or from video records of intervention setting, and individual interviews with those participating in intervention were all used for data triangulation. Data triangulation gave richness to the interpretation of current findings in the study.

CHAPTER II

LITERATURE REVIEW

In this chapter, the literature review related with the present study is covered. First, the emergent studies investigating exercise motives and participation among university students and also theory-based interventions for PA promotion are briefly explained. The theoretical background of the present study is Trans-Contextual Model of motivation (TCM). It is composed of three prominent theories, which are Deci and Ryan's (1985; 2000) Self-Determination Theory (SDT); Ajzen's (1985; 1987) Theory of Planned Behavior (TPB); and Vallerand's (1997) hierarchical model of intrinsic-extrinsic motivation. In the literature review part, those leading theories are explained. Finally, some practical applications of the model both in education and in physical education or PA contexts are discussed.

2.1. Physical Activity Participation among University Students

Physical inactivity was shown to be the leading causes of chronic diseases and even death. This fact is a global issue and Turkey is not an exception. Turkish National Burden of Disease (2004) reported that amongst the young adult population (i.e., between the ages of 15-29 years old), 35% of males and 71% of females were not sufficiently active or even physically inactive and the percent of little or no PA engagement was getting higher as they got older. These critical findings indicated that the Turkish young adults would be most likely to have health concerns later in their lives due to physically inactive lifestyle. Thus, it turned into an important concern for young adults to have a healthy lifestyle.

A number of studies indicated that school-aged students were participating in regular PA at their compulsory physical education classes (Currie, Hurrelmann, Settertobulte, Smith, & Todd, 2000; Pate et al., 2002). Notwithstanding, vast majority of studies pointed out a significant decrease in PA participation during transition from childhood and/or adolescent period into an earlier adult life during university education (Caspersen, Pereira, & Curran, 2000; Leslie, Fotheringham, Owen, & Bauman, 2001; Telama et al., 2005). One of the reasons of this decline might be the fact that the individuals at this age group generally ended their compulsory physical education. It is important to examine the individuals' exercise behaviors during university education in which PA participation would not be compulsory at all. In a comparative study by Haase et al. (2004), the authors investigated university students' LTPA behaviors from 23 different countries. Initial analyses indicated that almost 44% of the university students were found to be physically inactive in developing countries (e.g., Colombia, Venezuela, and South Africa). For the developed countries, the prevalence of physical inactivity ranged from 23% to 42% for university students and only a few amount of them were meeting the recommended frequency of PA participation (Haase et al., 2004).

A similar trend exists for Turkey. For example, in a study by Cengiz et al. (2009), the authors investigated university students' PA behaviors from Turkish sample. The authors found that over half of them were at lower stages of exercise, like pre-contemplation (i.e., having no intention to exercise), contemplation (i.e., having intention to exercise but do not participate), and preparation (i.e., having just started to exercise). In another study, Karaca et al. (2009) examined the intensities of PA participation for Turkish university students. They found significant gender differences in PA intensities. Specifically, male students were more likely to participate higher levels of PA intensities than female counterparts. Higher percentages of young adults being at lower stages and having lower PA intensities indicated higher prevalence of physical inactivity amongst Turkish university students.

Likewise, another study conducted with university students in transition from high school to university in Turkey investigated the young adults' health-promoting behaviors with regard to their PA behavior (İnce & Ebem, 2009). The results indicated significant differences in health-promoting behaviors (such as nutrition behavior, health responsibility, life appreciation, social support, and stress management) in terms of PA behaviors. Overall, the students with little or no intention to exercise were shown to have the most risk of poor health behavior. The authors suggested the necessity to develop PA promotion intervention for young adults (İnce & Ebem, 2009).

Besides examining exercise behaviors and PA levels, a growing amount of research investigated university students' motivational orientations of being physically active. Earlier evidence showed that intrinsic forms of exercise motivation significantly increased exercise participation and adherence (Frederick et al., 1996). Moreover, intrinsic motivation was positively related with psychological wellbeing (Maltby & Day, 2001). Researchers examined the relationship between university students' self-reported exercise stages and their motivational orientations. The general results revealed that intrinsically-oriented individuals showed more self-determination and participated PA more frequently (Daley & Duda, 2006) as well as they were more likely to be at maintenance stage (i.e., participating exercise regularly more than 6 months; Buckworth, Lee, Regan, Schneider, & DiClemente, 2007). These result can be concluded that the more self-determined the individuals are the higher stages they are in.

Another emergent issue for determining PA participation was the behavioral regulations in exercise domain. Wilson et al. (2004) examined the relationship between behavioral regulations with motivational outcomes, like current PA engagement, future intentions toward PA, and effort. Autonomous exercise regulations (e.g., intrinsic motivation, identified regulation, and introjected regulation) were positively related with all outcomes. Similarly, Standage et al. (2009) examined the behavioral regulations with PA intensities among university students. The findings indicated that autonomous exercise regulations were positively predicted moderate-intensity exercise. Overall these

findings interpreted that individuals with higher intrinsic motivation and more autonomous regulations were more likely to demonstrate sustained exercise behaviors. As it was suggested, understanding motivational factors and behavioral consequences of PA participation would explain motives to engage in regular PA (Puente & Anshel, 2010). Still, there is a need to examine theory-based PA promoting interventions for university students.

2.2. Theory-Based Interventions in Physical Activity Context

Earlier studies indicated that it was necessary to understand the relationship between theoretical variables and outcomes as well as the impact of theory-based intervention on these outcomes. Baranowski et al. (1998) examined PA intervention studies in terms of their theoretical framework and the effects on PA outcomes. In their review, the authors stated that interventions were found to be most effective when individuals were motivated enough toward PA participation. Moreover, the intervention was found effective when a school-based intervention was changed its program to promote PA participation. The authors also argued that theoretical variables significantly explained the change in PA behavior. These results pointed out the importance of theoretical variables in designing interventions for PA promotion.

In a more recent review by Kahn et al. (2002), the authors broadly examined PA promotion interventions in terms of reaching the *Healthy People 2010* goals and objectives. Several kinds of interventions were grouped into three approaches, namely (a) informational approaches, (b) behavioral and social approaches, and (c) environmental and policy approaches. Amongst those interventions, college-based health education and physical education interventions were grouped into behavioral and social focus because the interventions used behavioral education efforts to increase PA. College-based interventions mainly focused on setting long-term behavioral patterns during transition to adulthood. The general feature of these interventions was that

physical education or wellness department in a university setting offered these classes and they included supervised PA participation.

İnce (2008) examined the effectiveness of social cognitive theory-based PA intervention on university students' health-promoting behaviors in a Turkish context. The intervention was designed to develop health-promoting behaviors such as nutrition behavior, health responsibility, life appreciation, social support, and stress management by means of social cognitive theory constructs (i.e., self-regulatory skills, social support, and self-assessment of health-related fitness). The results indicated the significant positive effect of intervention on all of the health-promoting behaviors as well as an increase in PA engagement.

Amongst the college-based intervention, the Project GRAD (Graduate Ready for Activity Daily) was an important one. It was a university course designed to promote PA for university students by teaching PA and behavior change skills during transition from university graduation to full-time work. Sallis et al. (1999) evaluated the immediate results of Project GRAD and Calfas et al. (2000) evaluated two-year follow-up results. Overall, the Project GRAD findings revealed that there were significant differences in responses of men and women. Specifically, although the intervention had no significant effects on men, it increased total PA in leisure-time, strengthening and flexibility exercises among women (Sallis et al., 1999). However, in a two-year follow-up study of Project GRAD, Calfas et al. (2000) found no significant intervention effects on PA behaviors for either men or women, on the other hand, the behavioral change was significantly improved for women. These results from two studies revealed that this intervention was successful in short-term but not in long-term effect on PA behaviors.

The extant literature on the effectiveness of PA promotion interventions pointed out the inadequate information for less and/or unmotivated individuals and the strategies for increasing PA in leisure-time (Baranowski et al., 1998). Therefore, the need for designing intervention based on a theoretical framework to increase LTPA participation has emerged.

2.3. Trans-Contextual Model (TCM): An Integrated Model of Motivation

Recently, it has been an important issue for physical education teachers and exercise professionals to promote a lifelong PA behavior. Although it was well established in the literature that PA participation increased in schools, physical education classes and recess time, this trend of positive result was shown to be short-lived (De Meester, van Lenthe, Spittaels, Lien, & De Bourdeaudhuij, 2009). What the individuals are doing outside of their school boundaries and class time is not known well. Therefore, the need for examining the transfer of what was learned in physical education classes into LTPA context has emerged. Trans-contextual model of motivation is one of the theories of exercise participation motivation. According to Hagger and colleagues, this model provides a comprehensive framework that examines the transfer of motivation in one context, e.g. physical education class, into a different but related real life context, e.g. LTPA context (Hagger & Chatzisarantis, 2007; Hagger et al., 2003; 2005). TCM proposes a motivational sequence that begins with perceived autonomy support. The perceived autonomy support is introduced by significant others to effect PA behavior in physical education context, which in turn has an influence on autonomous or self-determined forms of motivation toward PA in leisure-time context (Barkoukis et al., 2010; Hagger et al., 2009). These motives have also an influence on decision-making process on intentions toward future PA participation. Central to this model is the hypotheses that (a) perceived autonomy from significant others (like physical educator, peers, and parents) would promote the individuals' perceived autonomy support and self-determined or autonomous motivation not only in educational context but also in leisure-time context, (b) autonomous motivation is shown to make individuals form future intentions to participate in PA in their leisure-time, and (c) trans-contextual motivational effects would be applicable to different educational contexts and leisure-time activities (Hagger & Chatzisarantis, 2012).

TCM is an integrated model, in which three prominent theories lead to understand a specific behavior. In the following parts, those theories (namely SDT, TPB,

and hierarchical model of intrinsic-extrinsic motivation) are discussed in terms of PA behavior.

2.3.1. Self-Determination Theory (SDT)

The central theory in TCM is Deci and Ryan's self-determination theory (SDT; 1985, 2000). SDT is the general macro-theory of human motivation that has been applied to different domains such as health, work, education, sport, and exercise. SDT in exercise research concerns with the reasons or motives of PA engagement and focuses on the degree to which people's motivations toward PA engagement are more or less self-determined or controlled by external or internal factors (Deci & Ryan, 2000). It was clearly stated that the more the individuals are autonomously motivated, the more the behavior change is effective and long lasting.

According to Deci and Ryan (1985, 2000), there are essential key concepts within SDT. In this part, these concepts were discussed within PA domain. Figure 2.1 shows the key concepts of SDT in a continuum. First, SDT conceptually distinguishes different types of motivation regulating one's behavior: i.e., the distinction between intrinsic motivation vs. extrinsic motivation. Intrinsic motivation (or termed as self-determined motivation) is relatively higher in autonomy. It refers to engaging in an activity because of its inherent satisfaction (like pleasure, enjoyment, fun etc.). When an individual engages in PA for intrinsic reasons or motives, s/he is predominantly pursuing in having pleasure and enjoyment or fun in this behavior, and s/he is doing PA because s/he wants to do it.

Extrinsic motivation (or termed as non-self-determined motivation), on the other hand, is considered as controlling motives. It refers to doing an activity based on external factors such as experiencing rewards and/or refraining from punishments. When an individual is externally motivated toward PA participation, s/he might engage in because of only pursuing better health, having better physical appearance, and etc.

Extrinsically motivated person is engaging in PA because s/he has to do it, rather than s/he wants to do it.

Along the continuum, Deci and Ryan (2000) also proposes that individuals' behavior might be amotivated, in other words, a person has lack of motivation toward engaging in that behavior, and it is named as amotivation. For example, if an individual is amotivated toward PA participation, s/he has no idea or volition for engaging in it. Amotivation has negative associations with health enhancing behaviors, like subjective wellbeing, quality of life and PA participation.

According to SDT, students with more self-determined motivation demonstrated greater persistence, effort, and enjoyment than students with less self-determined motivation. With regard to PA domain, Edmunds, Ntoumanis, and Duda (2006) found that higher levels of self-determined motivation (in other words, intrinsic motivation) were related with greater PA participation. However, it was stated that PA behavior might be short-lived, i.e., might not be persistent in the future. One of the possible reasons for short-lived persistence in PA behavior might be the controlled form of motivation (i.e., extrinsic motivation), which is based on a feeling of "having to" rather than "wanting to." Therefore, sustained PA behavior might be dependent on the degree of relative autonomy or an internal perceived locus of causality (Ryan & Deci, 2000).

Second, SDT also defines different types of extrinsic motivation, which are namely external regulation, introjected regulation, and identified regulation. These different forms of extrinsic motivation are considered to differ in terms of the degree of relative autonomy. Thus, in SDT these behavioral regulations are conceptualized as lying along a continuum, known as perceived locus of causality (Ryan & Connell, 1989), from non-autonomous/controlled regulations to completely autonomous regulations (see Figure 2.1).

External regulation is the least autonomous form of motivation and as the name implies, it is controlled by external factors, like the promise of a reward or the threat of punishment. It lies at the far end of motivation continuum, representing less

autonomous, less internalized and more controlling motives. For example, when an individual participate in PA in terms of only getting better physical appearance, this behavior is mainly based on external regulation.

Introjected regulation is the other type of controlled/non-autonomous regulation that also lies on the far end of the continuum, next to the external regulation. It refers to an action that is controlled by the rules set by one-self. If an individual's motivation is based on introjected regulation, his/her main concern for PA engagement is still based on external forces, but s/he has also put own rules for engaging it, like not leaving PA partner alone while exercising, walking for reasons of losing weight. These two types of regulation represent features of controlling/non-self-determined motives and relatively lower in autonomy.

Unlike the previous two behavioral regulations, identified regulation is either a type of external motivation, where individuals value the activity and its possible benefits related to it or it represents more autonomous/self-determined motives and relatively higher in autonomy. For example, the behavior regulation is considered as identified when an individual participate in PA in terms of reasons for having the benefits of regular PA participation.

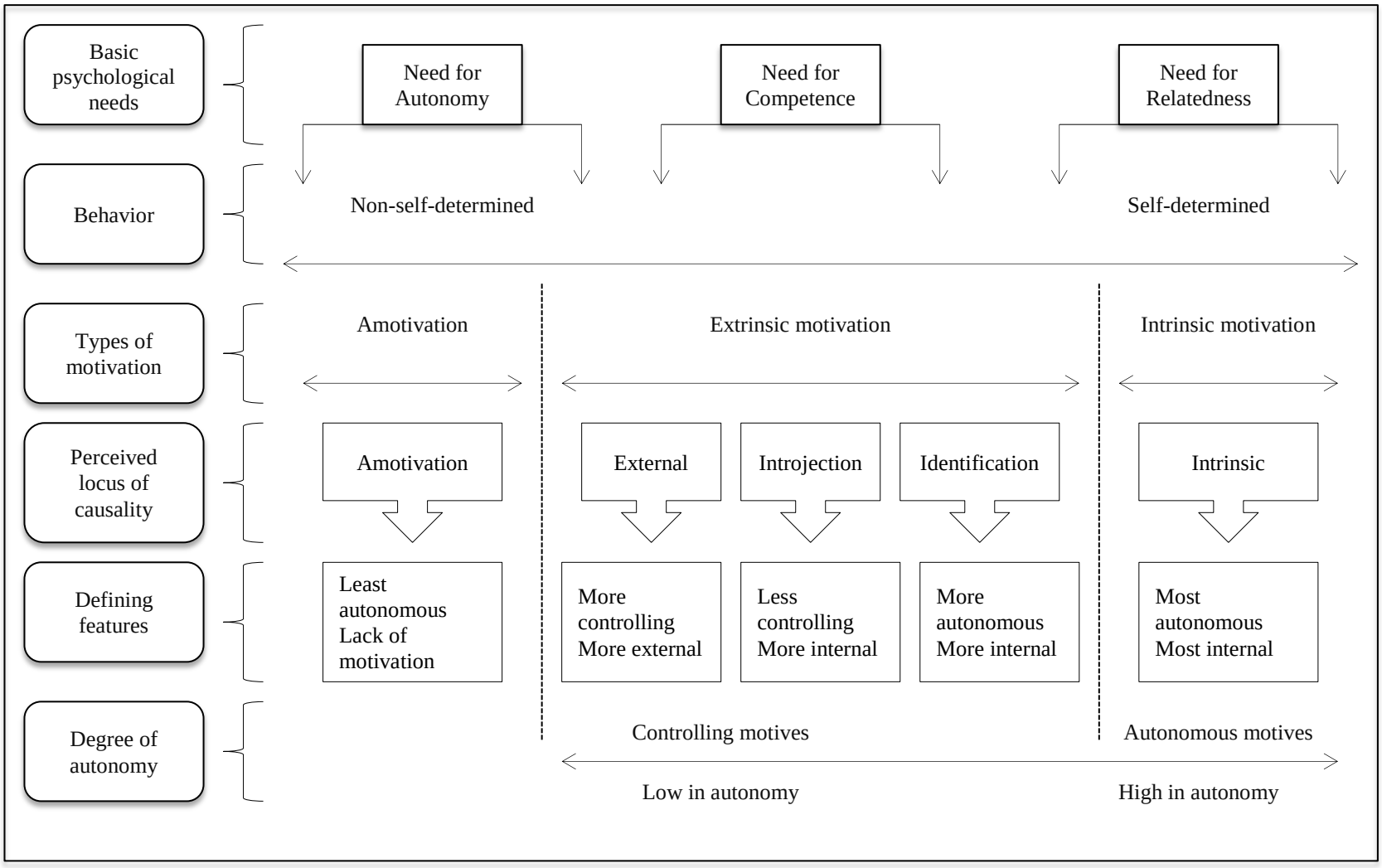


Figure 2.1 Key concepts of self-determination theory. Adapted from Hagger & Chatzisarantis, 2007, p.8

Third, SDT also proposes that an individual's behavior is guided by basic psychological needs. Within SDT, three basic psychological needs have been identified: need for autonomy, need for competence, and need for relatedness. The need for autonomy refers to the need for experiencing volitional action in one's own behavior. For example, when an individual feels free to PA participation in his/her own way and free to PA choices, s/he is experiencing a satisfaction of autonomy need. The need for competence reflects the feeling of being effective in producing the desired outcome and practicing own capabilities in reaching the outcome. For example if an individual feels being capable of exercising and also believing him/herself in overcoming the challenges of exercising, then s/he is feeling competent to exercising and satisfies this need. The need for relatedness is much associated with the social acceptance from others; like being accepted, respected, understood and cared by others. In that sense, if an individual feels close to the others in the exercise domain, then s/he becomes basically satisfied in the need for relatedness (Ng et al., 2012). According to Ryan and Deci (2000), when these psychological needs are satisfied, more positive behavioral outcomes would exist.

More recently, SDT has explored the distinction between goal contents or participation motives in exercise contexts (Sebire, Standage, & Vansteenkiste, 2009; Vansteenkiste, Soenens, & Lens, 2007). Although the distinction between goal contents is not the scope in this present study, it is worth to mention this concept. Specifically, SDT distinguishes between intrinsic goals and extrinsic goals. Intrinsic goals are considered being more related to basic psychological needs satisfaction (e.g., in PA context, to challenge oneself or to improve/preserve health and wellbeing). On the other hand, extrinsic goals related with substitute needs, not necessarily important for wellbeing and personal development (e.g., in PA context, when exercise is performed primarily to improve appearance). Thus, this distinction can be clearly seen in PA contexts.

Overall, as Vallerand, Pelletier, and Koestner (2008) suggested, the reflection of self-determination theory was varied from education, health, and psychotherapy to parenting, personal relationships, and work. One of the application fields of SDT is

exercise domain and the premises of this theory have been well defined in the literature with various kinds of studies, like cross-sectional, experimental, and longitudinal. The results from much of these researches were in consistent with SDT's premises, as discussed above. Specifically, cross-sectional studies indicated that more self-determined exercise motives positively predicted the actual and intended PA behavior. For example, identified regulation was found to be as important as intrinsic regulation in the exercise domain (Wilson & Rodger, 2004; Wilson et al., 2004). Moreover, introjected regulation was associated with more frequent exercise participation (Thøgersen-Ntoumani & Ntoumanis, 2007). These results were showing the evidence and importance of internalization process of extrinsic motivation and were also in line with Deci and Ryan's (1985, 2000) assertions. In terms of basic psychological need satisfaction in exercise domain, even if early studies demonstrated equivocal results (McCready & Long, 1985), the cross-sectional and longitudinal studies have recently supported the importance of the fulfillment of psychological needs in exercise domain, as well. For example, psychological need satisfaction was found to be significantly associated with self-determined exercise motives (McDonough & Crocker, 2007; Vlachopoulos & Michailidou, 2006). Longitudinal studies indicated that the satisfaction of autonomy, competence, and relatedness in the exercise domain was important for predicting the exercisers' future intentions to continue (Edmunds, Ntoumanis, & Duda, 2007).

The key concepts of SDT have also seen much attention in finding a link between the SDT constructs in physical education setting and LTPA behavior. Although cross-sectional studies indicated some equivocal results (e.g. Ntoumanis, 2001; Standage, Duda, & Ntoumanis, 2003), the longitudinal studies (e.g. Cox, Smith, & Williams, 2008; Taylor, Ntoumanis, Standage, & Spray, 2010) demonstrated much more similar findings in terms of explaining the association of SDT constructs such as students' need satisfaction and behavioral regulations in physical education setting on their future LTPA intentions. In one of the cross-sectional studies, Ntoumanis (2001) indicated that perceived competence and intrinsic motivation in physical education class were found out the strongest

predictor of future PA participation in leisure-time setting. When examined in a longitudinal manner (e.g. in a year-long study), Cox et al. (2008) found positive relations of perceptions of autonomy, competence and relatedness, intrinsic motivation and enjoyment in physical education class with future LTPA intentions. Similarly, Taylor et al. (2010) pointed out a more specific explanation of association, indicating that perceived competence and self-determined regulation in physical education setting were positively predicted LTPA intention. In sum, it was clear that self-determined motivation via the mediation of needs satisfaction and higher levels of behavioral regulation was found to be the strongest predictor of actual and intended PA engagement.

2.3.2. Theory of Planned Behavior (TPB)

The second prominent theory in TCM is Ajzen's (1985; 1987) Theory of Planned Behavior (TPB). It is a belief-based social-cognitive theory, which was developed as an extension of the earlier Theory of Reasoned Action (Ajzen & Fishbein, 1980). After its first introduction, TPB becomes one of the most widely tested models in health-related behaviors. It proposes that the individuals' actual behavior engagement is determined by intentions toward that behavior as well as perceived behavioral control (PBC), which is the added construct distinguishing TPB from TRA (Ajzen, 1985). Intentions are also determined by individual's attitudes, subjective norms, and PBC. Intentions can reflect human motivation (Terry & O'Leary, 1995). Attitudes, which are form of behavioral beliefs, reflect a personal disposition toward engaging in the behavior and represent a person's positive and/or negative evaluation of his/her beliefs regarding the target behavior. For example, a person might believe that PA participation will improve his/her health, or s/he might believe it is time consuming and painful. Subjective norm, which is a form of normative beliefs, represents the person's evaluation of whether significant others want him/her to engage in the target behavior and, in turn, his/her motivation to comply with these others. For example, if a woman believes that her friend wants her

to do regular exercise, and if she values friend's opinion, then her subjective norm for exercise will be higher. Perceived behavioral control (PBC), which is the control beliefs, represents an individual's assessment of his/her capacities regarding the behavioral engagement. For example, if a person believes that resources and opportunities for regular PA are rare, then this person's perception of control toward PA participation would be lower.

Within TPB, intentions are referred to as direct predictors of behavior; on the other hand, attitudes, subjective norms, and PBC are referred to as indirect predictors of behavior (McEachan, Conner, Taylor, & Lawton, 2011). As Ajzen suggested (1991), the actual behavior engagement was directly predicted by intention and PBC and intention was directly predicted by attitudes, subjective norms, and PBC, which in turn indirectly predicted behavior. The visual demonstration of TPB constructs is given in Figure 2.2.

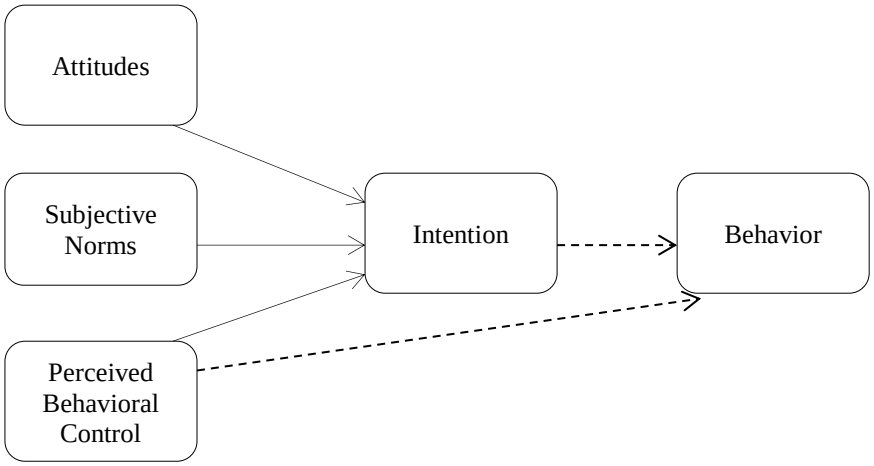


Figure 2.2 Visual demonstration of Theory of Planned Behavior constructs

Hausenblas, Carron, and Mack (1997), in their meta-analytic study, clearly showed the application of TRA and TPB into exercise behavior, stating that TPB was found to be better in predicting exercise behavior. The authors also pointed out the

larger effect sizes for the relationships between attitudes and intention and behavior; between PBC and intention and behavior; and between intention and behavior, as well. They found out lower levels of effect sizes between subjective norms and intention and behavior. Finally, they stated that expectation was a better predictor of exercise behavior then intention and this result was consistent with an earlier study by Courneya and McAuley (1993) indicating the distinction between expectation and intention in PA domain. However, a more recent meta-analytic research showed either some similar or different results concerning the use of social cognitive theories in PA and LTPA domains (Plotnikoff, Costigan, Karunamuni, & Lubans, 2013). In their review, intention emerged as the most predictive construct of PA behavior, which might give more importance of the use of TPB in PA and LTPA domain. The general results also indicated that PBC were found to be strong predictor of PA intention (Downs, Graham, Yang, Bargainnier, & Vasil, 2006; Hamilton & White, 2008). Unlike the previous studies, Plotnikoff et al. (2011) indicated that subjective norms emerged as the strongest predictor of intention for adolescents group. However, some other previous studies investigating the effect of subjective norms on PA intention have not reported this relation for adolescents (Hagger, Chatzisarantis, & Biddle, 2001) and for university students (Kwan, Bray, & Ginis, 2009).

A summary proposition of TPB is that people will have higher intention toward PA behavior when they evaluate it positively, believe significant others think they could perform it, and the performance of a target behavior is perceived to be under their own control (Ajzen, 1991).

2.3.3. Hierarchical Model of Intrinsic-Extrinsic Motivation

The third and last component theory in TCM is Vallerand's (1997) hierarchical model of intrinsic and extrinsic motivation. It is worth to mention here

that Vallerand (2007) explained about five postulates of this model. The first postulate pointed out that for a complete understanding of motivation, all three types of motivations; i.e., intrinsic motivation, extrinsic motivation and amotivation, must be analyzed. The second postulate was related with the levels of generality, that is, according to this model, intrinsic and extrinsic motivation exist at three levels of generality, which were the global, contextual, and situational levels. The third postulate stated that there were two possible sources of motivation, which were the social factors and the top-down effects of motivation. The forth postulate pointed out the fact that the relationship between the motivation given at the levels is repeated, indicating that there was a continuous relationship between the three levels of motivation. The fifth postulate pointed out the important consequences of motivation, which were the affect, cognition, and behavior consequences of motivation within each level.

The TCM was mainly based on the hierarchical model's postulate of motivation in different levels of generality. Motivation at global level refers to the general motivational orientations to be autonomously motivated. Motivation at the contextual level represents autonomous motivation to engage in a variety of behaviors in a given context. Motivation at the situational level means the autonomous motivation to engage in specific behavior in a moment. As Vallerand (2007) suggested, this distinction among these different levels provides a better understanding of motivational processes within each level and more importantly, there has been a top-down effects of those different levels of generality.

Vallerand's hierarchical model was used as an integrated frame for TCM. It is also worth to mention more about how these three leading theories was integrated within TCM.

2.4. Integration of Component Theories in TCM

Before elaborating more on the integration of three prominent theories in TCM, it is much important to explain how SDT and TPB were integrated in health behavior domains. It was well established that the situational determinants of behavior (i.e., attitudes, subjective norms, and perceived behavior) were linked to future intentional behaviors in health domains such as dieting and exercise (Hagger & Chatzisarantis, 2009a). However, TPB has not make the distinction whether this intentional behavior would be based on self-determined or controlling manner to be accomplished. In that sense, the integration of SDT constructs would help to explain more about those beliefs. Furthermore, TPB would also provide an interpretation of general motives from SDT into intentional action. In this way, TPB would complement the process of internal perceived locus of causality by explaining how individuals convert their self-determined motives into action.

There was a growing body of research indicating that autonomous motives from the perceived locus of causality (i.e., intrinsic motivation and identified regulation) had strong effects on attitudes, which in turn, had influences on intention (Standage et al., 2003). For example, in a study by Chatzisarantis et al. (2007), the results indicated that perceived autonomy support positively predicted intentions for PA participation behavior via attitudes. Similar results were found for a study with university students (Wilson et al., 2004). Specifically, the basic need of competence and autonomy positively correlated with self-determined/intrinsic regulation, which in turn, positively linked with PA behavior, attitudes and physical fitness. More recently, in their meta-analytic research examining the integration of TPB and SDT in health-related behavior, Hagger and Chatzisarantis (2009a) demonstrated consistent results. Generally speaking, the results showed that perceived autonomy support had significant effects on self-determined motives, which in turn, predicted attitudes and subjective norms. Although the effect size was found to be small, there was a significant direct effect of self-determined motivation on intention. Together with these results, it could be interpreted as that the link between the TPB constructs and SDT constructs was well established, and these two theories were

complementary to explain human motivation; especially in health-related domain, like PA participation behavior.

Within TCM, it was proposed that motivation in one context (like physical education) could be transferred into separate but related context (like LTPA context). Thus this feature was mainly based on the proposition of Vallerand's (1997) hierarchical model postulating that motivational process is context-based and there is a top-down effect of different levels of generality (i.e., global, contextual, and situational levels). TCM was also tested in university students' two health-related behaviors, dieting and exercise (Hagger, Chatzisarantis, & Harris, 2006). This study tested a motivational sequence in which psychological need satisfaction at the global level influenced intentions and behavior through autonomous motives at the contextual level and decision making construct from TPB at the situational level. The general results confirmed the motivational sequence provided within the SDT's, TPB's, and hierarchical model's postulates. These results corroborated that the integration of these theories provided a more comprehensive understanding of the motivational processes by which the global psychological needs influenced intentional behaviors at the situational level for dieting and exercise behaviors.

In summary, Deci and Ryan's self-determination theory provides explanations for environmental and interpersonal states (like autonomy supportive context and behavioral regulations) that have influences on intentional behavior in given contexts and explains the distinction between intrinsic and extrinsic motivation, Ajzen's theory of planned behavior represents decision-making process towards behavioral engagement at the situational level (i.e., the belief-based components that lead to intentions to engage in future behavior) and Vallerand's hierarchical model adds top-down effects between different levels of generality (e.g., contextual motivation influences intentions at the situational level). Hagger and colleagues (2003, 2005) have formed the trans-contextual model of motivation based on the integration of these three prominent theories.

2.5. Perceived Autonomy Support

Central to TCM is the perceived autonomy support, which refers to the perception of autonomy support from significant others for self-determined motivation on PA behavior and future intentions toward PA participation (Hagger & Chatzisarantis, 2009b). According to TCM, Hagger and colleagues indicated that autonomy support from significant others (e.g., physical education teacher, exercise instructors, coaches, parents, and peers) was important for individuals' autonomous motivation in physical education, which in turn, can be transferred into motivation, intentions, and PA in leisure-time context.

A vast majority of studies documented that perceived autonomy support differs based on the sources of the support. Studies in education demonstrated the academic leader such as teacher and instructor as one of the important sources of autonomy support (Reeve, Bolt, & Cai, 1999). Similarly, physical education teachers have been shown to be the most important source of autonomy support in physical education setting (Hagger et al., 2003). More recently, Shen, McCaughtry, Martin, and Fahlman (2009) examined the effects of autonomous motivation and the adolescents' perceptions of perceived autonomy support from physical education teacher on learning in physical education classes. The results showed that perceived autonomy support from teachers significantly led learning achievement in physical education class.

In another study with high school students, Shen (2010) examined the effects of perceived autonomy support from teachers in mandatory physical education class on actual enrollment in elective physical education course. The results indicated that perceived autonomy support from teachers significantly predicted the actual enrollment in elective physical education course in this sample. The studies in sport context showed the importance of athletes' perceptions of autonomy support from their coaches on need satisfaction, motivational orientations as well as their sport performance (Amorose & Anderson-Butcher, 2007; Gillet, Vallerand, Amoura, & Baldes, 2010).

In an experimental study conducted with female exercise class participants, Moustaka, Vlachopoulos, Kabitsis, & Theodorakis (2012) examined the effects of autonomy supportive intervention on the participants' exercise behavior. The intervention was designed as providing autonomy supportive instructing style to the exercise class participants, on the other hand, the control grouped exposed to a lack of autonomy supportive instructing style. The important findings emerged from this study were that the intervention group reported an increase in perceived autonomy support from exercise instructor and also an increase in PA participation after the intervention ended. These results were interpreted that perceived autonomy support from the exercise instructor was also an important source in leisure-time exercise context. In addition to autonomy support from physical education teachers in physical education setting, exercise instructors in leisure-time context and coaches in sport setting, there appeared to be another important autonomy support sources for adolescents group.

The initial evidence for perceived autonomy support from three different sources (such as physical education teachers, parent and peers) was demonstrated in the validation study of Perceived Autonomy Support Scale for Exercise Settings (PASSES; Hagger et al., 2007). In their first study, Hagger and colleagues showed the validation of the scales' items for measuring perceived autonomy support from physical education teacher. After validating, they employed the scale representing for physical education teacher, parents, and peers separately to the adolescents. Overall the results showed evidence for the validity of the scale for each source of perceived autonomy support (Hagger et al., 2007). Yet in another study investigating the effects of teachers' autonomy support in physical education setting and parents' and peers' autonomy support in LTPA setting for adolescents, the results showed that the effects of perceived autonomy support from parents and peers were significant for leisure-time autonomous motivation (Hagger et al., 2009). Overall, it can be concluded that perceived autonomy support varied in terms of source of support.

In addition to different sources of autonomy support, the generality of perceived autonomy support was evidenced in different nations. For example, Hagger and colleagues studied high school students from Britain, Greece, Poland, Estonia, Hungary, Finland, and Singapore (Hagger et al., 2005, 2007, 2009; Barkoukis et al. 2010). The overall results demonstrated the evidence for the importance of perceived autonomy support from different sources for each sample except for the sample from Poland. These results showed the invariance feature of perceived autonomy support for adolescents from different cultures.

Except for the invariant effects of perceived autonomy support from different sources and for different cultures, it has been in positive and significant relation with the other constructs of TCM, like intentions, attitudes, and behavioral regulation for PA participation. More specifically, Hagger et al. (2003) initially examined the model's main premise that individuals' perceived autonomy support in physical education setting would affect their behavioral regulations, future intentions, and actual PA engagement in leisure time. The authors employed a three-wave prospective research design to effectively investigate the motivational sequence of TCM. According to the path analysis, the results showed evidence that perceived autonomy support in physical education setting directly affected internal behavioral regulations (i.e., intrinsic and identified regulation), which in turn positively affected the same regulatory styles in leisure-time setting. As expected, the internal behavioral regulations in leisure-time setting had positively affected the future intentions of PA engagement via the mediation of attitudes (Hagger et al., 2003). Lim and Wang (2009) found similar results in their study examining the relationships between secondary school students' perceived autonomy support, behavioral regulations and their future intentions to be physically active. The results supported the previous findings for the motivational sequence in that perceived autonomy support enhanced more self-determined (i.e., more internal) forms of behavioral regulations in physical education and these positive results enhanced their future intentions to be physically active (Lim & Wang, 2009).

Perceived autonomy support in physical education setting was also shown to be the most influential effect of future intentions of PA engagement in leisure-time setting (Chatzisarantis et al., 2007; Chatzisarantis, Hagger, & Brickell, 2008). More specifically, Chatzisarantis and colleagues showed evidence that perceived autonomy support were found to be directly and indirectly enhanced future PA intentions via the mediation of attitudes. In a more recent meta-analysis examining the integration of TPB and SDT construct for health-related behaviors, the studies examined in this meta-analysis indicated that the perceived autonomy support was the most significant predictor of self-determined motivation, which significantly predicted intentions for health-related behavior via the mediation of attitudes and perceived behavioral control (Hagger & Chatzisarantis, 2009a). Overall, these results showed evidence for the importance of perceived autonomy support in terms of social cognitive decision-making process (i.e., intentions, attitudes etc.) and behavioral regulations within PA context.

2.6. Autonomy Supportive Intervention

Within TCM, it was well defined that autonomy support was the most influential factor of a persistent behavior and it is important for individuals to perceive significant others' autonomy support. For a most effective way of intervention, it is essential to provide an autonomy supportive setting within learning climate. The autonomy supportive context was well defined both in education and in physical education setting. In the following parts, the theory-based intervention including autonomy supportive strategies in both setting was explained.

2.6.1. Autonomy Supportive Intervention in General Education Setting

Within educational setting, it has been well established that an intervention designed to foster autonomy supportive learning environment had educational and developmental benefits (Guay, Ratelle, & Chanal, 2008; Reeve, Jang, Carrell, Barch, & Jeon, 2004) in the learning activity. In their overview study, Guay et al. (2008) reviewed studies examining how the learning climate contributes to individuals' motivational resources. The authors concluded that students who had higher autonomous forms of motivation had higher academic grades, higher persistence in learning, more satisfaction in psychological needs, and more positive emotions toward school. These general conclusions led to the fact that autonomy supportiveness in educational setting had significant effects on individuals' academic achievement. Empirical studies for the effect of autonomy supportive learning climate in educational setting indicated similar results. For example, Reeve et al. (2004) examined whether high school teachers could change their motivational styles of instruction and whether their students' perceptions of autonomy supportiveness from teachers would have an effect on students' engagement in a task. In this experimental study, high school teachers were given informational sessions to change their instructional style by being provided with autonomy supportive strategies and the authors rated their autonomy supportive behaviors during instruction. To examine the students' perceptions of autonomy support, they also rated their engagement in a task. The results based on teachers' observational scores indicated that teachers who had participated in informational sessions were able to teach and motivate their students in more autonomy supportive ways. The students' observations indicated that as long as students perceived their teachers as autonomy supportive, their behavioral engagement in a task increased. As a result, authors concluded that the more the teachers used autonomy supportive instructional styles, the more engagement their students demonstrated (Reeve et al., 2004).

As Reeve (2006) suggested, the students' classroom engagement was based on how learning climate was designed in terms of autonomy supportiveness.

Therefore, it is also important to know how to design an autonomy supportive climate within educational setting. In a meta-analytic study, Su and Reeve (2011) summarized the studies using autonomy supportive interventions. They also summarized five different autonomy supportive strategies used in educational setting. In the initial laboratory-based experimental study, Deci, Eghrari, Patrick, and Leone (1994) first introduced three autonomy supportive strategies, which were (1) providing meaningful rationales, (2) acknowledge negative feelings, and (3) using non-controlling language. In more applied setting (like classroom-based intervention) studies, researchers introduced additional strategies, which were (4) offering choices (Williams, Cox, Kouides, & Deci, 1999), and (5) nurturing inner motivational resources (Reeve et al., 2004). Some researchers have recently integrated taking of other person's feelings and perspectives into a single strategy – namely, acknowledge perspective and feelings (Edmunds et al., 2008; Tessier, Sarrazin, & Ntoumanis, 2008). These autonomy supportive strategies can also be used in physical education and exercise settings.

2.6.2. Autonomy Supportive Intervention in Physical Education Setting

Researchers have demonstrated that providing individuals with autonomy supportive climate in physical education setting as well as in exercise setting would have positive effects on persistent PA engagement. Empirical studies indicated that autonomy supportive climate resulted in higher motivation and intention of PA participation either in-class or out-of-class setting. For example, in a year-long intervention study with high school students, Christodoulidis, Papaioannou, and Digelidis (2001) examined the effects of longitudinal intervention, which aimed to change the motivational climate, goal orientations, motivation and attitudes, on the students' PA participation and eating habits. Their results showed that students who had participated in intervention had more positive attitudes toward PA participation

and spent more time exercising in class than control group students.

In another study with elementary school kids, Mandigo et al. (2008) examined the effects of game lessons based on autonomy supportive strategies on students' motivational experiences. According to their results, the kids who were exposed to autonomy supportive game lessons showed higher motivation toward the games that they were participating. Specifically, it was concluded that the experimental group kids experienced more enjoyment, autonomy support and competence than the control group kids (Mandigo et al., 2008).

Likewise, Wallhead and colleagues indicated that Sport Education model was effective in providing autonomy supportive climate in physical education class. Initially, Wallhead and Ntoumanis (2004) found significant relationship between Sport Education model and motivational orientations of high school students. In another study with elementary school students, Sport Education model was found to be effective in changing levels of autonomous motives in physical education class, have significant effects on perceived autonomy support from teacher as well as classmates (Wallhead et al., 2010). The authors also found a significant direct effect of change in autonomous motivation in physical education class on autonomous motivation in the lunch recess context. These results has led the authors to conclude that Sport Education curriculum was an effective strategy for providing autonomy supportive climate in physical education setting as well as transferring autonomous motivation from physical education class into an extracurricular setting, like lunch recess context (Wallhead et al., 2010). These empirical results indicated that being exposed to autonomy supportive climate would result in more positive attitudes toward PA participation and higher enjoyment and motivation in physical education class.

Some researchers investigated the effect of autonomy supportive climate in leisure-time setting. Initially, Hagger et al. (2003) examined a school-based intervention to change high school students' intentions and LTPA participation. The overall results showed direct relationship between perceived autonomy support and

PA participation in leisure-time setting. More specifically, students who had been taught by autonomy supportive physical education teachers had stronger intentions to LTPA participation as well as reported more frequent PA participation in their leisure-time. After intervention, the students with autonomy supportive teachers enhanced their autonomous motivation and perceptions of autonomy support from teachers as well as perceived physical education class more enjoyable.

Similar results were also found for autonomy supportive climate in leisure-time setting for female university students (Edmunds et al., 2008) and for middle-aged female exercisers (Moustaka et al., 2012). Edmunds et al. (2008) investigated the effect of autonomy supportive teaching styles on exercise class participants' need satisfaction, motivational regulations, and exercise intention and behaviors. Their results indicated that exercise class participants who were exposed to autonomy supportive teaching styles increased their relatedness and competence need satisfaction and perceived autonomy support from their instructor as well as their attendance rates in exercise class were more than the control group.

Moustaka et al. (2012) examined the effects of autonomy supportive intervention on middle-aged female exercisers' perceptions of autonomy support, need satisfaction, behavioral regulations and subjective vitality. As compared to the control group participants, those women who participated in autonomy supportive intervention showed an increase in perceived autonomy support from their instructor and more internal forms of behavioral regulation (e.g. more intrinsic motivation and identified regulation) as well as more satisfied in autonomy and competence needs. Their attendance rates were also higher than the control group, meaning that the experimental group women showed higher PA participation. These results indicated that autonomy supportiveness was an effective strategy to effect autonomous motivation, intentions, need satisfaction, and PA participation in leisure-time setting (Chatzisarantis & Hagger, 2009; Edmunds et al., 2008; Moustaka et al., 2012).

It is also important to note how physical education teachers or exercise instructors provided autonomy supportive climate to increase the individuals'

autonomous motivation. In this regard, researchers examined either experienced physical education teachers in secondary school (Cheon, Reeve, & Moon, 2012) and in high school (Tessier et al., 2008) or newly qualified pre-service physical education teachers (Tessier, Sarrazin, Ntoumanis, 2010). The observational results from experienced teachers showed that after being given autonomy supportive training, physical education teachers' instructional behaviors were found to be more autonomy supportive. Moreover their students reported more need satisfactions and perceived more autonomy support from their teachers (Cheon et al., 2012; Tessier et al., 2008). Similar results were found with the newly qualified physical education teachers. After being exposed to autonomy supportive intervention, teachers improve their teaching style in more autonomous way and their students also perceived the changes in their teachers' autonomy support and in turn increased their need satisfaction, reported more self-determined forms of motivation and more PA engagement (Tessier et al., 2010). The most common feature of teacher training was that interventions were based on autonomy supportive strategies in SDT principles (Reeve, 2006). These strategies were also evidenced in physical education setting and included providing meaningful rationale, offering different PA choices, and acknowledging individual differences and negative feelings (Shen, 2010; Shen et al., 2009). More recently Hastie, Rudisill, and Wadsworth (2013) summarized the autonomy supportive strategies, which can be used in physical education setting. These were (1) providing choices, (2) encouraging students' experimentation and self-initiation, (3) fostering students' willingness to take on challenges, explore new ideas and persist at difficult activities, (4) offering optimal challenges (neither too easy, nor too difficult), (5) providing feedback that is not evaluative of the person, and (6) giving a meaningful rationale for requested behavior. Overall, autonomy supportive intervention strategies in physical education and exercise settings were all consistent with those in education setting.

2.7. Summary of Literature Review

Overall, the literature reviews indicated a significant decrease in PA participation during transition from adolescence into adulthood life at university education. The physical inactivity at this age group was found higher not only for developed countries but also for developing countries and Turkey was not an exception. The reason behind this decrease in PA participation amongst young adults might be due to the poor transfer of physical education class learning into a life-long PA behavior. It is also important to understand the motivational factors affecting the university students' exercise behaviors. A summary of studies investigating the relationship between motivational factors and university students' PA behavior demonstrated a positive association of intrinsic forms of motivation with current and future PA engagement. TCM has received much attention to comprehensively understand motivational orientations toward PA participation as well as the transfer of motivation into real life setting. The related literature demonstrated both empirical and practical evidence for this framework. The effective intervention provision was mainly based on the use of theoretical constructs. TCM-based intervention clearly demonstrated the use of autonomy supportive strategies both in education setting (Su & Reeve, 2011) and in physical education setting (Hastie et al., 2013).

Even though the effectiveness of TCM-based intervention was well defined for school-aged children (Mandigo et al., 2008; Wallhead et al., 2010), it was only tested for young adult (Edmunds et al., 2008) and middle-aged females (Moustaka et al., 2012). This study contributes to the literature in that TCM-based intervention was tested for male and female students at university education.

As TCM-based intervention was mainly based on autonomy supportiveness, it was important to use autonomy supportive strategies to develop LTPA behavior. These strategies were effective for learning a task in general education setting (Su & Reeve, 2011) as well as in physical education setting (Hastie et al., 2013). However, there is insufficient information about how to use and apply these strategies in real-life intervention. The present study gave detailed explanation about the instructional behaviors related with each autonomy supportive strategy.

CHAPTER III

METHOD

The purpose of this section is to describe both quantitative and qualitative method used in this study. Firstly, the study design is briefly explained. Then how participants are randomly assigned in experimental and control groups (for quantitative data) and are selected for individual interviews (for qualitative data) is described in this section. Then, both quantitative and qualitative data collection procedures are explained in detail. Finally, the statistical analyses for quantitative data and qualitative data coding and analysis are explained.

3.1. Study Design

This study used a randomized experimental research design. It was a randomized design in which participants were randomly assigned to one of two groups, experimental/treatment and control groups. In this design, the experimental/treatment group was composed of participants who were exposed to a treatment and/or intervention; on the other hand, the control group was formed with those who did not receive any treatment and/or intervention (Creswell, 2009). Moreover, in order to have a relatively more powerful research design, the pretest-posttest control group design was added to the design (Shadish, Cook, & Campbell, 2002). In this design, randomly assigned participants were observed and/or measured both at pretest before intervention and at posttest after intervention. A visual inspection of randomized pretest-posttest control group design was provided in Figure 3.1.

Figure 3.1 Visual inspection of pretest-posttest control group design

In this study, the overall study and data collection was conducted within four stages (see Figure 3.2 below). In the first stage, from a number of volunteer university students, study participants were randomly assigned to one of the groups, experimental and control group.

In the second stage, participants from each group were provided with a series of questionnaires to have pretest measures. At pretest, there was a 1-week interval to minimize the amount of error variance, which might be occurred because of the use of similar questionnaires. In the first week of pretest, PASSES from instructor, PLOC, PASCQ, and IPAQ-short form were given. One week after, PASSES from peers, BREQ-2, TPB scale, and BPNSES were provided.

In the third stage, experimental group was exposed to TCM-based intervention for 12 weeks. The control group was not given any treatment. TCM-based intervention included practice of different physical activities and discussion of health-related physical fitness components under the instructor supervision. During the intervention sessions, data collection was going on with video records of sessions and the researcher's field notes.

In the fourth stage, participants from each group were again given the same questionnaires to have the posttest measures after 12-week intervention ended. The posttest questionnaires were also provided with a 1-week interval. Moreover, thirteen volunteer participants from experimental group were individually interviewed after the intervention ended. The aim of interviews was to get a comprehensive understanding of their experiences in TCM-based intervention.

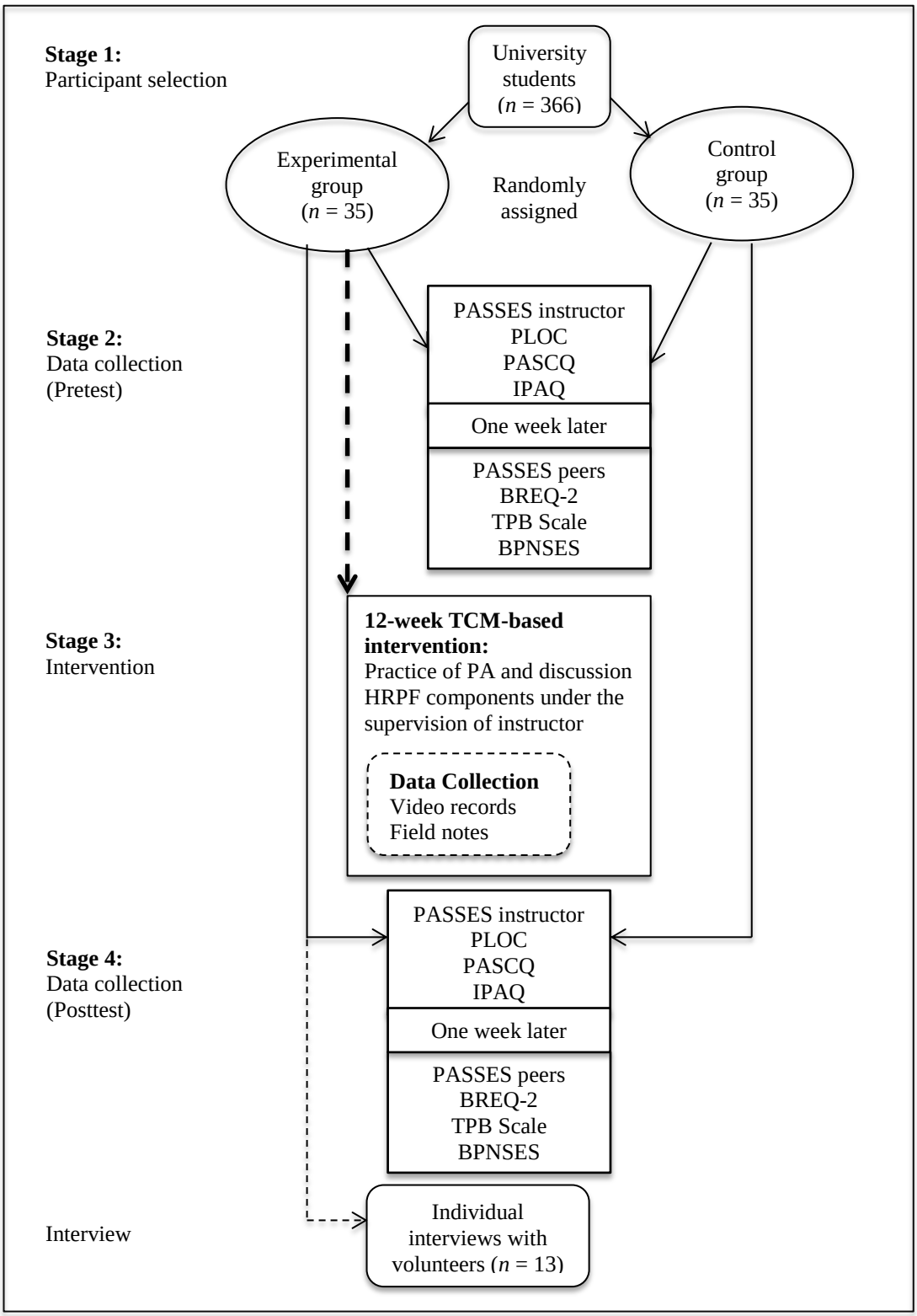


Figure 3.2 Overall study design and data collection method

3.2. Selection of Participants

At the beginning of the intervention, three hundred and sixty-six university students were reached for data collection. They were the students who indicated to voluntarily participate in this study. From this group of students, eighty-four students were randomly assigned into experimental (n = 42) and control (n = 42) groups. However, in order to form a more homogenous group of participants by PA level and gender representation, the number of participants was reduced based on their initial self-report of PA level in pretest (n = 70, see Figure 3.3). Finally, the experimental group included thirty-five participants (M_{age} = 23.23, SD = 3.82; 15 women and 20 men) and the control group included exactly the same amount of participants (M_{age} = 23.29, SD = 2.52; 15 women and 20 men).

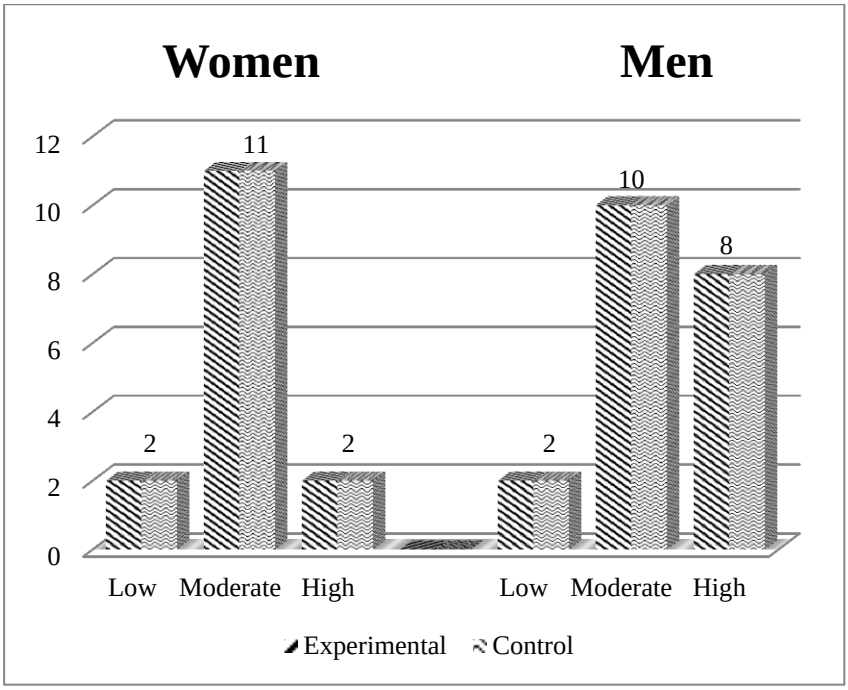


Figure 3.3 Participants' pretest PA levels

For collecting qualitative data, a group of volunteer participants were selected for individual interview. They were selected from experimental group because the purpose of individual interview was to get in-depth understanding of participants'

experiences in the TCM-based intervention. This would help to describe the social structure of the intervention. In order to reach this purpose, participant selection was based on their gender and PA level (i.e., low, moderate, and high). Although gender was not a main issue, equal numbers of women and men representing each PA level were sought. Representation of each PA level was considered as important to provide broader understanding of participants' experiences in the intervention because individuals from each PA level were expected to give broad perceptions and expectations from intervention. Based on the participants' pretest IPAQ scores, which was explained in detail in instruments section below, purposeful selection of participants representing each PA level was conducted. The selected participants were voluntarily accepted to involve in individual interviews. In order for reaching data saturation, the number of participants was not determined at the beginning of interviews. After having interviews with thirteen participants, it was realized that they were providing same kind of experiences and did not add any new one. Therefore, individual interviews ended after reaching saturation in the participants' experiences in the intervention. Amongst the thirteen volunteer participants, six were women and seven were men. One woman and two men were from low PA level, three women and three men from moderate PA level, and two women and two men from high PA level.

3.3. Data Collection Procedure

Data collection was conducted in 2011 – 2012 fall semester at a public university. Ethics approval was obtained from the Human Ethics Research Committee at Middle East Technical University (see Appendix A). In this study, quantitative and qualitative data were concurrently collected. Both procedures were explained in detail below.

3.3.1. Quantitative Data Collection

In terms of quantitative data collection, how intervention was based on strategies and how it was implemented were introduced.

3.3.1.1. Intervention

Intervention was held during 2011 – 2012 fall semester for 12 weeks. Participants in experimental group were gathered two times per week. Totally, they participated in 24 sessions. Length of each session was approximately 1,5 hours and each was video recorded. The real-time field notes from each session was taken in order to describe more information about the social climate of setting.

Intervention was based on autonomy supportive strategies to provide TCM-based social climate. These strategies were (1) providing explanatory rationales, (2) nurturing inner motivational resources, (3) using informational, non-controlling language, (4) offering choices, and (5) acknowledging students' negative feelings (Reeve, 2006; 2009; Su & Reeve, 2011). Instructional behaviors and related examples used in the intervention for each autonomy supportive strategy were presented in Table 3.1. These instructional behaviors and the related examples were established by the observation of video records and the researcher's field notes.

Table 3.1
A summary of autonomy supportive strategies used in intervention

Strategy	Instructional Behaviors	Example
Providing explanatory rationales	• Providing authentic information about PA participation to be integrated into daily life	• Setting goals for active life style recommendations with use of pedometer
	• Providing explanatory knowledge about physiological changes during exercising	• Learning how to regulate the intensity of exercise by counting changes in heart rate while exercising
	• Providing explanatory information about the bones, joints and muscles that are working out during stretching	• Providing specific names of bones, joints and muscles for related stretching exercises
Nurturing inner motivational resources	• Creating opportunities to increase enjoyment for engaging in activities	• Practicing enjoyable team and individual sports
	• Providing opportunities for determining individuals' needs, interests, and preferences	• At the beginning of intervention, experiencing physical fitness tests to determine physical fitness level
	• Creating opportunities to have self-reflections on their progress	• Encouraging individuals for discussing about their progress in physical fitness
Using informational, non-controlling language	• Providing information-rich explanation for individuals' questions	• Responding the questions with a meaningful rationale
	• Encouraging individuals for their progress in PA skills	• Providing positive feedback about their progress
Offering choices	• Providing opportunities for experiencing different sports/physical activities	• Practicing rugby, korfball, badminton, pickleball, jogging in outdoor
	• Encouraging individuals to find out physical activities that might be enjoyable for them	• Encouraging to participate in sports they like most
Acknowledging individuals' negative feelings	• Determining the negative experience of previous PA participation, discussing about the reasons. Providing opportunities to turn negative experiences to a positive and enjoyable one	• Discussing about the hesitation of participating in PA because of physical injuries, encouraging them toward practicing progressive intensities of exercises
	• Having modifications in the rules of the competitive games	• Only women can score while playing rugby or football game

3.3.1.2. Content of Intervention

In the present study, the experimental group was gathered for both the practice and classroom discussion sessions throughout 12 weeks of intervention. Classroom discussion sessions were held in a traditional classroom setting, on the other hand, the practice sessions were held in a gym, fitness court, and/or at outdoor settings. The general content of intervention included first practicing different physical activities and exercises for health-related physical fitness components in practice sessions and then discussing the knowledge about health-related physical fitness components in the classroom discussion sessions. In order to achieve this, the participants were first encouraged to increase in awareness toward health-related physical fitness and to realize personal needs in health-related physical fitness, then they practiced different physical activities, and finally they were expected to practice their own physical training based on their needs. In the classroom discussion sessions, the focus was on health-related physical fitness concepts, such as (a) the issues of fitness and wellness, (b) basic information about anatomy and exercise physiology, (c) health-related physical fitness components, including body composition, aerobic endurance, muscular fitness and flexibility, and d) the development of individual exercise prescription. During practice sessions, participants practiced health-related physical fitness tests, participated in physical activities concerning health-related physical fitness components, and practiced different sports/physical activities including individual, team, and racquet sports and outdoor activities. Summary of 12-week intervention was introduced in Appendix B. A detailed explanation about the focus of intervention for each week was given below. The explanation below was based on the researcher's field notes.

Week 1

The main focus was to introduce choosing appropriate shoes and clothes for exercise, to introduce warm up, cool down, and stretching exercises and also to discuss about the importance and regulation of exercise intensity based on heart rate scores. Before starting a warm-up exercise, they were given instruction and practice

about how to measure their resting heart rate. Participants started a warm-up with brisk walking for 5 minutes. They also measured their heart rate to see an increase during brisk walking. Then they continued exercising with a slightly higher intensity for 10 more minutes. The instructor asked each participant for their heart rate scores during exercising and the participants were instructed about an expected heart rate score while exercising and how to regulate exercise intensity based on their own heart rate score. Different kind of exercises with increasing and decreasing intensities was practiced in order to increase an awareness of regulating exercise intensity based on personal heart rate scores. Then they joined a stretching guided by instructor with an explanation of which types of stretching exercises working on which muscles. After warm-up and stretching, they were divided into teams for playing a modified rugby game. They were first instructed about how to play modified rugby game and the rules. In order to encourage women participants, the game rule was modified as that only women could score in this modified rugby game and men could not defense women. After this modified rugby game, they joined stretching with groups of two. In the final part, they were gathered to give a self-reflection about what had been learned and they were given information about the next week's topic. In classroom discussion session on Wednesday, they met in a class to discuss more about the issues of fitness and wellness. These issues had been previously covered in practice session of this week.

Week 2

The Monday practice session of the second week included the participants' health-related physical fitness test measurements. These tests were the measurement of body weight and height, body fat percentage (with electronic device), flexibility (with sit-and-reach test), muscular endurance (with 1-minute sit-up and push-up tests), and cardiovascular endurance (with 20-meter shuttle run test). The purpose was to recognize personal health-related physical fitness level and to determine personal needs based on health-related physical fitness. For each of these tests, the instructor first clearly explained and/or showed how the test would be conducted.

Then the participants were encouraged to practice the tests and they were asked to keep record of their own scores. After measuring body weight and height, body fat percentage was measured with using an electronic machine. Then they were encouraged to have warm-up exercises for the flexibility test. During the flexibility test, the instructor gave an explanation about what the flexibility score means. Before moving on with the muscular endurance tests, the instructor showed how the push-up and sit-up test should be completed correctly. They first completed 1-minute sit-up test. After rest, they completed 1-minute push-up test. Lastly, they were instructed about how to complete the 20-meter shuttle run test properly and then encouraged to practice the last test. On Wednesday session in the class, the instructor gave a lecture about the health-related physical fitness components, how these components were measured in the previous Monday session and gave the criteria scores for interpreting their health-related physical fitness level.

Week 3

On Monday practice session, they continued with the measurement of body composition including waist-to-hip ratio, body mass index (BMI), and body fat percentage via skinfold measurement. The instructor first explained about what kinds of measurements would be conducted and how to conduct them in different ways. Then the participants were asked to complete body composition measurements with the help of instructor. The instructor gave additional information about why these measurements were conducted in different ways. Before warm-up, the instructor gave information about either the type of exercise or the duration and intensity of exercise. The purpose of exercise was set as losing weight. At the end of exercises, the instructor gave more information about the intensity of exercise for losing weight and provided current examples about burning calories. On Wednesday classroom discussion session, they met for discussing more about health-related physical fitness components and different PA types.

Week 4

In the Monday practice session, the participants experienced exercising in the nature. This kind of exercise might give them a chance to practice PA in different settings. On Wednesday classroom discussion session, they met for discussing about basic knowledge of anatomy and exercise physiology.

Week 5

On Monday practice session, the participants practiced muscular fitness exercises using fitness equipment. Before using the equipment, the instructor mentioned about the safety issues while using this equipment. The participants were provided with two different alternatives for each group of muscular fitness exercises. They were also given information about how to work out different muscular fitness exercises with giving the exact names of working muscles. Then they were separated into 4 groups to work out different muscular fitness exercises. For each of the muscular fitness exercise, they were expected to practice for 3 sets. For the first set, they asked to keep their record of how much weight would be appropriate for them. For the other sets, they were expected to practice this amount of weight for at least 10 repetitions. The role of instructor was mostly to give feedback and to provide a meaningful rationale for muscular strength exercises. On Wednesday classroom discussion session, they met in a class to continue discussing about basic anatomy and exercise physiology topics.

Week 6

Starting from this week, both Monday and Wednesday sessions were held in gym and the participants experienced different physical activities. Generally, Monday sessions would include practicing different physical activities and games and in Wednesday sessions, they were expected to practice their own physical training, which they formed in accordance with their needs in physical fitness. On Monday session in the 6^{th} week, the participants were involved into the flexibility exercises and practiced korfball. After a 15-minute warm-up, the instructor guided stretching exercises emphasizing flexibility. During instruction, he mentioned about

what kinds of flexibility exercises, in what way to exercise is more appropriate, and what is the duration of each exercise. He also demonstrated how to do flexibility exercises and let them practice the exercises. While they practiced flexibility exercises, the instructor gave individual feedback for each person. After the flexibility exercises, they discussed about the importance of flexibility exercises. In the second part of this session, the participants first introduced a new game (korfball), and then they were grouped into teams to play the game. After the game was over, then they were again grouped in partners to do passive flexibility exercises. On Wednesday session, they continued to practice flexibility exercises and played volleyball. During the warm-up exercises, the instructor asked each of the participants about progress of their own PA behaviors. After warm-up exercises, the instructor guided flexibility exercises. During instruction, he asked some related questions about the flexibility exercises that they learnt in the previous session and the names of the working muscles. He also gave examples and important findings from the related literature while explaining about the reason of the findings. In this session, the participants practiced fundamental volleyball skills, during which the instructor gave individual feedback to each person. Then they were grouped into teams to play volleyball game. After the game, they practiced passive stretching.

Week 7

On Monday session, the participants were guided to practice callisthenic exercises because the focus was to exercise muscular fitness. These kinds of exercises provided a chance to exercise each component without a use of special fitness equipment. On Wednesday session, they were encouraged to practice their own physical training based on their needs.

Week 8

In this week, they met only on Monday. After having their own warm-up and stretching exercises, they practiced basic badminton skills. They first practiced to handle the racket properly to hit the shuttlecock. This would give them a chance to

improve eye-hand coordination. Because most of the participants had no previous experience with badminton, or any other racket sports, eye-hand coordination must be practiced to get used to those kinds of sports. Then they practiced to hit the shuttlecock with an opponent back in the net. After the instructor provided some basic rules to play a game and they spent more time on practicing basic skills, they were grouped into 2 or 4 to form a badminton game.

Week 9

They again had the practice session twice in this week. They were expected to have their own warm-up and stretching for 15 minutes and practiced fundamental football skills, such as passing, dribbling, and shooting. First the instructor explained and showed how to practice the skills, and then the participants were expected to practice the skills. Especially the women participants were encouraged to play football and they were provided positive feedback. After practicing basic skills, they were grouped into two teams to play a modified football game. In this game, only women participants were allowed to score. This modification was done for encouraging women participants to involve in football game, and for giving them a chance to play football. On Wednesday session, they practiced health-related physical fitness exercises based on their personal needs. Some practiced flexibility exercises, some practiced aerobic endurance exercises, and/or some practiced muscular fitness exercises.

Week 10

The participants started the Monday session with warm-up and stretching, without any guidance. Then they continued with rugby. Because they previously practiced rugby in the first week, they learned the fundamental rugby skills, such as passing, and passing while running. Then they were grouped into four to play a mini rugby game in a half court. After that, they played a full court rugby game. Unlike the previous modified rugby game, both men and women could score and defense each other for this time. On Wednesday session, they practiced their own personal

training. Some of them practiced flexibility exercises, some practiced aerobic endurance exercises, and some practiced muscular fitness exercises. On these sessions, they had a chance to choose their own exercises.

Week 11

On Monday, after having warm-up and stretching exercises, they played badminton and pickleball. Because they previously had a chance to practice badminton, they were provided with equipment (racket, shuttlecock, and the net) and they were expected to form a badminton game. There were four different badminton areas in the court so that they grouped into 2 or 4 to play the game. The role of instructor was to give feedback and explain the rules when asked for. After a while, one of the badminton areas was changed into a pickleball area. Some of the participants were encouraged to practice this game. On this Wednesday session, they were expected to practice their own personal exercises.

Week 12

This week was the final week of intervention. On Monday session, they were expected to exercise for their own personal training. On Wednesday session, the health-related fitness tests, which were the same as those being held in the first week of intervention were conducted. These tests were conducted because they were expected to make personal evaluation for their improvements and/or decline in health-related physical fitness components.

3.3.1.3. Intervention Fidelity

Intervention fidelity refers to the alignment in the implementation of intervention as it was intended (Murphy & Gutman, 2012). In order to provide information about the quality of the intervention and how to replicate it into another studies, it was important to discuss about the intervention fidelity. For improving intervention fidelity, researchers should consider about five basic criteria: (1)

intervention design, (2) training of providers, (3) intervention delivery, (4) receipt of intervention, and (5) enactment of skills gained from the intervention (Gearing et al., 2011).

In the present study, TCM-based intervention design was confirmed by describing the content and dose of intervention session in detail, and also by using a control group. Secondly, training of the instructor who had role of providing TCM-based intervention was achieved by having a 6-week pilot implementation before the actual study began. Moreover, using a pre-determined schedule for each intervention session and weekly-discussion about the intervention strategies also helped the instructor in delivering the intervention. Researcher's field notes could also serve as to standardize the intervention delivery. Finally, the receipt of intervention was achieved by conducting interviews from the experimental group participants to get their understanding of TCM-based intervention.

3.3.2. Qualitative Data Collection

A post-positivist framework was used to analyze qualitative data because qualitative data would help the researcher to give deeper understanding about quantitative data. Analyzing different experiences of individuals can give deeper understanding toward phenomena. In this study, rather than having only quantitative data from participants' self-reports, it was also important to understand their experiences in TCM-based intervention. Thus, a central focus was to get a more comprehensive understanding about the participants' experiences in TCM-based intervention. Phenomenological research was used as an underlying qualitative approach. In this approach, the intention was to have in-depth understanding of their lived experience (i.e., participating in intervention) to understand common and shared phenomenon (Creswell, 2013). As a general data source, individual interviews were conducted with the participants from experimental group.

3.3.2.1. Interview Process

To get a more comprehensive understanding about the interviewees' perceptions about the intervention, individual interviews were conducted after the 12-week intervention was over. Interviewees were asked to express their perceptions and experiences regarding the intervention. Each individual interview was conducted in a separate and quiet room. Before starting the interview, they were provided with the content of interview and also the confidentiality of their opinions (see Appendix C). After they accepted verbally, then the interview was tape-recorded. Interviews lasted about 30 minutes.

3.3.3. Researcher's Role

The researcher in this study was a PhD candidate at the time of data collection. Before starting the present study, she had performed many different roles (such as designing and implementing studies, conducting surveys and data analyses, and performing field observations and interpretations) in different studies. These roles would provide her with enough experience of conducting this present study. The researcher also previously conducted a different study with university students, which would allow her to easily contact with this age group.

The role of researcher in the present study was to conduct questionnaires, attend and observe each session in the intervention, keep record of all sessions by video, take field notes, conduct individual interviews, and lastly analyze and report all the data collected. These roles can be defined as being a non-participant observer because the researcher attended all the intervention sessions (throughout the 12 weeks) but did not personally take part a critical role in implementing the intervention. This would allow a trust between the participants and the researcher. A high level of trust would be required for especially conducting the individual interviews.

3.4. Data Collection Instruments

In this study, both quantitative and qualitative data were collected. For quantitative data, series of questionnaires were applied. For qualitative data, individual interviews were conducted as well as field notes and video records of each intervention session were taken. The followings were detailed explanation for each data collection instruments.

3.4.1. Quantitative Data Collection Instruments

In order to measure the constructs of TCM-based intervention and the participants' PA level and stages, a series of questionnaires were applied to the participants (Appendix D).

3.4.1.1. Perceived Autonomy Support

To measure perceived autonomy support in exercise setting, two versions of Perceived Autonomy Support Scale For Exercise Settings (PASSES) from instructor and peers were administered (Hagger et al., 2007; 2009). The items of questionnaire corresponded to instructor and peers separately. A sample item for PASSES from instructor was that "I feel that PE teacher provides me with choices, options, and opportunities about whether to do active sports and/or vigorous exercise in my free time." A sample item for PASSES from peers was that "I feel that my friends provides me with choices, options, and opportunities about whether to do active sports and/or vigorous exercise in my free time." Each version composed of 12 items with 7-point Likert type responses, ranging from 1 (strongly disagree) to 7 (strongly agree). Each version was a unidimensional scale, that is, it has no sub-scale. For adaptation of the questionnaire, they were first translated into Turkish, then 324 university students completed the PASSES from instructor and 265 university students completed the PASSES from peers. The reliability was assessed with using internal consistency coefficients and the construct validity was assessed with using

confirmatory factor analysis. These two versions of questionnaire had good reliability scores (α = .97 for PASSES from instructor and α = .94 for PASSES from peers) scores. Confirmatory factor analysis results revealed that the fit indexes for PASSES from instructor (χ^2 = 107.04; df = 41; p < .001; CFI = .98; TLI = .98; RMSEA = .07) and for PASSES from peers (χ^2 = 116.04; df = 41; p < .001; CFI = .97; TLI = .95; RMSEA = .08) were satisfying (Müftüler & İnce, 2012a).

3.4.1.2. Autonomous Motivation

Autonomous motivation was measured in physical education setting and LTPA setting with two separate questionnaires. To evaluate autonomous motivation in physical education setting, Ryan and Connell's (1989) Perceived Locus Of Causality (PLOC) questionnaire was used. The participants were expected to respond to an 18-item questionnaire with a starting question of "Why do I try hard in physical education?" A sample item for PLOC was that "Because I'll get in trouble if I don't…" Responses were measured on 4-point Likert type scales ranging from 4 (not true at all) to 1 (very true). This questionnaire was also translated into Turkish and applied to 366 university students. The reliability analysis was conducted using internal consistency coefficients and confirmatory factor analysis was used for the construct validity. This questionnaire included 4 sub-scales: (a) external, (b) introjection, (c) identification, and (d) intrinsic. Each showed good reliability scores (α = .74 for external, α = .79 for introjection, α = .79 for identification, and α = .93 for intrinsic). The confirmatory factor analysis revealed good fit indices (χ^2 = 328.86; df = 113; p < .001; CFI = .93; TLI = .90; RMSEA = .07).

Autonomous motivation in LTPA setting was measured by using Markland and Tobin's (2004) Behavioral Regulations in Exercise Questionnaire-2 (BREQ-2). Nineteen items were assessed based on 5-point scales ranging from 0 (not true) to 4 (very true). A sample item for BREQ-2 was that "I exercise because other people say I should." This questionnaire had 5 sub-scales: (a) external regulation, (b) introjected regulation, (c) identified regulation, (d) intrinsic regulation, and (e) amotivation.

Ersöz, Aşçı, and Altıparmak (2012) conducted Turkish adaptation and validation of this scale. The authors demonstrated BREQ-2 was a valid and reliable scale for measuring autonomous motivation in LTPA setting for Turkish sample. For the present study, reliability analysis was conducted using internal consistency coefficients. The reliability scores were satisfactory for each sub-scales (α = .72 for external regulation, α = .67 for introjected regulation, α = .85 for identified regulation, α = .90 for intrinsic regulation, and α = .82 for amotivation).

3.4.1.3. Basic Psychological Need Satisfaction

To measure basic psychological need satisfaction in exercise setting, Basic Psychological Need Satisfaction in Exercise Scale (BPNSES) was applied (Vlachopoulos & Michailidou, 2006). The participants were expected to respond to 12-item questionnaire using 5-point Likert type scale, ranging from 1 (I don't agree at all) to 5 (I completely agree). A sample item for BPNSES was that "I feel I have made a lot of progress in relation to the goal I want to achieve." It was translated into Turkish and applied to 288 university students. The reliability was evaluated by using internal consistency coefficients and the construct validity was evaluated by using confirmatory factor analysis. This questionnaire had 3 sub-scales: (a) autonomy, (b) competence, and (c) relatedness. Vlachopoulos et al. (2013) investigated the cross-cultural invariance of this scale. The authors found it was invariant across the cultures, including Turkey sample. For the present study, reliability scores were examined for each sub-scale and found as moderate to high (α = .62 for autonomy, α = .77 for competence, and α = .69 for relatedness).

3.4.1.4. The Constructs of Theory of Planned Behavior

To measure the constructs of Theory of Planned Behavior, a questionnaire was developed according to Ajzen's (2003) guidelines. In this questionnaire, the participants were asked to evaluate their status for "doing active sports and/or

vigorous exercise for at least 20 minutes, 3 days per week over the next 4 weeks during my leisure time." A sample item for TPB questionnaire was that "I intend to do active sports and/or vigorous exercise, for at least 20 minutes, 3 days per week during my free time, over the next 4 weeks." The 3-item *intention* sub-scale was assessed by 7-point Likert type scales ranging from 1 to 7. *Attitudes* were measured on five different 7-point semantic differential scales with bipolar adjectives. The 3-item *perceived behavioral control (PBC)* sub-scale was assessed by 7-point Likert type scales ranging from 1 to 7. The 4-item *subjective norms* sub-scale was assessed by 7-point Likert type scales ranging from 1 (strongly disagree/disapprove) to 7 (strongly agree/approve). After formation of questionnaire, it was applied to 264 university students. The reliability analysis was conducted using internal consistency coefficients and confirmatory factor analysis was used for the construct validity. The reliability results were high for *intentions* (α = .96), *attitudes* (α = .88), *perceived behavioral control* (α = .86) and *subjective norms* (α = .85). Confirmatory factor analysis results showed that the fit indexes for this questionnaire, (χ^2 = 208.60; df = 75; p < .001; CFI = .96; TLI = .94; RMSEA = .08) were satisfying (Müftüler & İnce, 2012b).

3.4.1.5. Physical Activity Behavior

PA behavior was measured by determining the participants' PA levels and stages. It was based on their self-reports.

The participants' PA levels were assessed using International Physical Activity Questionnaire – Short Form (IPAQ; Craig et al., 2003). IPAQ evaluates the frequency, duration, and intensity of PA in the last seven days allowing for metabolic equivalents (METs) calculation. METs in terms of minute per week were calculated according to the IPAQ guidelines (IPAQ, 2005). Based on self-reported METs calculation, participants were grouped in low, moderate, and high PA levels. A sample item for IPAQ was that "During the **last 7 days**, on how many days did you do **vigorous** physical activities like heavy lifting, digging, aerobics, or fast

bicycling?" Sağlam et al. (2010) demonstrated that Turkish version of IPAQ short form was reliable and validated instrument for assessment of PA level. Turkish version of IPAQ – Short Form has an acceptable test-retest reliability scores (r = .69). The criterion validity was compared to accelerometer and found as acceptable (r = .30; Sağlam et al., 2010). These values were also in line with other studies using self-report PA measures (Craig et al., 2003).

Participants' PA stages were measured by using Physical Activity Stages of Change Questionnaire (PASCQ) developed by Marcus, Selby, Niaura, and Rossi (1992). The participants were asked to respond to 4-item Yes/No questionnaire. Based on self-reports of participants, they were classified into five different stages of change, namely pre-contemplation, contemplation, preparation, action, and maintenance (Marcus et al., 1992). A sample item for PASCQ was that "I am currently physically active." Cengiz, Aşçı, and İnce (2010) demonstrated Turkish version of PASCQ was a validated instrument for assessing participants' PA stages. Turkish version of PASCQ has acceptable test-retest intraclass correlation values (ICC = .80). The criterion validity was confirmed by comparing the results from PASCQ with PA levels (Cengiz et al., 2010).

3.4.2. Qualitative Data Collection Instruments

In order to get in-depth understanding of experiences in TCM-based intervention, different sources of data were collected. The primary way of collecting qualitative data was the individual interviews. Additionally, in order to define the social setting of TCM-based intervention, other sources (e.g., field notes and video records) were taken. Each procedure was explained below.

3.4.2.1 Individual Interview Protocol

Individual interviews were conducted to get in-depth understanding of participants' experiences toward TCM-based intervention. In order to reach this

purpose, the individual interviews were conducted after the intervention session was ended. The interview questions were designed to get in-depth understanding of their experiences in the intervention. The interview guide included nine questions and was divided into three main parts: (1) before taking the intervention, (2) during the intervention, and (3) after the intervention. In the first part, the researcher asked questions regarding their initial expectations before they were exposed to intervention and regarding their previous PA participation. These initial questions served the role of breaking-ice questions (Patton, 2002). In the second part, interviewees described in depth their opinions about intervention, the learning climate, and their most important experiences during intervention. For the final part, questions were asked on their perceptions and expectations toward PA participation after intervention ended. Examples of interview questions were given in Appendix C.

3.4.2.2. Field Notes

In this study, field notes were the secondary source of qualitative data. These were used for describing the intervention setting. While the sessions of intervention were taken place, the researcher took field notes for each session. Field notes were taken to describe what was covered on the day of session, how was covered, how many participants were present, how much time to cover all the issues, how the autonomy supportive strategies were aligned with the instructional behaviors, and how was the social interaction between the participants. All the field notes were kept safe and not to be shared with a third person. An example of a field note the researcher took was presented in Appendix E.

3.4.2.3. Video Records

All sessions in the intervention were also video recorded in order to have a well-described social setting. Each session lasted in average of 1,5 hours so there were approximately 36 hours of total video records. The researcher watched each

video record repeatedly to describe the intervention setting well. All these records were transferred into a personal computer and kept safe.

3.5. Data Analysis

Either quantitative or qualitative data were analyzed with appropriate analysis. For analyzing quantitative data, paired samples *t*-test, repeated measures ANOVA, mixed design MANOVA, and chi-square analyses were applied. After interviews were transcribed into verbatim, systematic data coding and analyses from transcribed data were conducted for analyzing qualitative data. Each analysis was described below.

3.5.1. Quantitative Data Analyses

Descriptive and inferential data analyses were conducted for quantitative research questions. A detailed explanation of data analyses for each research question was given below.

Research Question 1 was the examination of the effect of TCM-based intervention on perceived autonomy support sources (i.e., sources from instructor and from peers. Only experimental group's test scores were used for this research question because it was believed that perceived autonomy support either from instructor or from peers could be available for only the participants provided with TCM-based intervention. Because the participants in control group were not given any treatment of autonomy supportiveness, their scores on perceived autonomy support was excluded. Thus, there were only experimental group's pretest and posttest scores on perceived autonomy support. In order to examine the differences between the pretest and posttest scores paired samples *t*-test was conducted due to the fact that same participants' scores were being analyzed (Field, 2009). The PASSES has two different questionnaires regarding either instructor or peers. The

items in each questionnaire were averaged for determining the participants' level of perceived autonomy support.

Research Question 2 has two sub-questions. The first one was related with examining the effect of TCM-based intervention on autonomous motivation in physical education setting. Repeated measures ANOVA were conducted to analyze the differences between pretest and posttest scores of autonomous motivation in physical education setting. The PLOC has four subscales and the items in each subscale were averaged to evaluate the level of autonomous motivation in physical education setting because only the experimental group test scores were analyzed. For each of the subscales, repeated measures ANOVA were conducted. The second sub-question was related with the examination of autonomous motivation in LTPA setting. Unlike the previous sub-question, the scores of both the control group and the experimental group for autonomous motivation in LTPA setting were included in analyses. The BREQ-2 has 5 subscales and the scores for each subscale were averaged to evaluate the level of autonomous motivation in LTPA setting. In order to examine the differences between groups (i.e., experimental and control group) and within the subject (i.e., pretest and posttest scores) for each of the subscale, a mixed design multivariate analysis of variance (MANOVA) was conducted.

Research Question 3 was the examination of intervention effect on Theory of Planned Behavior constructs. The scores of participants from experimental and control group were included for analyses. The questionnaire for the Theory of Planned Behavior constructs has 4 subscales, measuring intention, attitudes, perceived behavioral control and subjective norms. The items in each subscale were averaged to assess those constructs. Mixed design MANOVA was conducted to examine the effect of intervention on those constructs.

The Research Question 4 was related with examining the effect of TCM-based intervention on basic psychological need satisfaction in exercise setting. It was achieved by examining both the differences in pretest and posttest scores and the differences between the experimental and control group scores. The BPNSES has 3 subscales and each subscale score was determined with using the related items' mean

scores. Thus, in order to examine the effect of intervention on participants' basic psychological need satisfaction in exercise setting, a mixed design MANOVA was conducted.

The Research Question 5 was related with examining the effect of TCM-based intervention on PA behaviors. The participants' PA behaviors were evaluated by determining either PA level or exercise stages of change. PA levels and exercise stages were both categorical. In order to examine the effect of intervention on PA behaviors, PA levels and exercise stages of the participants in experimental and control group were being analyzed by using chi-square analyses.

Before interpreting the inferential statistical analyses, appropriate assumption checks were conducted. Detailed explanation for assumption check was provided in Appendix F. For all of the inferential statistical analyses, the significance level was set as .05. A summary of analyses in terms of research questions was provided in Table 3.2 below.

Table 3.2

Summary of inferential statistical analyses for quantitative data

Research Question	Data type	Subscales	Inclusion of control group	Inferential statistical analyses
RQ1.				
SQ1.1.	Continuous	None	No	Paired samples *t*-test
SQ1.2.	Continuous	None	No	Paired samples *t*-test
RQ2.				
SQ2.1.	Continuous	4 subscales	No	Repeated ANOVA
SQ2.2.	Continuous	5 subscales	Yes	Mixed MANOVA
RQ3.	Continuous	4 subscales	Yes	Mixed MANOVA
RQ4.	Continuous	3 subscales	Yes	Mixed MANOVA
RQ5.				
SQ5.1.	Categorical	None	Yes	Chi-square analyses
SQ5.2.	Categorical	None	Yes	Chi-square analyses

3.5.2. Qualitative Data Coding and Analysis

A total of thirteen audio records from individual interviews were transcribed into verbatim to serve as qualitative data. The qualitative data were imported into a computer software program, MaxQDA10. Using a computer software program is useful for grouping the concepts, categories, codes and/or themes into more manageable groups (Creswell, 2013). As Strauss and Corbin (1998) suggested, qualitative data coding and analysis was conducted in four phases: (1) microanalysis, (2) open coding, (3) axial coding, and (4) selective coding. A summary of qualitative coding and analysis was presented in Figure 3.4.

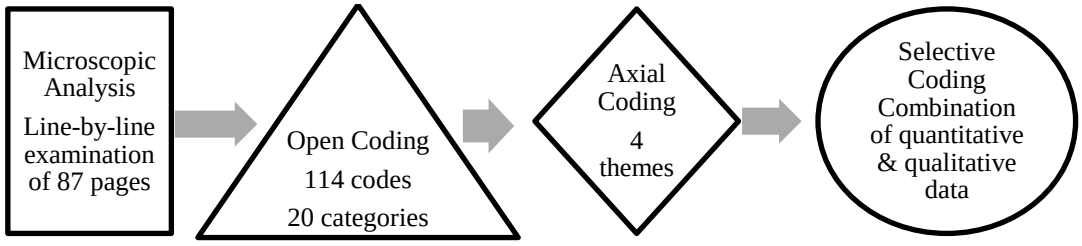


Figure 3.4 Data coding and analysis process

For an initial step, microanalysis was used to examine data, to take notes on data, and to generate initial categories. Microanalysis was conducted to search for interviewees' explanations toward the social structure of TCM-based intervention because the main concern was to get a broader description about common phenomenon of intervention. Microanalysis included line-by-line examination of the transcribed data and it was helpful for giving initial codes, which would be further analyzed in open coding and axial coding.

Open coding was conducted with use of MaxQDA 10. Open coding includes naming concepts, defining and developing categories in terms of their properties and dimensions (Strauss & Corbin, 1998). After having a line-by-line examination, data were broken down into discrete parts and closely examined in relation to respondents' experiences in the intervention. With open coding, 114 codes were emerged to describe the interviewees' experiences in the intervention. These codes

were named with regard to the basic idea that lies in the interviewees' explanations. The purpose of naming codes was to group similar explanations under common and meaningful categories. As Strauss and Corbin (1998) suggested, it is an important step in qualitative data analysis to discover categories in terms of their properties and dimensions. Forming categories enabled the researcher to reduce the number of codes into more manageable groups. Thus, after a close examination of the codes, a total of 20 categories were emerged for this study (see Appendix G for a flowchart of coding). These categories were established based on their common features of the respondents' experiences in the intervention.

The purpose of axial coding was to reestablish data fractured in open coding to form more precise and complete explanations about the common phenomena. It was the process of relating categories to their subcategories in terms of their properties and dimensions. During axial coding, the main concern was to ask how, what, and under what circumstances these categories were related to their subcategories. After having 20 categories of the interviewees' experiences in the intervention, these categories were related with their subcategories, forming four themes: (1) PA participation: previous experience and current expectation, (2) knowledge: health-related physical fitness and how to exercise, (3) learning climate, and (4) becoming autonomous toward PA participation. It was clear that the interviewees' first expression of intervention was the concept of requiring regular PA participation. Some of the categories were related with what was the expectation from intervention under the first theme of PA participation. The interviewees also evidently stated two interrelated need of knowledge: the need for health-related physical fitness knowledge and the need for knowing how to exercise. The categories were related with what kinds of knowledge they stated to have during intervention. It was formed in the second theme of "knowledge." Some of the categories were related with how the respondents described the learning climate in intervention. It was formed in the third theme of "learning climate." The other categories were related with how they describe the integration of PA participation into their life and under what circumstances they use the knowledge and behavior they get during

intervention. It was formed in the fourth theme of "becoming autonomous toward PA participation."

At the final stage, the process of selective coding was conducted to integrate and refine a theory. Because the main concern was to test a pre-determined theory (i.e., trans-contextual model of motivation), rather than building a new theory, it was in the selective coding process to integrate themes emerged in qualitative data analysis and quantitative results.

3.6. The Issues of Validity

The issues of validity in this study were also considered while designing the study and conducting data collection. Threats to validity for quantitative data were discussed in terms of confirming statistical conclusion, internal, construct, and external validity. Still, the qualitative data were considered in terms of building trustworthiness. Each was described below.

3.6.1. Threats to Validity for Quantitative Data

Even if the research design and statistical analyses were relatively powerful in this study, still there were some threats to validity and it was critical to discuss about some. As Shadish et al. (2002) described, there are four types of validity that a research should consider: (1) statistical conclusion validity, (2) internal validity, (3) construct validity, and (4) external validity. There are numerous threats to these kinds of validity. This section described how the threats to validity were handled in this present study.

Different ways for constructing statistical conclusion validity were implemented in this study. The most important one was that in order to increase the power of statistical analyses, completely equal number of participants within each group was analyzed. The basic assumption testing for each of the statistical analyses was conducted to avoid wrong statistical interpretation. The basic assumptions for

each analysis were not violated. The statistical analyses were cautiously interpreted after assumption testing.

Implementing reliable measures and treatment was another way of constructing statistical conclusion validity. As this study was mainly based on participants' self-reports to questionnaires, it was also very critical to have reliable instruments to effectively measure the constructs of TCM. Reliability analyses for each of the questionnaire used in this study were conducted and all were within the acceptable criteria for reliability. Having treatment fidelity was another component for avoiding threats to statistical conclusion validity. As described previously, treatment fidelity of TCM-based intervention was achieved through different methods such as describing details about the content of intervention, training of the instructor before intervention, pre-scheduled delivery of intervention, and comprehensive understanding of the participants' experiences toward intervention. Overall, it could be concluded that the statistical conclusion validity was achieved for the present study.

Another type of validity was the internal validity. Some precautions were taken to avoid threats to internal validity. First, the participant selection was based on random assignment. Although the participants in this study were volunteers and this was a limitation of this study, random assignment into the experimental and control condition might help to increase the internal validity of this study. Another possible threat was the dropout of participants from the study. Even if there were some dropouts especially from the control group, there were no dropouts from the experimental group. Thus the dropout was not a threat to internal validity for this study. A pretest and posttest design was used in this study. The same instruments used in pretest were applied in the posttest, which might cause a testing threat for internal validity. Testing threat means the practice and/or familiarity with the instruments. In order to overcome this effect there was enough time interval between the tests. It could generally be concluded as that the internal validity was achieved for this study.

The other type of validity was the construct validity. Inadequate explanation of the constructs was considered one of the threats to construct validity. In order to overcome this threat, a previously validated model in which the constructs were already well defined was used as a theoretical background in this study. It also was demonstrated in that TCM related questionnaires had high values of construct validity. As the constructs were already well defined, this would also lead to no chance of construct confounding, another threat to construct validity. Mono-operation bias and mono-method bias were also considered as threats to construct validity. In order to avoid these threats, each construct was operationalized in different ways, forming a single definition of the constructs. The effectiveness of intervention was also measured with different methods, reducing the chance of mono-method bias. In summary, using the constructs from a well-defined model, and multiple methods might help to increase the construct validity for this study.

The last type of validity was the external validity. One of the most important threats to external validity was the applicability of intervention into different setting and different samples. In this study, random sampling might help to increase external validity. Providing detailed description of the intervention setting was another way of increasing external validity.

3.6.2. Building Trustworthiness for Qualitative Data

In qualitative studies, the validation of findings serves as an important role for interpretations and reaching conclusions (Creswell, 2013). The issues of trustworthiness in qualitative study include parallel terms used in quantitative study. Credibility or internal validity means that the findings emerged from the data are true. Transferability or external validity means that the findings are generalizable. Dependability or reliability means that the findings could be precise as long as they are consistent and reproducible. Confirmability or objectivity means that the findings should be reflective of the main topic of a study and while interpreting the findings the researchers should be avoided from their biases and prejudices (Henderson,

2006). There are several suggestions to increase trustworthiness of a qualitative study. As Creswell (2013) suggested, the strategies to increase trustworthiness of findings and interpretations were presented below.

During data collection, the researcher spent prolonged time attending in all intervention sessions, doing observations, taking field notes about the process and familiarizing with the structure of intervention. This would help the researcher to build trust with the participants while they were talking about their opinions about the intervention. For example, during individual interviews, the participants were asked about their experiences in intervention and were expected to describe their most enjoyable experiences. Building trust with the participants was very important to get their personal experiences. However, the researcher also refrained from being so close with the participants to conduct unbiased interviews.

Before conducting the study, the qualitative research process was peer reviewed by an expert, who is currently an associate professor in a university in Turkey. He reviewed the research process and interview protocol. The individual interviews were conducted after agreed upon the research process and interview protocol. Data coding process was also peer reviewed. Specifically, the expert reviewed some of the interviews that was transcribed into verbatim and reviewed all of the data coding process. Except from the expert, an external auditor, who had previously no connection with the study, reviewed the final form of themes emerged from data analysis process. The final emergent themes were determined after the expert, external auditor and researcher agreed upon. The use of external auditor and peer reviews about the research process and data coding and analysis would help the reader decide on the trustworthiness of the findings.

As a last strategy to increase trustworthiness, the researcher provided thick description about the participants, study setting, and also the findings emerged from data (Lincoln & Guba, 1985). The findings were examined in detail while providing interconnections with the quantitative results. Although the study's transferability cannot be stated directly, providing thick descriptions would help the reader to make decisions about transferability of the study.

3.7. Limitations of the Study

This study cannot be taken without any limitation. It has some and the followings are the limitations of this study. Because the participants were selected from university, the present results could only be generalized to these university students. Although volunteer participation into this study was the main criteria for the participant, it could also be taken as a limitation of this study. Having willingness to participate in PA based intervention might be resulted in an increase in motivation toward PA participation. The common experience in the intervention setting was limited to the views of thirteen interviewees. They just talked about their own experiences in the intervention setting and of adoption PA into their own life. However, the description of intervention setting was supported by the use of field notes and video records.

Finally the questionnaire of measuring autonomous motivation in physical education setting (i.e., PLOC scale) should be taken carefully. Although this scale was not validated for older age group (like university students), the construct validity was confirmed for this study. This scale was already valid measurement, but the results should be treated carefully in this study.

3.8. Assumptions of the Study

The interpretation of the present findings was based on the following basic assumptions of the study. First, the participants were assumed to complete the questionnaires and the interviewees were assumed to respond to interview questions unbiasedly and truthfully. In order to decrease the internal threat, the researcher took a role of being a nonparticipant observer during the intervention sessions. The role of researcher would be described in detail in the later chapters.

CHAPTER IV

RESULTS

This chapter provides a detailed explanation about the results from quantitative data analyses and the findings emerged from the qualitative data analyses. This chapter is divided into three parts. In the first part, the initial descriptive analyses are briefly examined. The second part includes detailed explanations about the results generated from inferential statistical analyses for quantitative data and the general findings emerged from qualitative data analyses. In this part, a detailed examination of each research questions and the related sub-questions are provided. In the final part, a general conclusion including the combination of both quantitative and qualitative results is provided.

4.1. Descriptive Analyses of Quantitative Data

The descriptive statistics were conducted through the examination of mean and standard deviation scores for each dependent variable. The initial analyses indicated that there were differences in mean scores either between the experimental group and the control group or between the pretest and posttest measurements. Table 4.1 indicates the means and standard deviation scores for each dependent variable for the experimental and control group and also for pretest and posttest scores.

In terms of perceived autonomy support from instructor and also from peers, only the scores of participants in experimental group were included in analyses to see the differences between pretest and posttest scores. As provided in Table 4.1, the experimental group mean scores showed an increase from pretest to posttest for either in perceived autonomy support from instructor or in perceived autonomy support from peers.

Table 4.1
Summary of descriptive statistics of dependent variables (n = 70)

Dependent Variable	Group	Pretest		Posttest	
		M	*SD*	*M*	*SD*
Perceived autonomy support from instructor					
	Experimental	4.75	1.11	6.06	0.56
Perceived autonomy support from peers					
	Experimental	4.88	0.91	5.41	0.68
Autonomous motivation in physical education setting					
External	Experimental	2.05	0.49	1.86	0.57
Introjection	Experimental	2.46	0.52	2.52	0.46
Identification	Experimental	3.05	0.54	3.35	0.41
Intrinsic	Experimental	3.51	0.59	3.83	0.34
Autonomous motivation in LTPA setting					
External	Experimental	0.71	0.61	0.75	0.61
	Control	0.64	0.63	0.85	0.91
Introjection	Experimental	2.03	0.82	2.12	0.78
	Control	1.48	0.78	1.53	0.98
Identification	Experimental	3.17	0.72	3.27	0.47
	Control	2.48	0.81	2.62	0.92
Intrinsic	Experimental	3.14	0.71	3.44	0.49
	Control	2.64	0.73	2.64	1.04
Amotivation	Experimental	0.52	0.61	0.38	0.72
	Control	0.54	0.45	0.49	0.55
Theory of planned behavior constructs					
Intention	Experimental	5.86	1.33	5.97	0.88
	Control	5.28	1.71	4.27	1.80
Attitudes	Experimental	5.65	1.56	6.01	1.12
	Control	5.22	1.12	5.17	1.18

Table 4.1

(Continued)

Dependent Variable	Group	Pretest		Posttest	
		M	*SD*	*M*	*SD*
Perceived behavioral control	Experimental	5.57	1.03	5.51	0.86
	Control	5.31	1.41	4.47	1.77
Subjective norms	Experimental	5.10	1.13	5.19	0.98
	Control	5.18	1.08	4.64	1.39
Basic psychological need satisfaction in exercise setting					
Autonomy	Experimental	3.55	0.60	3.89	0.45
	Control	3.59	0.52	3.44	0.63
Competence	Experimental	3.60	0.69	3.80	0.50
	Control	3.47	0.56	3.51	0.68
Relatedness	Experimental	3.60	0.77	3.95	0.55
	Control	3.56	0.68	3.44	0.81
Physical activity total MET					
	Experimental	2588.84	1931.83	4787.74	6108.30
	Control	2328.39	1813.34	2153.51	1710.10

Note. M = mean, SD = standard deviation

In terms of autonomous motivation in physical education setting, only the scores of participants in experimental group were included in analyses to see the differences between pretest and posttest scores. The descriptive statistics for this dependent variable indicated that from pretest to posttest measurement there was an increase in introjection, identification, and in intrinsic motivation, but a decrease in external motivation.

With regard to autonomous motivation in LTPA setting, both groups and also their pretest and posttest scores were included in analyses. The descriptive analyses indicated that there were differences between experimental and control group in both

the pretest and posttests for each of the sub-scales. Moreover, for both the experimental and the control group, there was an increase from pretest to posttest in external, introjection, and identification motivation. Although the experimental group showed an increase in intrinsic motivation from pretest to posttest, the control group had stable mean scores in intrinsic motivation from pretest to posttest. However, both groups showed a decrease in amotivation from pretest to posttest.

With regard to the mean scores for the Theory of Planned Behavior constructs, both groups and also their pretest and posttest scores were included in analyses. The descriptive analyses indicated that there were differences between experimental and control group in both the pretest and posttests for each of the sub-scales. The descriptive analyses showed both an increase and a decrease from pretest to posttest. More specifically, the experimental group's intention, attitudes, and also subjective norms were slightly increased; on the other hand those in the control group were decreased. However, both the experimental and control group showed a decrease in terms of perceived behavioral control from pretest to posttest.

In terms of the mean scores of basic psychological need satisfaction in exercise setting, the descriptive statistics showed that there were slight differences between the experimental and control group in both the pretest and posttests for each of the sub-scales. When examined with regard to pretest and posttest scores, the autonomy sub-scale showed an increase for experimental group but a slight decrease for control group, the competence sub-scale indicated an increase for both groups, and the relatedness sub-scale indicated an increase for experimental group but a slight decrease for control group.

In terms of PA behaviors, both experimental and control group participants' self-reports of total metabolic equivalents (METs) values were used for the descriptive analysis because these values were a continuous variable. The descriptive analyses indicated differences between experimental and control group and also differences between pretest and posttest results. When the differences between pretest and posttest results were examined, it seemed clear that the experimental group's self-reports of METs values were greatly increased from pretest to posttest.

However, the control group's self-reports of METs values were slightly decreased from pretest to posttest.

4.2. Results for Research Questions

Research Question 1: Is there an effect of trans-contextual model (TCM) based intervention on university students' perceived autonomy support?

Dependent variable of "perceived autonomy support" was tested for two sources, one was from instructor and other source was from peers. To examine the potential change in perceived autonomy support throughout the intervention period, two separate paired samples *t*-tests were conducted for perceived autonomy support from instructor and from peers.

The first paired samples *t*-test conducted for perceived autonomy support from instructor indicated that there was a statistically significant change from pretest to posttest scores ($t_{(34)} = 6.54$, $p < .05$, $r = 0.75$). The effect size for this analysis indicated that 75% of variance was explained by the significant effect of perceived autonomy support from instructor. According to Cohen's criteria (1988) it means a large effect. Descriptive analysis showed that perceived autonomy support from instructor in posttest ($M = 6.06$, $SE = 0.10$) was considerably higher than that of pretest score ($M = 4.75$, $SE = 0.19$).

The other paired samples *t*-test conducted for perceived autonomy support from peers indicated that there was a significant difference between pretest and posttest scores ($t_{(34)} = 3.75$, $p < .05$, $r = 0.54$). The effect size for this analysis indicated that 54% of variance was explained by the significant effect of perceived autonomy support from instructor. According to Cohen's criteria (1988) it means a large effect. Descriptive statistics clearly revealed that the participants' posttest score ($M = 5.41$, $SE = 0.12$) was higher than in pretest scores ($M = 4.88$, $SE = 0.15$). The significant increase in the posttest scores for perceived autonomy support both from

instructor and from peers was interpreted that the participants' perception of autonomy support was significantly affected by the effect of TCM-based intervention. The paired samples *t*-test results for perceived autonomy support from instructor and from peers were provided in Table 4.2.

Table 4.2

Paired samples t-test results for perceived autonomy support from instructor and from peers

					95% CI of difference				
Pair		*M*	*SD*	*SE*	Lower	Upper	*t*	df	Sig.
Instructor	pre-post	1.31	1.19	0.20	0.91	1.72	6.54	34	.000*
Peers	pre-post	0.54	0.84	0.14	0.25	0.83	3.75	34	.001*

Note. CI = confidence interval, M = mean, SD = standard deviation, SE = standard error, df = degrees of freedom.
* $p < .05$

Research Question 2: Is there an effect of trans-contextual model (TCM) based intervention on university students' autonomous motivation?

This variable of "autonomous motivation" was tested in two settings, one was in physical education setting and other one was in LTPA setting. Autonomous motivation in physical education setting has four subscales. The scores in each subscale were tested for only the participants in experimental group for pretest and posttest. To examine the potential change in autonomous motivation in physical education setting for each subscale, repeated measures ANOVA were conducted. The result of autonomous motivation in physical education setting was provided in Table 4.3.

Table 4.3

Repeated measures ANOVA results for autonomous motivation in physical education setting

Dependent Variable	df	*SS*	*F*	Sig. (*p*)	Partial η^2
External	1	.61	3.77	.060	0.10
Introjection	1	.06	0.29	.596	0.01
Identification	1	1.57	8.85	.005*	0.21
Intrinsic	1	1.75	8.33	.007*	0.20
External	34				
Introjection	34				
Identification	34				
Intrinsic	34				

* $p < .05$

The results showed that there was a statistically significant difference between pretest and posttest scores in identification ($F_{(1, 34)} = 8.85$, $p < .05$, $\eta^2 = 0.21$) and intrinsic motivation ($F_{(1, 34)} = 8.33$, $p < .05$, $\eta^2 = 0.20$). The value of partial η^2 indicated that 21% of variance was explained by identification and 20% of variance was explained by intrinsic motivation. There was not a significant difference in external motivation ($F_{(1, 34)} = 3.77$, $p = .060$) and introjection ($F_{(1, 34)} = 0.29$, $p = .596$). In terms of identification, the posttest scores ($M = 3.35$, $SD = 0.41$) were higher than pretest scores ($M = 3.05$, $SD = 0.54$). In terms of intrinsic motivation, the posttest scores ($M = 3.83$, $SD = 0.34$) were higher than pretest scores ($M = 3.51$, $SD = 0.59$). There was a slight increase in introjection motivation from pretest ($M = 2.46$, $SD = 0.52$) to posttest ($M = 2.52$, $SD = 0.46$). There was a decrease in external motivation from pretest ($M = 2.05$, $SD = 0.49$) to posttest ($M = 1.86$, $SD = 0.57$). However, the results for introjection and external motivation did not reached a significance level. The inferential and descriptive analyses for autonomous motivation in physical education setting was interpreted that there was a significant

effect of TCM-based intervention on identification and intrinsic motivation, but not a significant effect on external and introjection motivation.

Autonomous motivation in LTPA setting has five subscales. The scores in each subscale were tested for both the experimental and control group as well as for pretest and posttest. In order to examine the potential change in autonomous motivation in LTPA setting from pretest to posttest scores as well as to see the differences (if possible) between the experimental and control group, a mixed design multivariate analysis of variance (MANOVA) was conducted. The mixed design MANOVA results were interpreted using the Pillai's Trace value because of the violation of the homogeneity of covariance assumption (Tabachnick & Fidell, 2007). The multivariate results were presented in Table 4.4.

Table 4.4

Results of multivariate analysis for autonomous motivation in LTPA setting

Source	Pillai's Trace	*F*	Sig. (*p*)	Partial η^2
Group	0.25	4.32	.002*	0.25
Time	0.10	1.34	.260	0.10
Group * Time	0.10	1.42	.228	0.10

* $p < .05$

The multivariate tests results on between subject indicated a statistically significant main effect of group on autonomous motivation in LTPA setting, $V = 0.25$, $F_{(5, 64)} = 4.32$, $p < .05$, $\eta^2 = 0.25$. The value of partial η^2 revealed that 25% of variance was explained by the group effect on autonomous motivation in LTPA setting. This significant group effect indicated that regardless of time differences (i.e., pretest and posttest), the experimental and control group were significantly differed in autonomous motivation in LTPA setting.

Furthermore, the multivariate test results on within subject revealed that there was no significant main effect of time, $V = 0.10$, $F_{(5, 64)} = 1.34$, $p = .260$, and interaction effect between group and time, $V = 0.10$, $F_{(5, 64)} = 1.42$, $p = .228$. These

non-significant effects on within subject indicated that there was not a significant difference in autonomous motivation in LTPA setting from pretest to posttest.

After reaching statistically significant main effect of group on autonomous motivation in LTPA setting, the follow-up univariate analysis was conducted in order to determine on which autonomous motivation variable was significantly differed. Significant differences were assessed using Bonferroni adjustment in order to reduce the chance of doing Type I error. Significance level was divided to five because there were five dependent variables in autonomous motivation in LTPA setting. Thus, significance level was assessed at .01, which was obtained by dividing the original significance level by the number of dependent variables (.05 / 5 = .01) (Pallant, 2001). Table 4.5 showed the univariate results of main effect of group on autonomous motivation in LTPA setting.

Table 4.5

Univariate results of significant effect on autonomous motivation in LTPA setting

Source	Dependent Variable	df	*F*	Sig. (*p*)	Partial η^2
Group	External	1	0.01	.921	0.01
	Introjection	1	9.80	.003*	0.13
	Identification	1	18.33	.000*	0.21
	Intrinsic	1	15.15	.000*	0.18
	Amotivation	1	0.30	.584	0.01
Error	External	68			
	Introjection	68			
	Identification	68			
	Intrinsic	68			
	Amotivation	68			

* $p < .01$ (Bonferroni adjusted significance level)

The separate univariate test for significant group effect on dependent variables revealed significant group differences on introjection ($F_{(1, 68)} = 9.80$, $p <$

.01, η^2 = 0.13), identification ($F_{(1, 68)}$ = 18.33, p < .01, η^2 = 0.21), and intrinsic motivation ($F_{(1, 68)}$ = 15.15, p < .01, η^2 = 0.18). However, the univariate tests indicated non-significant group differences in terms of external motivation ($F_{(1, 68)}$ = 0.01, p = .921), and amotivation ($F_{(1, 68)}$ = 0.30, p = .584).

Figure 4.1 showed the differences in mean scores of autonomous motivation with regard to group. As seen in figure, experimental group was significantly higher in terms of introjection, identification, and intrinsic motivation. According to the mean scores, it was clear that experimental group was higher in introjection (M = 2.08, SE = 0.13) than control group (M = 1.51, SE = 0.13). Experimental group scored higher in identification (M = 3.22, SE = 0.11) than control group (M = 2.55, SE = 0.13). In terms of intrinsic motivation, experimental group (M = 3.29, SE = 0.12) was higher than control group (M = 2.64, SE = 0.12). However, for external motivation and amotivation there were no significant group differences, as indicated in similar mean scores for both groups.

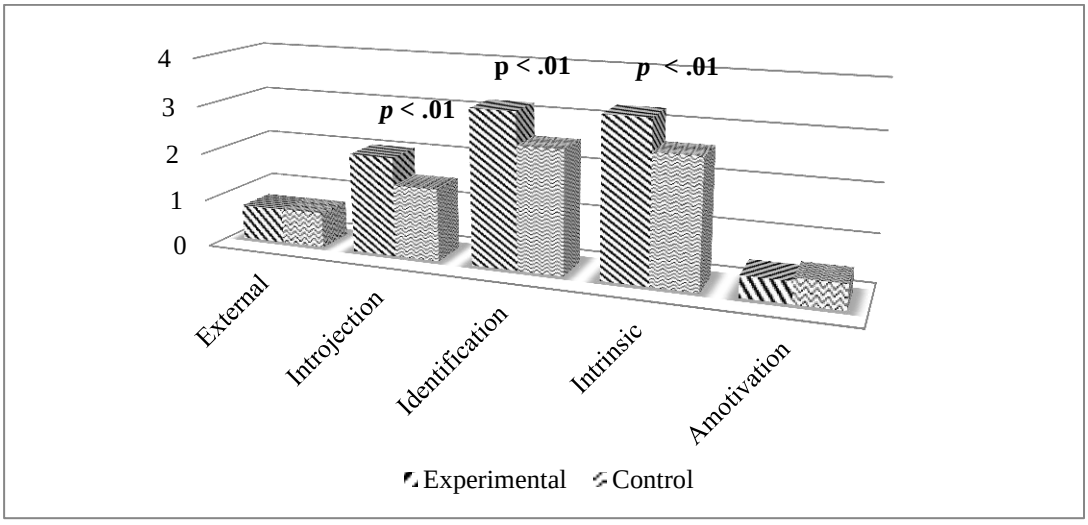


Figure 4.1 Group differences in mean scores of autonomous motivation in LTPA setting

Research Question 3: Is there an effect of trans-contextual model (TCM) based intervention on university students' situational determinants of LTPA behavior?

In order to examine the potential change in the constructs of Theory of Planned Behavior from pretest to posttest scores as well as to see the potential differences between experimental and control group, a mixed design MANOVA was conducted. The mixed MANOVA results were interpreted with using the Pillai's Trace value due to violation of the homogeneity of covariance assumption. The multivariate results for the constructs of Theory of Planned Behavior were presented in Table 4.6.

Table 4.6

Results of multivariate analysis for constructs of Theory of Planned Behavior

Source	Pillai's Trace	*F*	Sig. (*p*)	Partial η^2
Group	0.19	3.71	.009*	0.19
Time	0.17	3.31	.016*	0.17
Group * Time	0.15	2.96	.026*	0.15

* $p < .05$

The multivariate tests on between subject indicated a statistically significant main effect of group on the constructs of Theory of Planned Behavior, $V = 0.19$, $F_{(4, 65)} = 3.71$, $p < .05$, $\eta^2 = 0.19$. The value of partial η^2 revealed that 19% of variance was explained by the group effect on the constructs of Theory of Planned Behavior. This significant group effect indicated that regardless of time differences, experimental and control group were significantly differed in the constructs of Theory of Planned Behavior.

Similarly, the multivariate tests on within subject revealed significant main effect of time ($V = 0.17$, $F_{(4, 65)} = 3.31$, $p < .05$, $\eta^2 = 0.17$) and interaction effect between group and time ($V = 0.15$, $F_{(4, 65)} = 2.96$, $p < .05$, $\eta^2 = 0.15$) on the constructs of Theory of Planned Behavior. The values of partial η^2 revealed that 17% of variance was explained by time effect and 15% was explained by interaction effect. The significant time effect and interaction effect indicated that there were significant

differences in the constructs of Theory of Planned Behavior from pretest to posttest and between experimental and control group scores.

The follow-up univariate analysis was conducted to understand which construct was significant in either the main effects (group effect and time effect) or interaction effect between group and time. Bonferroni adjustment was applied in order to evaluate the significance level because of multiple dependent variables in the constructs of Theory of Planned Behavior. The adjusted significance level was obtained by dividing the original significance level with the number of dependent variables (p = .05 / 4 = .0125), so the adjusted significance level was evaluated at .0125. As the sphericity assumption cannot be achieved for this variable due to only two groups and two tests, the Greenhouse-Geisser correction was used for interpreting the F statistics (Field, 2009). Table 4.7 indicated the univariate results for each constructs for significant main effects and interaction effect, as well.

Table 4.7

Univariate results of significant effect on constructs of Theory of Planned Behavior

Source	Dependent Variable	df	F	Sig. (p)	Partial η^2
Group	Intention	1	13.90	.000*	0.17
	Attitude	1	7.21	.009*	0.10
	PBC	1	5.65	.020	0.08
	S.Norms	1	1.08	.301	0.02
Time	Intention	1	6.83	.011*	0.09
	Attitude	1	0.70	.406	0.01
	PBC	1	8.42	.005*	0.11
	S.Norms	1	2.03	.159	0.03
Time * Group	Intention	1	10.35	.002*	0.13
	Attitude	1	1.21	.275	0.02
	PBC	1	6.61	.012*	0.09
	S.Norms	1	3.83	.054	0.05

Table 4.7

(Continued)

Source	Dependent Variable	df	*F*	Sig. (*p*)	Partial η^2
Error (time)	Intention	68			
	Attitude	68			
	PBC	68			
	S.Norms	68			

Note. PBC = perceived behavioral control, S.Norms = subjective norms
* $p < .0125$ (Bonferroni adjusted significance level)

The separate univariate test on significant group effect revealed significant difference between groups in terms of intention ($F_{(1, 68)} = 13.90$, $p < .0125$, $\eta^2 = 0.17$) and attitude ($F_{(1, 68)} = 7.21$, $p < .0125$, $\eta^2 = 0.10$). The values of partial η^2 revealed that 17% of variance was explained by group differences in intention and 10% of variance was explained by group differences in attitude. However, univariate results did not show significant differences between groups in terms of perceived behavioral control ($F_{(1, 68)} = 5.65$, $p = .020$) and subjective norms ($F_{(1, 68)} = 1.08$, $p = .301$). These results indicated that there were significant differences between experimental and control group in terms of intention and attitude regardless of time differences.

Figure 4.2 provided a visual inspection for group differences in terms of constructs in Theory of Planned Behavior. When examined with the mean scores, it was clear that in terms of intention, the experimental group was significantly higher ($M = 5.92$, $SE = 0.22$) than the control group ($M = 4.77$, $SE = 0.22$) and that in terms of attitude, the experimental group was significantly higher ($M = 5.83$, $SE = 0.17$) than the control group ($M = 5.20$, $SE = 0.17$). As seen in Figure 4.2, although experimental group was higher in perceived behavioral control and subjective norms than the control group, these differences did not reach the significance level.

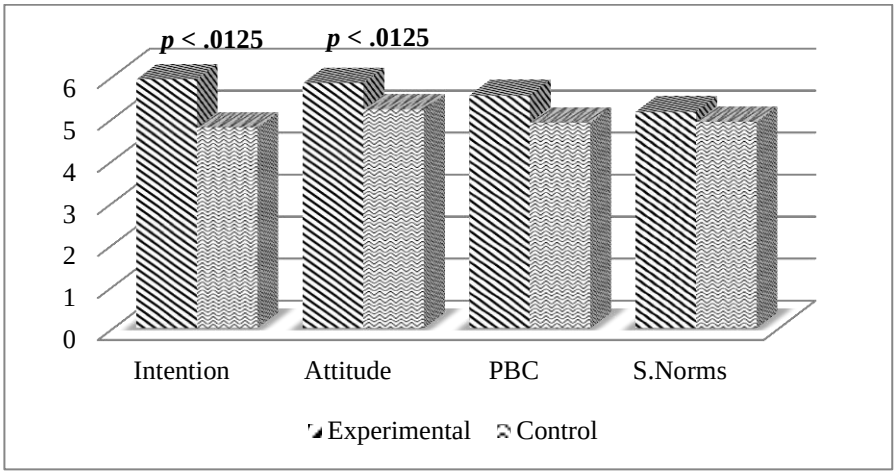


Figure 4.2 Group differences in mean scores of constructs of Theory of Planned Behavior

The other univariate analysis was conducted for time effect on the constructs of Theory of Planned Behavior. As presented in Table 4.7, there was a significant time effect in terms of intention ($F_{(1, 68)} = 6.83$, $p < .0125$, $\eta^2 = 0.09$) and perceived behavioral control ($F_{(1, 68)} = 8.42$, $p < .0125$, $\eta^2 = 0.11$). The values of partial η^2 indicated that only 9% of variance explained by the time differences in intention and 11% of variance was explained by the time differences in perceived behavioral control. However, the time effect for attitude ($F_{(1, 68)} = 0.70$, $p = .406$) and subjective norms ($F_{(1, 68)} = 2.03$, $p = .159$) did not reach the significance level. These results revealed that regardless of group differences, there were significant time differences from pretest to posttests in terms of intention and perceived behavioral control but no time differences for attitude and subjective norms.

Figure 4.3 showed the mean scores from pretest and posttest regardless of group differences. As can be seen in figure, intention and perceived behavioral control was significantly decreased from pretest to posttest. When examined with mean scores, intention scores were significantly higher in pretest ($M = 5.57$, $SE = 0.18$) than that in posttest ($M = 5.12$, $SE = 0.17$). Perceived behavioral control scores were significantly higher in pretest ($M = 5.44$, $SE = 0.15$) than that in posttest ($M =$

4.99, *SE* = 0.17). Although attitude increased and subjective norms decreased from pretest to posttest, neither reached the significance level.

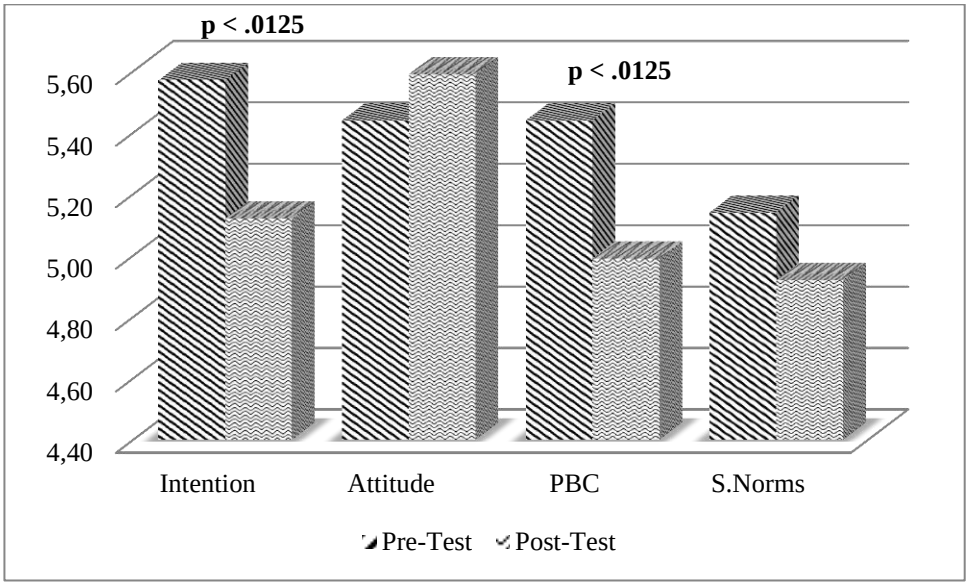


Figure 4.3 Time differences in mean scores of constructs of Theory of Planned Behavior

The final univariate test result revealed statistically significant interaction effect between group and time on intention ($F_{(1, 68)} = 10.35$, $p < .0125$, $\eta^2 = 0.13$) and perceived behavioral control ($F_{(1, 68)} = 6.61$, $p < .0125$, $\eta^2 = 0.09$). The partial η^2 values revealed the percentage of variance as explained by intention and perceived behavioral control, 13% and 9% respectively. However, the interaction effect between group and time was not significant for attitude ($F_{(1, 68)} = 1.21$, $p = .275$) and subjective norms ($F_{(1, 68)} = 3.83$, $p = .053$). These results indicated that there was significant group and time differences in terms of intention and perceived behavioral control, but no significant group and time differences in terms of attitudes and subjective norms.

The pairwise comparisons for time by group interaction effect showed significant group differences in posttest ($V = 0.28$, $F_{(4, 65)} = 6.30$, $p < .05$, $\eta^2 = 0.28$), but not significant in pretest ($F_{(4, 65)} = 1.02$, $p = .407$). The value of partial η^2

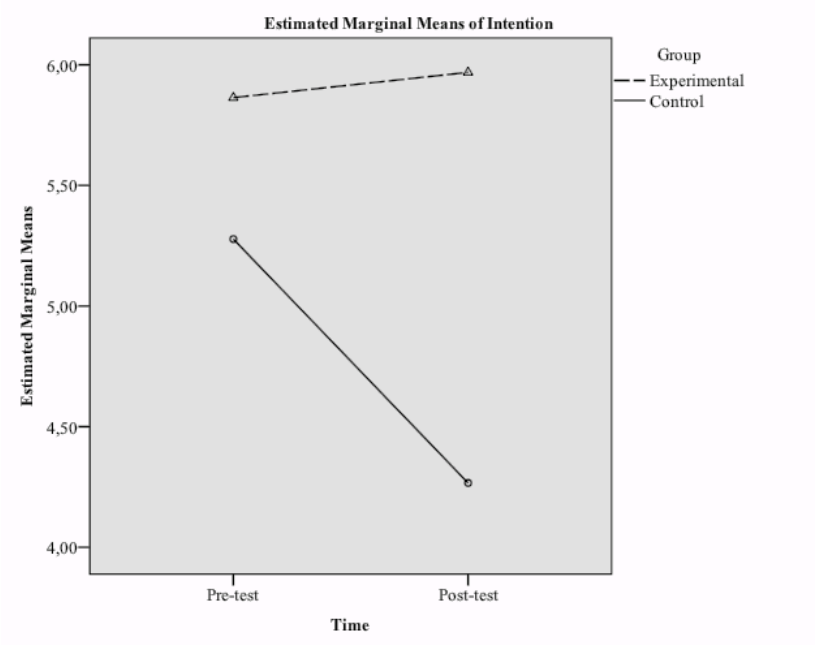
indicated that 28% of variance was explained by group differences in posttest. The time by group interaction effect was significant for intention and perceived behavioral control, all *p*s < .05 (after Bonferroni adjustment was applied). After the examination of mean scores, it was clear that in terms of posttest scores, experimental group significantly scored higher in intention (*M* = 5.97, *SE* = 0.24) than those of control group (*M* = 4.27, *SE* = 0.24). With regard to perceived behavioral control at posttest, experimental group significantly scored higher (*M* = 5.51, *SE* = 0.24) than control group (*M* = 4.47, *SE* = 0.24). Although interaction effect between group and time was not found significant for attitudes, the pairwise comparison for time by group interaction found significant group differences at posttest in terms of attitudes. Specifically, experimental group scored higher at posttest in attitudes (*M* = 6.01, *SE* = 0.19) than the control group (*M* = 5.17, *SE* = 0.19). With regard to subjective norms, group differences in posttest did not reached the significance level. In terms of pretest, none of the variables reached the significance level, as well. These results indicated that when examined with regard to group differences in pretest and posttest separately, there were significant group differences in intention, attitudes, and perceived behavioral control at posttest, favoring experimental group. However, in terms of pretest, there were no significant group differences in any of the construct of Theory of Planned Behavior.

The pairwise comparisons for group by time interaction effect indicated significant time differences in control group (*V* = 0.26, $F_{(4, 65)} = 5.65$, $p < .05$, $\eta^2 = 0.26$), but not for experimental group ($F_{(4, 65)} = 0.62$, $p = .648$). The value of partial η^2 showed that 26% of variance was explained by time differences in control group. The group by time interaction effect was found significant for intention, perceived behavioral control, and subjective norms, all *p*s < .05 (after Bonferroni adjustment was applied). The mean scores indicated that with regard to the control group scores, control group significantly decreased their intention scores from pretest (*M* = 5.28, *SE* = 0.26) to posttest (*M* = 4.27, *SE* = 0.24), their perceived behavioral control scores from pretest (*M* = 5.31, *SE* = 0.21) to posttest (*M* = 4.47, *SE* = 0.24), and their subjective norms scores from pretest (*M* = 5.18, *SE* = 0.19) to posttest (*M* = 4.64, *SE*

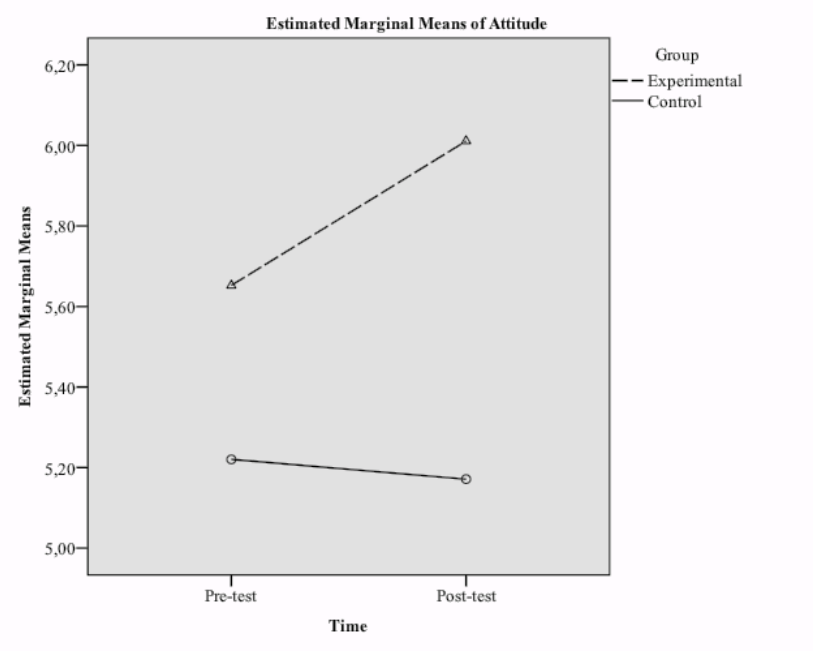
= 0.20). The control group's attitude scores slightly decreased from pretest (*M* = 5.22, *SE* = 0.23) to posttest (*M* = 5.17, *SE* = 0.19), but this decrease was not statistically significant. The other comparisons for experimental group did not reach the significance level. These results revealed that when examined with regard to time differences for either experimental and control group, there were significant differences in intention, perceived behavioral control, and subjective norms for only control group, but not for experimental group.

The interaction effect between group and time for each constructs of Theory of Planned Behavior was shown in Figure 4.4. As can be seen from this figure, it was clear that the control group showed significant decreases in intention, perceived behavioral control, and subjective norms from pretest to posttest.

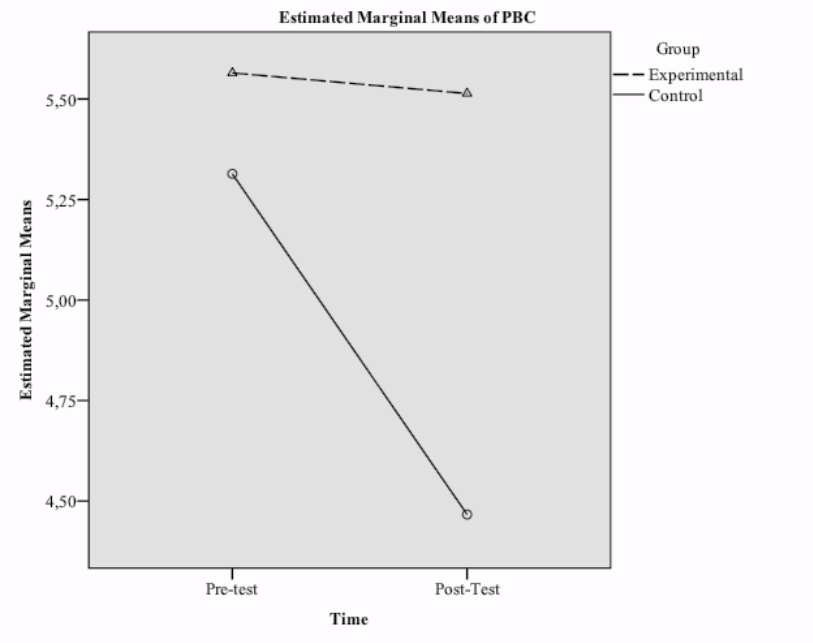
(a) Intention



(b) Attitude



(c) Perceived Behavioral Control



(d) Subjective Norms

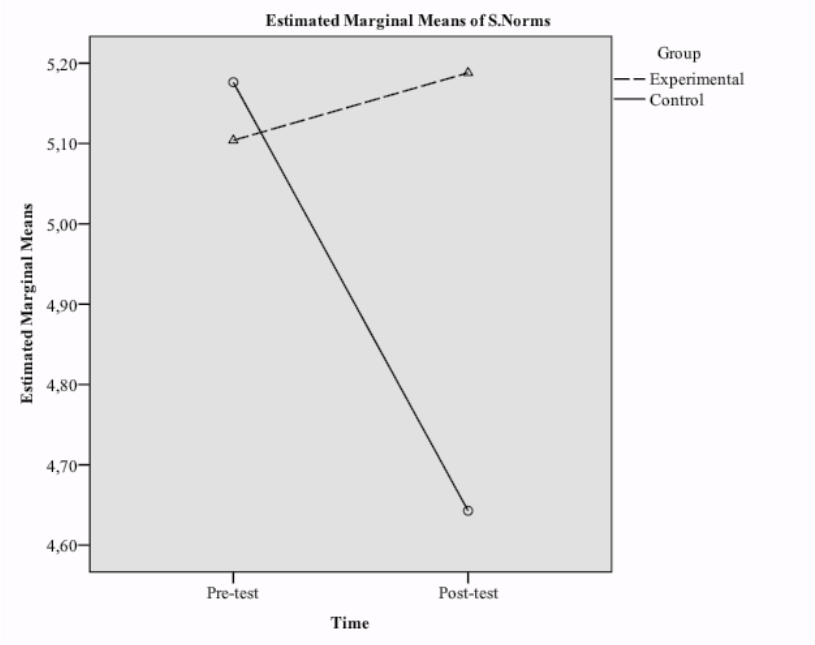


Figure 4.4 Interaction effect on the constructs of Theory of Planned Behavior

Research Question 4: Is there an effect of trans-contextual model (TCM) based intervention on university students' basic psychological need satisfaction in exercise setting?

To examine the potential change in basic psychological need satisfaction in exercise setting from pretest to posttest as well as to see the differences between experimental and control group, a mixed design MANOVA was conducted. Although the homogeneity of covariance matrices was not violated for this variable, Pillai's trace was used for interpreting the results. In case of equal sample sizes, Pillai's trace value provided the most robust value to violations of assumptions (Field, 2009).

The multivariate results on between subject and on within subject indicated no significant main effect of group (V = 0.06, $F_{(3, 66)}$ = 1.47, p = .230) and of time (V = 0.04, $F_{(3, 66)}$ = 0.99, p .403), respectively. On the other hand, the multivariate results on within subject revealed significant interaction effect between group and time (V =

0.19, $F_{(3, 66)} = 5.10$, $p < .05$, $\eta^2 = 0.19$) on basic psychological need satisfaction in exercise setting. The value of partial η^2 indicated that 19% of variance was explained by interaction effect on basic psychological need satisfaction in exercise setting. This significant result indicated that basic psychological need satisfaction in exercise setting would significantly differed from pretest to posttest between experimental and control group. The results of multivariate analysis for basic psychological need satisfaction in exercise setting were provided in Table 4.8.

Table 4.8

Results of multivariate analysis for basic psychological need satisfaction in exercise setting

Source	Pillai's Trace	*F*	Sig. (*p*)	Partial η^2
Group	0.06	1.47	.230	0.06
Time	0.04	0.99	.403	0.04
Group * Time	0.19	5.10	.003*	0.19

* $p < .05$

The follow-up univariate analysis was conducted in order to determine which basic psychological need satisfaction in exercise setting was significant for interaction effect. Bonferroni adjustment was applied in order to evaluate the significance level because of multiple dependent variables in basic psychological need satisfaction in exercise setting. The adjusted significance level was obtained by dividing the original significance level with the number of dependent variables ($p = .05 / 3 = .017$) so the adjusted significance level was evaluated at .017. As the sphericity assumption cannot be achieved for this variable due to only two groups and two tests, the Greenhouse-Geisser correction was used for interpreting the *F* statistics (Field, 2009).

The separate univariate test results for each dependent variable were shown in Table 4.9. As indicated in the table, the univariate test result revealed statistically significant interaction effect on autonomy ($F_{(1, 68)} = 11.31$, $p < .017$, $\eta^2 = 0.14$) and

relatedness ($F_{(1, 68)} = 7.37$, $p < .017$, $\eta^2 = 0.10$), but not for competence ($F_{(1, 68)} = 1.14$, $p = .289$). The values of partial η^2 revealed that 14% of variance was explained by significant interaction effect on autonomy and 10% of variance was explained by significant interaction effect on relatedness. These significant results indicated that there was significant group and time differences in terms of autonomy and relatedness, but no significant group and time differences in terms of competence.

Table 4.9

Univariate results of significant effect on basic psychological need satisfaction in exercise setting

Source	Dependent Variable	df	*F*	Sig. (*p*)	Partial η^2
Time * Group	Autonomy	1	11.31	.001*	0.14
	Competence	1	1.14	.289	0.02
	Relatedness	1	7.37	.008*	0.10
Error (time)	Autonomy	68			
	Competence	68			
	Relatedness	68			

* $p < .017$ (Bonferroni adjusted significance level)

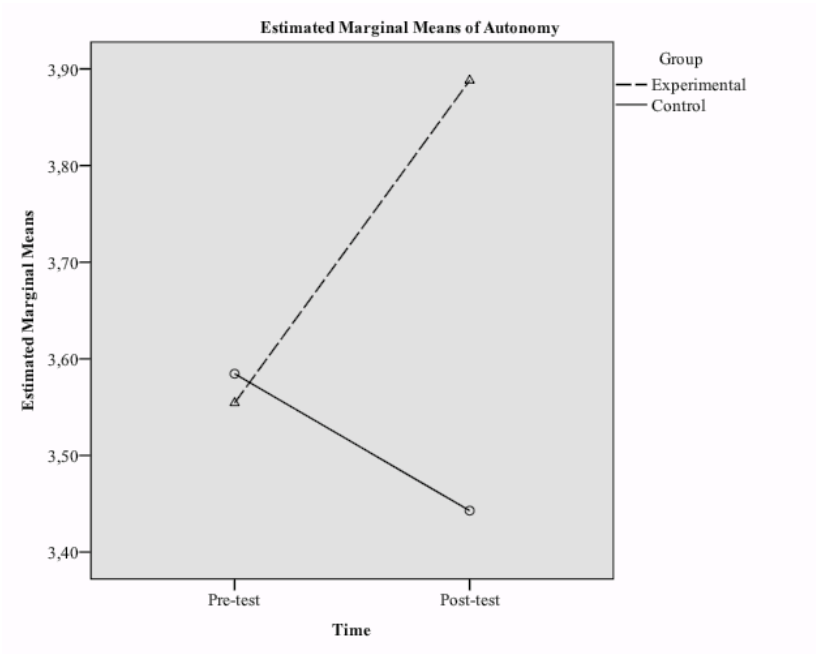
The pairwise comparisons for time by group showed significant group differences in posttest ($V = 0.19$, $F_{(3, 66)} = 5.10$, $p < .05$, $\eta^2 = 0.19$), but no group differences in pretest ($F_{(3, 66)} = 1.04$, $p = .380$). The value of partial η^2 revealed that 19% of variance was explained by group differences in posttest. The time by group interaction effect was significant for autonomy and relatedness, both *p*s < .05 (after Bonferroni adjustment was applied). After the examination of mean scores, it was clear that in terms of posttest scores, experimental group significantly scored higher in autonomy ($M = 3.89$, $SE = 0.09$) than those in control group ($M = 3.44$, $SE = 0.09$). Experimental group significantly scored higher in relatedness ($M = 3.95$, $SE = 0.12$) than those in control group ($M = 3.44$, $SE = 0.12$). Although interaction effect between group and time was not found significant for competence, the pairwise

comparison for time by group interaction found significant group differences at posttest for competence, $p < .05$ (after Bonferroni adjustment was applied). Specifically, experimental group scored higher at posttest for competence ($M = 3.80$, $SE = 0.10$) than the control group ($M = 3.51$, $SE = 0.10$). These results indicated that when examined with regard to group differences in pretest and posttest separately, there were significant differences at posttest in terms of autonomy, competence, and relatedness, favoring the experimental group.

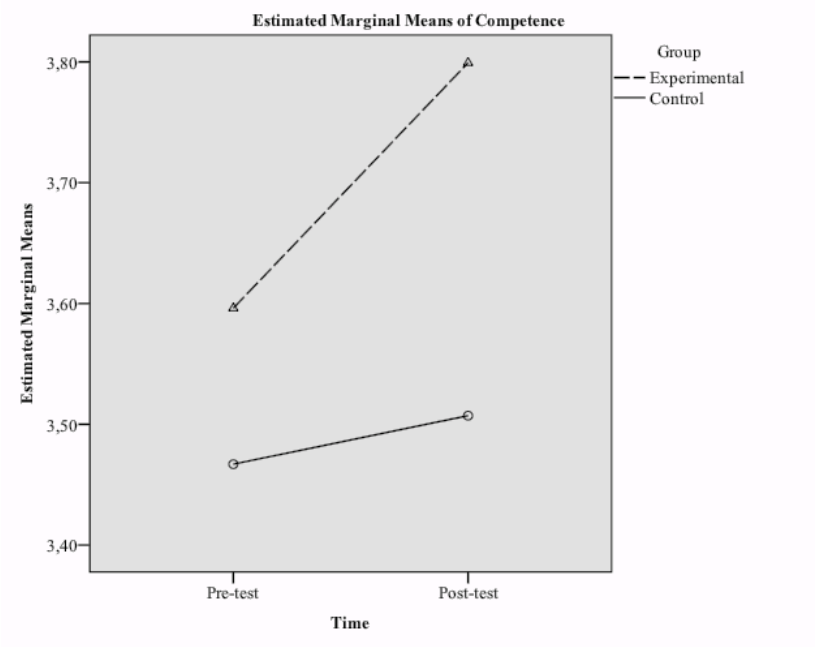
The pairwise comparisons for group by time interaction indicated significant time differences for experimental group ($V = 0.17$, $F_{(3, 66)} = 4.36$, $p < .05$, $\eta^2 = 0.17$), but no significant time differences for control group ($F_{(3, 66)} = 1.37$, $p = .169$). The value of partial η^2 revealed that 17% of variance was explained by time differences for experimental group. The group by time interaction effect was significant for autonomy and relatedness, both ps $< .05$ (after Bonferroni adjustment was applied). When examined with mean scores, it was clear that experimental group significantly increased their autonomy scores from pretest ($M = 3.55$, $SE = 0.10$) to posttest ($M = 3.89$, $SE = 0.09$) and their relatedness scores from pretest ($M = 3.60$, $SE = 0.12$) to posttest ($M = 3.95$, $SE = 0.12$). Although the experimental group was increased their competence scores from pretest ($M = 3.60$, $SE = 0.11$) to posttest ($M = 3.80$, $SE = 0.10$), this increase was not found significant. The other comparisons for control group did not reach the significance level. These results revealed that when examined with regard to time differences for either experimental and control group, there were significant time differences from pretest to posttest in terms of autonomy and relatedness for only experimental group, but no time differences for control group.

Figure 4.5 showed the visual inspection of each dependent variable for interaction effect. As seen in this figure, the experimental group significantly increased their autonomy and relatedness scores from pretest to posttest. However, although competence scores showed an increase for experimental group, this increase was not found significant.

(a) Autonomy



(b) Competence



(c) Relatedness

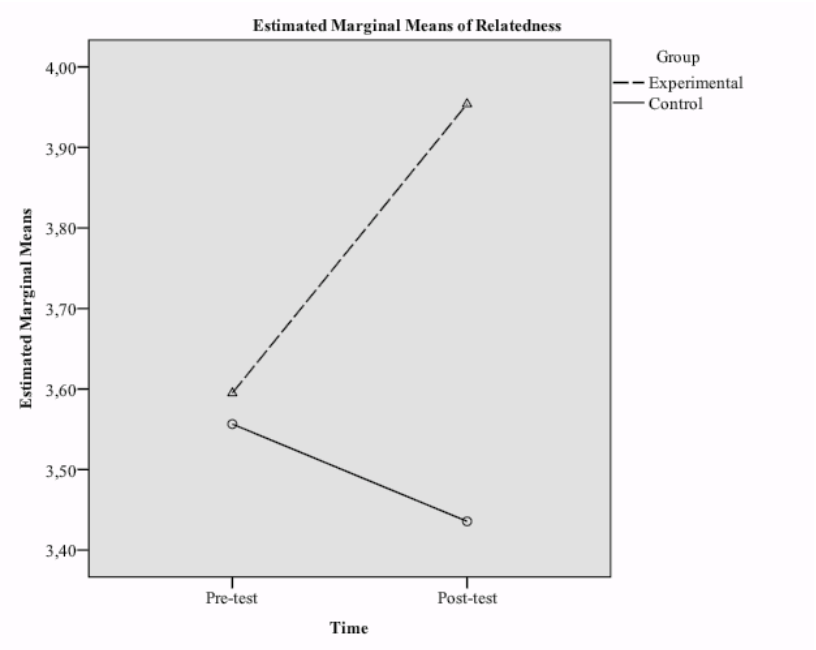


Figure 4.5 Interaction effect on basic psychological need satisfaction in exercise setting

Research Question 5: Is there an effect of trans-contextual model (TCM) based intervention on university students' PA behaviors?

The effect of TCM-based intervention in the participants' PA behaviors was examined in two separate sub-questions. The first sub-question was related with examining the difference in terms of the participants' PA level from pretest to posttest measurements. The second sub-question was related with the difference in terms of the participants' PA stages of change from pretest to posttest measurements. These variables are categorical so they were analyzed by using chi-square analysis. The basic assumption of chi-square analysis is to have expected count greater than five (Howell, 2006). Although there were some problems in the expected counts for each of the categorical data, the results were cautiously interpreted.

With regard to PA level, the chi square analyses revealed significant difference between pretest and posttest results for experimental group participants,

$\chi^2_{(2)} = 7.46$, $p < .05$, on the other hand there was no significant difference for control group, $\chi^2_{(4)} = 4.87$, $p = .301$. These results indicated that there was a significant effect of TCM-based intervention on PA levels of participants who involved in intervention, not for those who did not take any treatment toward PA participation.

The frequencies of PA level for experimental and control group was presented in Figure 4.6. For the participants in experimental group, there was a reduction in the number of people in low and moderate level throughout the intervention period. This might be the reason that they reported to be in high PA level at the end of intervention. However for control group, even if there were differences in PA levels this difference was not found statistically significant.

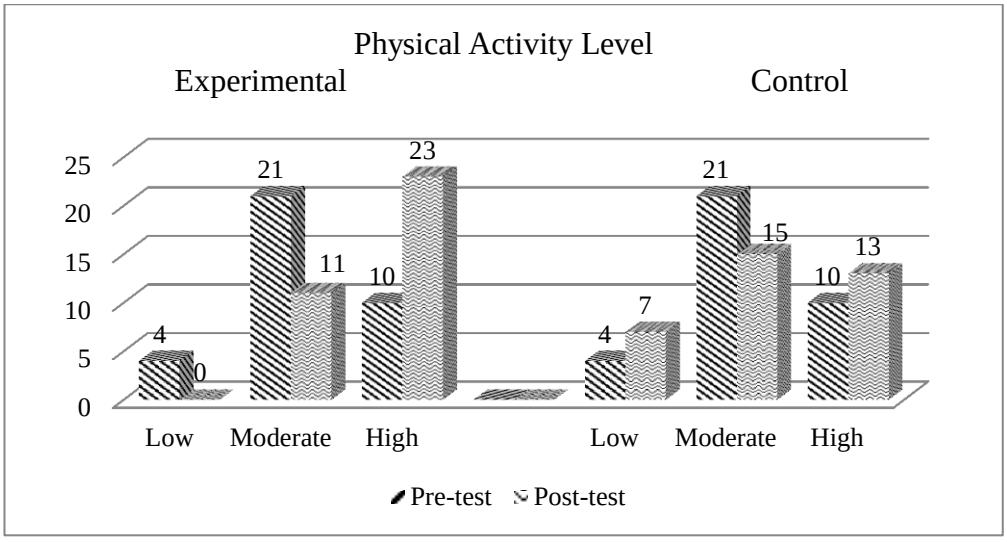


Figure 4.6 Frequencies of PA level for experimental and control group for pretest and posttest

With regard to PA stages, the chi square analyses showed significant difference between pretest and posttest measurements for both the experimental group participants, $\chi^2_{(9)} = 19.43$, $p < .05$, and for the control group participants, $\chi^2_{(16)} = 27.68$, $p < .05$. These results were interpreted that there was a significant effect of intervention on exercise stages for those involved in intervention. However, for

those who were not provided any of the intervention strategies, there was a significant difference in exercise stages from pretest to posttest measurements.

The frequencies of PA stages for experimental and control group was presented in Figure 4.7. In this figure, it is clear that at the beginning of intervention, the participants in experimental group who were categorized in contemplation stage (i.e., those who were intended to exercise) were changed their exercise stage into preparation, action, or maintenance stages at the end of intervention. However, for the control group, there was little change in the exercise stages throughout the measurement period. The most visible change was in action stage (i.e., those were regularly exercising). There was a reduction in the number of participants in this stage. The reason might be that they reposted a change into maintenance stage or any other stages at the posttest measurement.

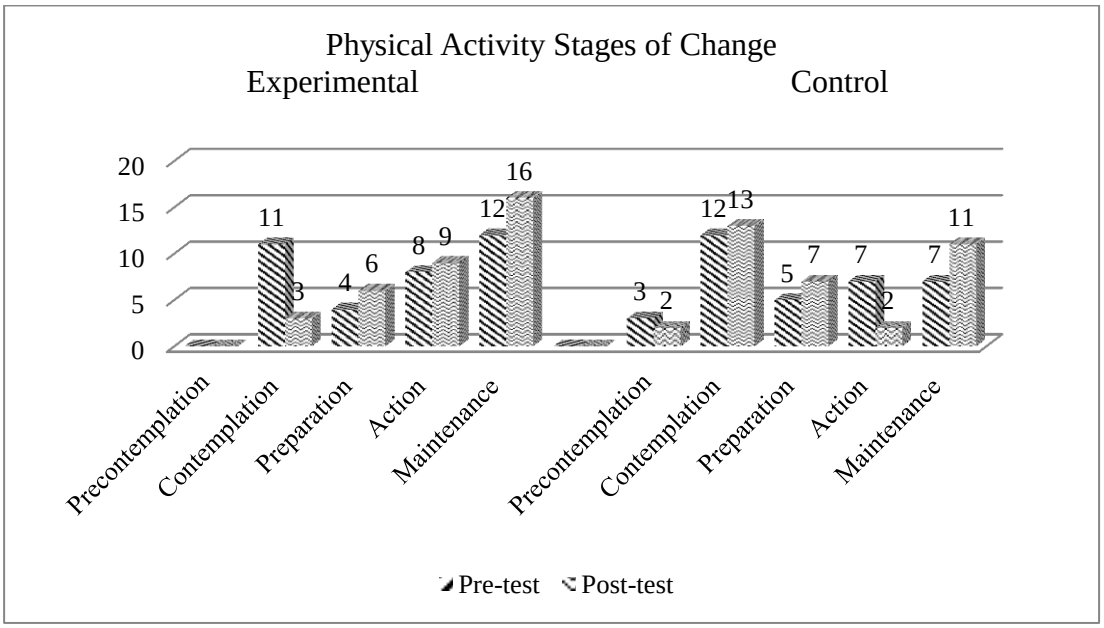


Figure 4.7 Frequencies of PA stages of change for experimental and control group for pretest and posttest

Research Question 6: How do university students describe their experiences in trans-contextual model (TCM) based intervention?

The last research question was related how the participants involved in intervention described their own experiences in TCM-based intervention. To address this question, individual interviews were conducted. Each interview was examined by systematic qualitative analyses. Overall, the findings emerged from the analyses pointed out four general themes. First, the interviewees' initial experiences in the intervention were related to their need for regular exercising including what to do and how to do it. Second, they wanted theoretical knowledge about exercising. Next they described the learning climate of the intervention setting including being a flexible and enjoyable setting, experiencing peer and instructor support, and also increasing motivation toward PA participation. Finally, they talked about how they became autonomous toward PA at the end of intervention period. The general themes emerged from qualitative data analyses were also visually presented in Figure 4.8.

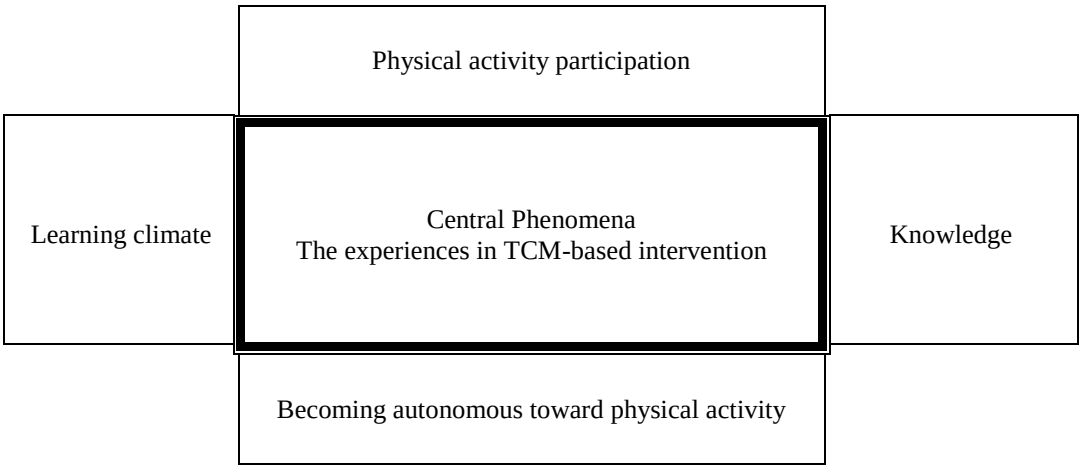


Figure 4.8 General themes emerged from interviews

Theme 1: Regular PA Participation

From the interviews that were conducted with those who were participated in TCM-based intervention, it was obvious that they were interested in regular PA participation. Even though most had previously participated in PA they could not keep exercising regularly due to variety of reasons. Reasons for not participating in PA regularly were having hesitation toward PA due to previous physical injuries and

excessive workload in university education. The most frequently stated reason was complaints about no extra time for doing regular PA. These reasons appeared to effect current expectations about the intervention and their desire to participate in PA regularly.

The effect of previous experience. Whether their previous PA experience was negative or positive, each participant interviewed stated that they had this experience either in elementary, secondary or in high school physical education class or in their free time. Fatma said, "*I was more interested in sport while I was in secondary school. I almost never interested in sports in my high school years*" and Melek explained how to spend her free time actively, "*I could tell that I spent my free time exercising, rather than reading a book.*"

Some interviewees currently participated on a regular basis such as Oya who stated, "*On the weekends, I've tried to go [to exercise] ... and I've been a member of fitness center for approximately one year*." Other interviewees said they wanted to do regular PA but could not make it happen. A few had experienced irregular participation.

These examples indicated that these individuals had previously participated in PA either in their former high and/or secondary school physical education classes or in their leisure time. However, no matter how their previous experience was, the interviewees were sharing a common need for participating in regular PA. This common need was reflected in their current expectations from the intervention.

Expectations of regular PA participation from the intervention. Most of the interviewees explained that the reason for participating in this intervention was to join in PA on a regular basis. For example, Fatma commented, "*I wanted to take part in this intervention because I am in need of regular PA participation.*" Similarly, Oya gave an example; "*when I'm explaining what we are doing [in intervention] to my friends, I would definitely tell them we are doing regular PA...*" Oya also continued "*...involvement in this intervention is a good reason to participate in regular PA.*" Two interviewees had complaints about having no time for regular exercising. Yahya stated, "*I wanted to take part in this intervention because I was*

thinking of exercising but I could not find proper time [to do it]," and Cemal noted "*I don't have enough time to go to exercise, and it [the intervention] was the chance for me to exercise.*"

Accordingly, their most important experience in the intervention was participating regularly in PA and practicing different physical activities and games. For example, Sinem commented, "*With the help of this intervention, I found the [physical] activity that I could do well because I tried different [kinds of] physical activities.*" Likewise, Fatma stated, "*we don't always do fitness [using the weight and aerobic fitness equipment], we also participate in different kinds of games.*" The following statement from Banu explained how the participants got enjoyment while joining different physical activities and games:

> *Well, you are going to play volleyball. Play badminton, which is really nice. You are provided with a pedometer and you learn how to use it. Also, you play the other racquet games. Then ... play rugby, which you really love, and try to find the rugby team to be involved in it. Overall, the games that you are going to learn are really nice.*

Theme 2: The Need for Knowledge

In addition to the desire for regular PA, the other experiences in the intervention were grouped into another theme regarding the need for information about PA and how to exercise properly. Most of the interviewees initially mentioned about their need for health-related physical fitness information. For example, Ahmet commented, "*since I'm doing this [participating in PA] and will do this [participating in PA] afterwards, I said to myself, I need to learn more about the basic information.*" The other interviewees also described what they learned about PA during the intervention period. Fuat gave an example by stating: "*I learned how to design an exercise program for myself ... For example, there are different goals for health-related physical fitness, like muscle strengthening, losing weight, or*

increasing flexibility … I learned different exercises for those different goals." Sinem further explained:

> *Okay, we all do this [exercising] but we also learn what kinds of exercises benefit [what kinds of health-related physical fitness]. For example, for muscle strengthening exercises, we worked with fitness equipment, and then we practiced in different exercises. During this [intervention], we learned what those exercises are related to, and also that if we work with different intensities, what would get results. We either learn or practice how to exercise.*

Another experience of the interviewees was that they stated that they learned how to exercise properly during the intervention period. As explained previously, the participants were given a chance to participate in different physical activities and games. For example, Utku questioned to himself, "*Okay, I want to exercise, but how?*" The other interviewees also had similar statements of having information about how to exercise properly. For example, Gonca said, "*I described better what to do [in exercising]. This is not only for now; it will help me in the future.*" Oya commented, "*Indeed, I've made so many mistakes … with this intervention, I learned what and how much do I have to do [for exercise]*."

Some of the interviewees described how this information increases their self-awareness. Cemal commented, "*I was expecting information about exercising, and it happened so…*" Then he continued to state, "*I became more self-aware. For example, … [learning] what to do in stretching. It encouraged me more toward exercising.*" Likewise, Yahya commented, "*… I learned what and how to do it [exercising] … I also realized that I was thinking of myself as being healthy, but I was not.*" Melek gave a summary about how the information about PA increased her self-awareness:

> *I realized that I have some missing information, especially for terms. For example, I've already known the names of muscles, but I did not know the names of bones … Similarly, I also did not know which exercises benefit losing weight, or which exercises benefit muscle strengthening. I realized*

that I have missing information about these kinds of knowledge … Then I repeat my own previous knowledge, and become a more cautious reader about the journals. Thus, I'm thinking that [this intervention] increased my self-awareness.

Theme 3: Learning Climate

The third theme that emerged from systematic analysis of interviews was the description of learning climate of the intervention. Although the interviewees had different perspectives about the learning climate of the intervention, most of them experienced it as an enjoyable time that increased their motivation due to peer and instructor support. For example, Banu explained how peer and instructor support existed in the intervention:

… lucky me, peers in this setting were very friendly. For example, while we were playing volleyball, one of my friends, who was a professional volleyball player showed me how to play it … With regard to the instructor, he gave us feedback very often, which was very good.

Almost all of the interviewees shared the experiences of having an enjoyable time during the intervention period. Some commented that learning different games and participating in different physical activities were the most enjoyable part of this intervention. Other interviewees stated that participating in team games was the most enjoyable. During the last six weeks of the intervention period, they practiced new games on the Monday sessions. When asked the most enjoyable part of the intervention, Utku exclaimed, "*absolutely Mondays! … on Monday sessions, for six weeks, we learn new games and play them, that was the most enjoyable part.*" Moreover, he continued to say, "*… honestly, sharing an experience altogether is enjoyable.*" Sinem summarized this; "*Because we were all trying to do this [a new game] I was having so much fun.*"

Some of the interviewees also stated that they were experiencing increased motivation. For example, Fatma commented, "*I feel much better now than in my*

other irregular life. When I exercise regularly, my motivation is increasing, which is very good for me." Similarly, during our interview, Murat stated that before participating in this intervention, his friends gave him an external pressure to exercise; however, after taking this intervention, he stated, "*... [now] I began to force my friends to exercise.*" He also continued:

> *... even if nobody comes with me [for exercise] I'd rather go to a gym and jogging ... Previously, if I was by myself, I never went for exercise or did nothing. But now, although I don't like to exercise alone, I'll do it by myself.*

Theme 4: Becoming Autonomous toward PA Participation

The last and perhaps the most important experiences in the intervention was the interviewees' explanation about becoming autonomous toward PA participation. Most indicated that at the end of intervention, they were planning to integrate PA behavior into their life. For example, Yahya stated, "*I realized that PA should be integrated into my life; not only now, it should be a lifetime habit ... and this intervention is related with it [integration of PA into life]*." However, Oya hesitantly stated, "*PA should be (long pause) one of the parts of my life. I really want to do that, but you know, I'll try my best.*"

Other interviewees also mentioned about using the knowledge in different contexts in their daily life routine and also sharing with significant others. Fatma commented on sharing the knowledge with her mother:

> *My mother has suffering from high cholesterol and high blood pressure. And I'm telling her, for example, what to do and how much to do in a week. I tell her, 'mom, let's find a swimming pool for you [to swim], and you should go there once a week; then, you should also walk for at least 3 days in a week. If you cannot walk…' she sometimes has knee problems 'we should ask for a doctor to help your knee problem' ... These kinds of information [that I had] would be very helpful for us.*

Likewise, Murat gave an example from his own experience of using the knowledge in an exercise setting:

> *I was going to exercise with fitness equipment, but each time I was exhausted. For example, I went there once every ten days, I practiced so hard that I could not do anything for the following 3 days … Then I learned that rather than getting so exhausted while exercising, I should exercise more often with less intensity. Now, I'm using this information while I'm exercising with fitness equipment.*

The following excerpts summarized the experience of using the knowledge for regulating the daily life routine. Gonca commented on how the knowledge made her feel better, "*I'm using this information, … I mean, start to use [it] with the help of this intervention because I feel better and healthier. I feel more restful. At least I try my best.*" Likewise, Banu described how to use this knowledge in daily life, "*[I'm using this information] in my real life. For example, I should eat something before exercising, in my daily life, I should do aerobic exercises. Walk for at least 30 minutes for healthier life.*"

4.3. Summary of Results

This chapter explained both the quantitative results and qualitative findings related to the main research questions of the study. Five research questions for quantitative data and one research question for qualitative data were examined.

According to the quantitative data analyses, TCM-based intervention had statistically significant effects on perceived autonomy support from instructor and from peers as well. It was also found that the intervention significantly affected the participants' more intrinsic autonomous motivation (i.e., identification and intrinsic motivation) in physical education and LTPA setting. After being involved in TCM-based intervention, the participants showed an increase in their intention, attitudes, and perceived behavioral control over PA participation. The results also indicated that TCM-based intervention had statistically significant effects on basic

psychological need satisfaction (i.e., autonomy, competence, and relatedness) in exercise setting. As expected, after being involved in the TCM-based intervention the participants showed an increase in PA levels and a change in stages of PA. These results indicated that TCM-based intervention had influenced those involved in intervention with regard to their self-determination toward PA participation.

As the qualitative findings pointed out, the participants who were involved in TCM-based intervention addressed their needs for regular PA participation and for information about what and how to do exercise. As they stated, the need for regular PA participation and knowing what and how to do it were related with their initial expectations from the intervention. In addition, they stated that their expectations were met during the intervention period. With regard to other themes, the interviewees referred to the intervention's flexible and enjoyable learning climate, and mentioned about how they became more autonomous toward PA participation. As a result, the general themes were interrelated with each other in that as long as they practiced different physical activities, learned more about what and how to do during exercising, and experienced flexible and enjoyable setting in intervention, they became more autonomous toward PA participation.

In combining the interviewees' experiences in the intervention with the quantitative surveys about the components of intervention, it could be concluded that the qualitative findings were confirming the quantitative results. The surveys indicated that TCM-based intervention was effective in increasing perceived autonomy support and autonomous motivation. The interviewees' experience pointed out that peer and instructor support in the intervention setting increased their motivation. The quantitative results also showed that the participants' basic psychological need satisfaction (i.e., autonomy, competence, and relatedness) was increased as a result of the intervention. This result was reflected in Gonca's statement about how she was planning to participate in regular PA because she'd now be feeling more competent toward PA participation.

CHAPTER V

DISCUSSION

The purpose of this study was to examine the effectiveness of Trans-Contextual Model based intervention on developing LTPA behaviors of university students. In order to achieve this goal, paired samples *t*-tests, repeated measures ANOVA, mixed design MANOVAs, chi-square analyses for quantitative data analyses and systematic qualitative analyses were conducted for qualitative data analyses. In this chapter, the current results are discussed for each research question.

Research Question 1: Is there an effect of trans-contextual model (TCM) based intervention on university students' perceived autonomy support?

This research question was examined by determining the participants' perceptions of autonomy support. As suggested earlier, the individuals referred the perceived autonomy support from different sources in exercise context, such as physical educators (Hagger et al., 2003), parents (Hagger et al., 2007), peers/classmates/friends (Hagger et al., 2009), coaches (Amorose & Anderson-Butcher, 2007; Gillet et al., 2010), and exercise instructors (Moustaka et al., 2012). In the present study, perceived autonomy support both from instructor and peers were used to evaluate the participants' perceived autonomy support in exercise setting. Results indicated an increase in the participants' perceptions of autonomy support both from instructor and from peers after being exposed to TCM-based intervention. This result indicated that autonomy supportive intervention was effective in developing higher perceived autonomy support among university students. This finding was consistent with correlational and experimental studies in the literature.

The correlational studies argued that the positive effect of perceived autonomy support from instructor was associated with higher self-determined motivations (Edmunds et al., 2006; Puente & Anshel, 2010) and more autonomous regulations (Lim & Wang, 2009) for PA engagement. Moreover, perceived autonomy support from instructor was positively related with PA intentions via favorable attitudes (Chatzisarantis et al., 2007; Shen, 2010). Results in the present study indicated a significant increase for perceived autonomy support from peers after being exposed to TCM-based intervention. However, although perceived autonomy support from different sources was empirically shown existent in exercise setting (Hagger et al., 2007), there were inconsistent results for the perceived autonomy support from parents and peers. For example, when examining perceived autonomy support in term of different sources across different cultures, Hagger et al. (2009) found stronger relationship for perceived autonomy support from teacher, but weak and inconsistent effect of perceived autonomy support from peers and parents on leisure-time autonomous motivation.

The experimental studies also have supported the present finding in that an intervention design based on autonomy supportiveness was effective for elementary and secondary school students' perceived autonomy support from their physical education teacher. Cheon et al. (2012) designed an experimental study to evaluate the effectiveness of an autonomy support intervention program for physical education teacher training and to document its effectiveness on physical education students' motivation and course experience. The authors indicated that autonomy supportive intervention for teacher resulted in more engagement of autonomy supportive behavior and more perceived autonomy support in the physical education class setting (Cheon et al., 2012).

Wallhead et al. (2010) extended this positive result into the effectiveness of autonomy supportive intervention on students' LTPA engagement. More specifically, they examined the effect of autonomy supportive context on students' voluntary PA participation in recess time. In their study, autonomy supportive context was provided through strategies including "student time spent talking, time

allowing them to work on their own way, offering encouragements, and being responsive to questions." The overall results of this study indicated autonomy supportive context increased perceived autonomy support from teacher but not from classmates (Wallhead et al., 2010).

In another experimental study, Moustaka et al. (2012) examined the effects of autonomy supportive intervention on middle-aged women's exercise behaviors. The women exercisers were allocated to autonomy supportive instructing style, i.e., the intervention group and the lack of autonomy supportive instructing style, i.e., the control group. The results indicated that when compared with the control group participants, the intervention group reported an increase in perceived autonomy support from their instructor.

Both the correlational and experimental studies indicated the importance of perceived autonomy support both from physical education teachers and peers. Overall the current results indicated the effectiveness of autonomy supportive intervention on perceived autonomy support from instructor and peers amongst young adults. These results were in line with the previous studies. This study also extended the literature in that among these young adults, the significance of perceived autonomy support from peers was effective in forming PA behavior.

Research Question 2: Is there an effect of trans-contextual model (TCM) based intervention on university students' autonomous motivation?

According to trans-contextual model, an individual's autonomous motivation occur in two separate but related contexts, like in physical education setting and in leisure-time setting (Cox et al., 2008; Ntoumanis, 2001). It was the critical premise that it was expected to be a transfer of autonomous motivation in physical education setting into a real life experience as reflected in LTPA engagement. In order to examine the university students' autonomous motivation, autonomous motivation in two separate settings, forming two sub-questions, were tested. The first sub-question was related with examining the effect of intervention on university students'

autonomous motivation in physical education setting. The second one was related with examining the effect of intervention on university students' autonomous motivation in LTPA setting.

The results for the first sub-question indicated a significant increase in more autonomous forms of motivation (i.e., intrinsic motivation and identification) in physical education setting. However, the less autonomous forms of motivation (i.e., introjection and external motivation) were found insignificant. This indicated the effectiveness of TCM-based intervention on increasing autonomous forms of motivation in physical education setting. This result was supported by previous studies (Mandigo et al., 2008; Wallhead et al., 2010).

The correlational studies showed a positive relationship between intrinsic types of motivation and future PA engagement. In a correlational study, Chatzisarantis, Hagger, Biddle, and Karageorghis (2002) examined how young pupils' perceived locus of causality, which is a measure of autonomous motivation in physical education setting, influences LTPA participation in terms of their cognitive processes. Their results showed an indirect relationship between perceived locus of causality and PA participation via attitudes, perceived behavioral control and intention. This result demonstrated that positive attitudes and higher perceptions of behavioral control resulted in higher motives in physical education to be translated into LTPA. Another important result was that although external form of motivation in physical education setting (i.e., external and introjected regulation) was found to be negatively associated with attitudes, the intrinsic motivation reduced this negative effect on attitudes. This result demonstrated that young pupils were more likely to engage in PA and have positive attitudes when their perceived locus of causality (i.e., autonomous motivation) was intrinsically motivated rather than extrinsically motivated. In another study by Lim and Wang (2009), intrinsic motivation was positively predicted future intentions to be physically active outside of school as long as their physical education teachers provided perceived autonomy support in their physical education classes. Taylor et al. (2010) demonstrated that of the motivational regulations, intrinsic motivation was the most consistent predictor of the students'

effort in physical education class, their future exercise intentions, and LTPA engagement, as well.

The experimental studies also confirmed the effect of autonomy supportiveness on motivation in physical education setting. For example, an autonomy supportive intervention resulted in a significant increase in students' autonomous motives in physical education classes, which would in turn affect autonomous motivation in LTPA participation (Wallhead et al., 2010). In a mixed method study by Mandigo et al. (2008), the authors examined the effect of autonomy supportive game lessons for elementary school students. The authors evaluated the students' motivational experiences via questionnaires and their written comments. When the result from questionnaires combined with the written comments for the autonomy supportive game lessons, the majority of participants indicated positive experiences of high levels of intrinsic motivation (such as fun, enjoyment, optimal challenge, autonomy support, and perceived competence).

It is worth mentioning about the effect of TCM-based intervention on external motivation. In the present study, although the external motivation in physical education setting was not found significant, a slight decrease in external motivation was found. This result implied that after being exposed to TCM-based intervention, the participants did not base their motivation on external forces. This result was supported by Tessier et al.'s study (2010). The authors showed that high school students reported less externally motivated toward physical education class after their teachers' autonomy supportive training. This would indicate that as long as physical education teacher engage in more autonomy supportive behaviors in their classes, their students were less likely to be externally motivated toward physical education classes. This notion supported the result of a decrease in external motivation amongst the university students.

Overall, these results indicated that autonomy supportive climate in physical education classes would be influential to improve the individuals' autonomous forms of motivation in physical education setting and would in turn be effective in developing PA participation in leisure time setting. It could be argued that the

present result demonstrated a significant effect of TCM-based intervention on autonomous forms of motivation in physical education setting among university students. This study extended the literature in that TCM-based intervention was effective in establishing more autonomous forms of motivation in physical education setting even for university students. This result pointed out the inclusion of more autonomous forms of motivation in physical education setting in order to develop LTPA participation for university students, as well.

The second sub-question for autonomous motivation was related with the effect of TCM-based intervention on university students' autonomous motivation in leisure-time setting. Both the experimental and control group were evaluated in terms of this sub-question. Results demonstrated that the experimental group was significantly higher than the control group in terms of more autonomous forms motivation (i.e., intrinsic motivation and identified regulation) and one of a less autonomous form of motivation (i.e., introjected regulation). However, group differences in terms of extrinsic regulation and amotivation did not reach significance level, indicating no significant effect of TCM-based intervention on least autonomous motivation in leisure time setting. These results demonstrated that the TCM-based intervention was effective in forming autonomous forms of motivation in LTPA setting. These results were consistent with the correlational and experimental studies. For example, the correlational studies demonstrated a significant and positive relationship of exercise behavior and intention with identified and introjected behavioral regulations among university students (Edmunds et al., 2006; Wilson et al., 2004).

A cross-sectional study by Brunet and Sabiston (2011) examined the motivational regulations for PA participation across three adult periods (such as; young adults between 18-24 years old, adults between 25-44 years old, and middle-age adults between 45-64 years old). Their results indicated that motivational regulations for PA participation differed across age group. Specifically, autonomous forms of motivation (i.e., intrinsic motivation and identified regulation) were found to be positive correlates of PA participation amongst all age groups. In addition, the

young age group showed a positive correlation of introjected regulation and a negative correlation of external motivation (Brunet & Sabiston, 2011). These results in favor of positive correlate of introjected regulation supported the present result. It demonstrated that even less autonomous form of motivation (like introjected regulation) was shown to be significant predictor of exercise behavior for young adults. Research has supported that younger adults are more likely to concern their physical appearance, body image, and weight management, which require more external motivation in nature (Ingledew & Markland, 2008; Ingledew & Sullivan, 2002). Thus it could be argued that, except for the intrinsic reasons, the individuals were more likely to participate in LTPA for external reasons at this young adulthood period.

Experimental studies also supported the findings of this study. For example, Edmunds et al. (2008) investigated the effect of autonomy supportive teaching style on female exercise class participants' psychological need satisfaction, motivational regulations, exercise behavior, and behavioral intention and affect. Female exercisers were randomly allocated to autonomy supportive teaching style condition and typical teaching style condition and were participated in their exercise classes for 10-week period. Results indicated although the significant differences in behavioral regulations were not caused by the group differences, it was found that the intervention group participants significantly increased their autonomous regulations (i.e., intrinsic motivation and identified regulation) from the baseline measurement.

Similarly, Moustaka et al. (2012) indicated significant group differences in amotivation, external regulation, introjected regulation, identified regulation, and intrinsic motivation amongst the female exercisers. When compared to control group, the experimental group participants showed greater increase in identified regulation, intrinsic motivation as well as in introjected regulation. These results implied that female exercisers who were exposed to autonomy supportive fitness classes were more self-determined toward exercise behavior. Even a less self-determined motivation (like introjected regulation) found to be affected by the autonomy supportive instructing style. As discussed in the correlational studies, a significant

increase in introjected regulation might be caused by the female exercisers' focus on physical appearance and body image (Ingledew & Markland, 2008; Ingledew & Sullivan, 2002).

The results from earlier studies supported the present findings in terms of significant effect of intervention on increasing intrinsic, identified, and introjected regulations but not for extrinsic regulation and amotivation. This indicated that for especially the university students, introjected regulation, a form of extrinsic type of motivation (e.g., body image, physical appearance etc.), was also effective in developing motivation toward LTPA participation. Moreover, compared to the earlier researches (Ingledew & Markland, 2008; Moustaka et al., 2012) studying with only female gender, the current study found the positive effect of intervention on introjected regulation for female and male participants. Thus this study extended the previous studies in showing the effect for both gender.

Research Question 3: Is there an effect of trans-contextual model (TCM) based intervention on university students' situational determinants of LTPA behavior?

Earlier studies pointed out the actual behavior engagement was directly predicted by intention and perceived behavioral control and intention was predicted by attitudes, subjective norms, and perceived behavioral control as well (Ajzen, 1991). In PA domain, it was well documented that intention emerged as the strongest predictive construct of PA engagement (Downs et al., 2006; Hamilton & White, 2008; Plotnikoff et al., 2013). The current study examined the effect of TCM-based intervention on university students' intentions, attitudes, subjective norms, and perceived behavioral control for LTPA participation. Multivariate results showed significant group differences in posttest in terms of intention and PBC, favoring experimental group. This indicated that after being exposed to TCM-based intervention, the experimental group showed more intention to and more perceived behavioral control over engaging in LTPA than the control group.

The correlational studies showed a significant relationship of intention for PA engagement with self-determined behavioral regulation (Brickell & Chatzisarantis, 2007; Standage et al., 2003) and with perceived autonomy support (Chatzisarantis et al., 2007; Shen, 2010). These results were reflected for university students, as well (Wilson et al., 2004). The correlational studies supported the notion that the more perceived autonomy support and the more autonomous motivation toward PA engagement the more likely intention for PA engagement, which was predicted via attitudes, perceived behavioral control, and subjective norms.

The experimental studies also supported this notion in that as the individuals were exposed in an autonomy supportive intervention, their intention to PA engagement was significantly increased (Edmunds et al., 2008). Wallhead et al. (2010) demonstrated a direct significant relationship of intention and perceived behavioral control with LTPA participation amongst the high school students after being exposed to an autonomy supportive intervention.

Together with the correlational and experimental studies, previous results partially supported the present findings in terms of intention, attitudes and perceived behavioral control, except for the subjective norms. The result for an insignificant effect of TCM-based intervention on subjective norms was explained in a correlational study. Chatzisarantis et al. (2008) examined the role of perceived autonomy support within the theory of planned behavior. In order to achieve this aim, the authors formed different models for examining the relationship between perceived autonomy support and theory of planned behavior constructs. The results demonstrated discriminant validity between perceived autonomy support and subjective norms, suggesting that either constructs measured different forms of social influence. Specifically, subjective norms reflect social pressure in which a person perceives to behavioral engagement, on the other hand, perceived autonomy support refers to the influence of significant others that a person has. This indicated that either constructs measured different domains of social encouragement. However, as in another meta-analytic study, Hagger, Chatzisarantis, and Biddle (2002) supported the results indicating that there was a smaller effect of subjective norms on intention

than that of attitudes and perceived behavioral control. Therefore, it was rationale to expect not to have a significant effect of subjective norms on PA intention. Although the relationship between behavioral determinants and PA engagement was not examined in the present study, it could be argued that the effect of an autonomy supportive context on subjective norms would be small or insignificant. The insignificant effect of intervention on subjective norms indicated that although autonomy support from peers were found important for developing LTPA behavior, the social pressure from peers and/or significant others might not be important for this age group. Further research examining the mediating role of perceived autonomy support and subjective norms for LTPA behavior at university students would be required.

Another significant finding for the effect of TCM-based intervention on the constructs of Theory of Planned Behavior was that the control group showed significant decreases in intention, PBC, and subjective norms from pretest to posttest. This result revealed that participants in the control group showed less positive intention, less control over LTPA engagement and more perceived social pressure for engaging in LTPA. One of the reasons for this decline could be due to the seasonal variation in which an expected behavior was planned. In this study the data were collected during the winter season so it could be argued that the prevalence of and intention to LTPA engagement was decreased. The literature has supported this notion. For example in a systematic review by Tucker and Gilliland (2007), the authors pointed out that PA participation was varied based on the seasonal variation. The general results from the reviewed studies indicated that the prevalence of PA was lower during the winter season because of the cold weather. In another study by Hall, Zehr, Ng, and Zanna (2012), the implementation intention to PA engagement (i.e., plans specifying when and where to execute a behavior) was found to be lower during the winter season. Overall, as PA participation intention was expected to be lower during the winter season due to bad weather condition, it was suggested to provide more autonomy supportive context for PA engagement during winter season because the individuals with more perceived autonomy support and more

autonomous motivation would have higher intention to PA engagement (Brickell & Chatzisarantis, 2007; Wallhead et al., 2010; Wilson et al., 2004).

Research Question 4: Is there an effect of trans-contextual model (TCM) based intervention on university students' basic psychological need satisfaction in exercise setting?

As Hagger and his colleagues suggested (Hagger et al., 2003; 2005; Hagger & Chatzisarantis, 2007), one of the basic premises of trans-contextual model was the perceived autonomy support from significant other(s), which would be influential in education setting and in turn be transferred into another setting. Research demonstrated that the fulfillment of basic psychological needs (i.e., autonomy need, competence need, and relatedness need) would mediate this relationship for PA engagement (Barkoukis et al., 2010). Thus, the fourth research question was formed to examine whether TCM-based intervention would be effective on the fulfillment of basic psychological needs in exercise setting. Multivariate results showed significant group differences in posttest in terms of autonomy, competence, and relatedness, favoring experimental group. This indicated that after being exposed to TCM-based intervention, the experimental group showed more satisfaction of psychological needs in exercise setting than the control group. Moreover, experimental group showed significant increases in autonomy and relatedness from pretest to posttest. This result revealed that after being exposed to TCM-based intervention, the participants showed more satisfaction of autonomy need and relatedness need for engaging in LTPA.

Earlier studies indicated the importance of basic psychological need satisfaction in forming self-determined behavior toward exercise behavior. For example, Standage et al. (2003) demonstrated that the secondary school students felt more autonomous, competent, and related when perceiving an autonomy supportive climate in their physical education classes. Likewise Edmunds et al. (2006) pointed out that psychological need satisfaction was positively correlated with more

autonomous behavioral regulations in exercise setting, indicating that the fulfillment of these needs resulted in more exercise participation. More specifically, competence need satisfaction positively predicted exercise behavior, suggesting for PA promotion intervention to focus on increasing the fulfillments of psychological needs (Edmunds et al., 2006).

Recent studies investigated the mediating role of psychological need satisfaction on the relationship between behavioral regulation and exercise behavior. For example, Taylor et al. (2010) investigated the relationship between motivational predictors (such as psychological need satisfaction and behavioral regulations) and students' PA outcomes (i.e., effort in physical education, future exercise intention and LTPA participation). In terms of the psychological need satisfaction as predictors of exercise outcomes, the results demonstrated that competence need satisfaction was found to be the strongest predictor of the three PA outcomes; on the other hand, autonomy and relatedness satisfaction did not predict any of these outcomes. These results pointed out that the greater importance of competence satisfaction in physical education setting. However, while examining the function of perceived competence and autonomy in terms of university students' behavioral regulations in exercise context, Puente and Anshel (2010) found the combination of perceived competence and autonomy in understanding the university students' behavioral regulation to exercise. It could be argued that the combination of competence and autonomy need satisfaction would be more influential in exercise setting. Therefore, it was suggested to consider the effect of need satisfaction in designing behavioral and health promotion intervention.

The experimental studies were also in line with the correlational studies. For example, Chatzisarantis, Hagger, Kamarova, and Kawabata (2012) investigated influence of autonomy support on engaging in and completing PA intervention among the university students. The university students were randomly allocated to an intervention that supported the psychological need for autonomy and two control conditions (one was providing rationale-only, the other one was the forced-choice condition). The overall result demonstrated that the young adults were more likely to

engage in and complete PA intervention program when the program fulfill their psychological need for autonomy than the program which did not support the psychology need for autonomy. Another study with only the female exercisers indicated that the experimental group exercisers, who were exposed to autonomy supportive instructing style fitness class, demonstrated higher competence and autonomy compared with the control group (Moustaka et al., 2012).

Along with the previous studies, the present results were partially supported, except for the significant difference between the groups in relatedness satisfaction. Tessier et al. (2010) examined the effects of teacher training program on teachers' instructional styles, students' motivation and psychological need satisfaction on high school sport-based physical education classes. In terms of students' psychological need satisfaction, results showed a greater gain only in relatedness satisfaction. This result indicated that for this group of students, the teacher-training program was only affective in increasing students' relatedness need in physical education setting.

Overall, the previous studies and the findings of this study pointed out the importance of the fulfillment of psychological needs for health promotion interventions. It was also suggested the combination of competence and autonomy need satisfaction for exercise setting (Moustaka et al., 2012; Puente & Anshel, 2010) and the feeling of relatedness into exercise setting (Tessier et al., 2010).

Research Question 5: Is there an effect of trans-contextual model (TCM) based intervention on university students' PA behavior?

In this study, the participants' PA behavior was based on their self-reports of PA levels and stages of change. According to their self-reports, the TCM-based intervention was found to be significantly effective on PA level and stages of change. Specifically, the experimental group participants were significantly increased PA levels and stages of change at the end of intervention. However, the control group participants did not significantly differed on PA levels although significantly differed in PA stages of change. These findings indicated that experimental group participants

resulted in more PA engagement than control group participants. On the other hand, in terms of future PA intention as reflected in PA stages of change, although control group participants showed significant changes in PA stages, experimental group participants demonstrated significantly higher intention to PA, as reflected in more behavioral changes into action and/or maintenance stages.

Extensive literature examined either the relationship or the effect of motivational factors on PA engagement. Although PA engagement was reflected in different types of measurements (e.g., subjective measures like accelerometer and pedometer; self-reports for both PA levels and frequency; and attendance rates into a class or gym), research indicated a significant effect and positive relationship of motivational outcomes for higher PA engagement. The correlational studies demonstrated positive correlates of more PA engagement with perceived autonomy support (Chatzisarantis et al., 2008; Shen, 2010) with autonomous forms of behavioral regulation – i.e., intrinsic motivation and identified regulation (Brunet & Sabiston, 2011; Taylor et al., 2010; Puente & Anshel, 2010) and introjected regulation (Brunet & Sabiston, 2011), with fulfillment of basic needs (Taylor et al., 2010), and with intention and perceived behavioral control (Chatzisarantis et al., 2008; Shen, 2010). These positive correlations implied that as individuals perceived autonomy support from significant others and engaged in fulfillment of need satisfaction and more autonomous behavioral regulations for exercise behavior, they were more likely to have future intentions and behavioral control over PA behavior, which would in turn result in more actual LTPA engagement.

These positive results were also supported in field-based experimental studies. Autonomy supportive contexts supported more PA engagement either in physical education classes (Pearlman, 2013) or in leisure-time context (Chatzisarantis & Hagger, 2009; Wallhead et al., 2010) and higher rates of attendance to gym or fitness classes (Chatzisarantis et al., 2012; Edmunds et al., 2008; Moustaka et al., 2012). As activity choice was one of the autonomy supportiveness strategies; How, Whipp, Dimmock, and Jackson (2013) examined whether the provision of activity choice in physical education enhanced high school

students' in-class PA engagement. Erwin, Stellino, Beets, Beighle, and Johnson (2013) investigated the effect of lesson types on elementary school students' in-class PA engagement. These recent studies demonstrated students who were involved in activity choice physical education classes reported higher PA levels (How et al., 2013) and more in-class MVPA engagement and steps counted (Erwin et al., 2013).

Wallhead et al. (2010) examined the effectiveness autonomy supportive intervention on PA participation in leisure-time setting (like recess time). The authors indicated that after being exposed to autonomy supportive intervention, elementary school students significantly increased their LTPA participation from the base-line measurement to the end-of-semester measurement. These results pointed out that provision of autonomy support and activity choice context in physical education classes resulted in higher PA engagement.

Rather than showing the effectiveness of autonomy supportiveness on in-class PA engagement, it was also well documented that autonomy supportive intervention was effective for increasing LTPA engagement. For example, female exercisers who were involved in autonomy supportive exercise class reported higher attendance rates of exercise classes than those who participated in lower autonomy supportive classes (Edmunds et al., 2008; Moustaka et al., 2012). Other studies indicated that students who were taught by more autonomy supportive interpersonal style teacher reported higher LTPA participation than those who were taught by less autonomy supportive teachers (Chatzisarantis & Hagger, 2009).

Chatzisarantis et al. (2012) examined the effect of intervention type on physically inactive university students. The students were randomly allocated to one of the three groups: autonomy support group, rationale only group, and forced choice group. Their results indicated that amongst these physically inactive young adults, those who were involved in autonomy support group were more likely to attend to the gym than did those who were involved in rationale only group and forced choice group.

Along with the previous results, the present findings indicated the significant effect of TCM-based intervention on university students' self-reported PA behaviors.

This study extended the literature in that with the help of TCM-based intervention, the university students were getting more regularly active in leisure time and more ready for future PA intention.

Research Question 6: How do university students describe their experiences in trans-contextual model (TCM) based intervention?

In order to have an answer for this research question, the participants from experimental group were asked to describe their experiences toward the intervention setting. Four common themes emerged from their voices: regular PA participation, need for knowledge, learning climate, and becoming autonomous toward PA. These themes were also supported for female population in a study by O'Dougherty, Kurzer, & Schmitz (2010). The authors examined motivations expressed by healthy but sedentary female participants after an intervention. Of their motivations, female participants mostly expressed exercise motivation beyond oneself, exercise motivation for oneself, and exercising as a means to an end. Amongst the theme of exercising for oneself, wanting to exercise and wanting to become motivated to exercise was reflected in the present finding of wanting to do regular PA participation. Another relevant finding was that being physically active for fun could be reflected in perceiving the learning climate as having enjoyable time.

Clark and Anderson (2011) discussed about university students' development in terms of the role of leisure education classes. Two major themes emerged from focus group interviews: motivation/benefits of leisure skill class enrollment and contributions to student development. The university students who were interviewed stated that getting socialized was one of the mostly stated motivations for enrolling leisure skill classes. This theme was reflected in more interaction with new friends compared with standard classes. In the current study, the university students stated about the learning climate as peer and instructor supportive. It can be concluded that the more interaction with friends might be reflected in peer supportive climate in the present study. Another important theme emerged in Clark and Anderson's (2011)

study was the university students' statement of the benefits of leisure class enrollment for their future career. This finding was reflected in the present study as in the theme of becoming autonomous. One of the common statements was the use of knowledge in daily life, which resulted in future benefits for young adults (Clark & Anderson, 2011).

In another study by McBride and Xiang (2013), the authors investigated the university students' reasons for enrolling, participation, and goals in PA classes. Social contacts, enjoyment, and identification were the most common statements for enrolling PA classes. These statements were similar to what was described for TCM-based intervention. For example, having enjoyable time in the intervention setting was the most common statement for the present study participants and it was reflected in describing the learning climate of the intervention. As McBride and Xiang (2013) discussed, identification was another important factor of self-regulated learning. Because identification is an internalization process of a specific behavior (Deci & Ryan, 2000), university students were getting more autonomous when they knowingly appreciate and accept a learning outcome. In the present study, this theme was reflected in the use of knowledge and integrating PA into daily life.

Jenkins and Alderman (2011) formed a mixed method study to describe the students' perceptions of university physical education (named as Basic Instruction Program – BIP). The authors grouped the students' positive and negative perceptions into the curriculum, teacher, and social environment. Amongst the students' positive perceptions, the most frequently stated ones were that the curriculum of this program included variety of activities providing more exercise opportunities and those opportunities were viewed as fun and/or enjoyable. The students perceived their teachers used the motivational strategies and effective instructions. Students also most frequently stated the social environment as being in a team/group member and opportunities to meet new friends. These themes found in Jenkins and Alderman's (2011) study were in line of the current findings such as the themes of PA participation and learning climate.

Along with the previous findings, the present study was supported in theme of the need for PA participation (O'Dougherty et al., 2010), theme of perceiving the learning climate as having enjoyable time (Jenkins & Alderman, 2011) as well as peer and instructor supportive (Clark & Anderson, 2011), and theme of becoming autonomous toward PA (McBride & Xiang, 2013). However, in this current study one important finding emerged from the interviews was that the participants stated to be in need of knowledge and this need was said to be satisfied. One interviewee commented, "*I was expecting information about exercising, and it happened so*", then continued, "*I became more self-aware…*" It was suggested that knowing the relevant information for a specific behavior was one of the important strategy for becoming more autonomous toward that behavior.

When combining the quantitative results from questionnaires and qualitative findings emerged from interviews, it could be argued that the constructs of TCM were reflected in the participants' voices. For example, the results for perceived autonomy support showed that after being exposed to TCM-based intervention, the participants' perceived autonomy support from instructor and peers increased. This result was also reflected in their description of learning climate as being instructor and peer supportive.

The results for autonomous motivation demonstrated to an increase in more autonomous forms of motivation either in physical education or in LTPA setting. This result was interpreted as more internalized state of participating in PA. As the participants stated to have enjoyable time and increased motivation in the intervention setting, it was reflected in more autonomous forms of motivation (i.e.; intrinsic, and identified motivation).

Results for the determinants of LTPA behavior indicated an increase in the intention toward PA participation. It was reflected in the theme of regular PA participation. Another reflection of this result was that they commonly stated to adopt PA into their daily life while becoming autonomous toward PA.

Overall these findings indicated that the TCM-based intervention was well understood by those who took part because their understanding of intervention setting was reflected the notion of how to become autonomous in PA domain.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

In this chapter, the conclusions of the present results, implications and further research recommendations based on the present results are provided.

6.1. Conclusions

Overall, the current findings indicated an increase in perceived autonomy support from significant others and increase in more autonomous forms of motivation in physical education setting, significant group differences in autonomous forms of motivation in leisure time setting, in behavioral determinants, fulfillment of psychological need, and finally in PA behavior. These results pointed out that TCM-based intervention was found to be effective in developing LTPA behavior for university students.

A significant increase in perceived autonomy support from instructor and peers indicated that TCM-based intervention was effective for increasing perceptions of autonomy support from different sources. Earlier studies demonstrated a positive association of perceived autonomy support from instructor with more self-determined motivation (Edmunds et al., 2006; Puente & Anshel, 2010) and behavioral regulations (Lim & Wang, 2009) for PA engagement. The empirical results also supported the effect of autonomy supportive intervention on students' perceptions of autonomy support from instructor in physical education setting (Cheon et al., 2012) and the transfer of this positive effect on LTPA setting (Wallhead et al., 2010). Although weak and inconsistent relationship of perceived autonomy support from peers and/or parents was demonstrated for younger age groups (like secondary, elementary, or high school students), a positive effect on

perceived autonomy support from peers was found for older age group (like university students). Further examination for determining which source would be more effective on the perceptions of autonomy support would be suggested.

In terms of autonomous motivation in physical education setting, a significant increase in more autonomous forms of motivation was found in the present study. Previous studies indicated a positive relationship between higher motivation with positive attitudes and perceived behavioral control. This result demonstrated that students were more likely to engage in PA and have positive attitudes when they were intrinsically motivated rather than extrinsically motivated (Chatzisarantis et al., 2002). This positive effect of autonomy supportiveness on motivation in physical education setting was also shown in experimental studies (Mandigo et al., 2008; Wallhead et al., 2010).

It was also expected that autonomous form of motivation in physical education setting might be transferred into motivation in a real-life experience as in LTPA engagement because intrinsic motivation was shown to be the most consistent predictor of future intention for LTPA engagement (Lim & Wang, 2009; Taylor et al., 2010). This hypothesis was also supported in the finding that TCM-based intervention resulted in higher autonomous motivation in LTPA setting for experimental group than that of control group. Another result demonstrated the positive effect of intervention on introjected regulation. It indicated that even a less form of autonomous motivation (like introjected regulation) was also found as an important contributor for predicting exercise behavior amongst younger adults (Brunet & Sabiston, 2011).

Significantly higher intention, relatively positive attitudes and perceived behavioral control toward LTPA engagement in the following 4 weeks indicated that the experimental group participants were more likely to engage in PA in leisure time than the control group participants. Both the correlational and the empirical researches supported the notion that autonomy supportive intervention was effective in increasing the individuals' future intentions, attitudes, and perceived behavioral

control (Edmunds et al., 2008; Wallhead et al., 2010; Wilson et al., 2004), except for the subjective norms (Chatzisarantis et al., 2008).

The current results for fulfillment of basic psychological needs in exercise setting pointed out significant group differences in favoring experimental group participants in terms of autonomy, competence, and relatedness need satisfaction. Studies found the competence need as the strongest predictor for PA engagement amongst the school children (Taylor et al., 2010), but a combination of competence and autonomy need was more influential for university students (Puente & Anshel, 2010). However, Tessier et al. (2010) demonstrated a significant effect of teacher training based on autonomy supportive instructional styles on high school students' relatedness need. Compared to the earlier findings, the present study pointed out the effect of TCM-based intervention on relatedness need for university students.

As expected, those who involved in TCM-based intervention showed more PA engagement than those who did not. The correlational and empirical results pointed out the positive effect of autonomy supportive climate on more in-class PA engagement (Erwin et al., 2013; Pearlman, 2013), higher PA levels (How et al., 2013) and more likelihood of future LTPA intention (Chatzisarantis & Hagger, 2009; Wallhead et al., 2010). In another experimental study, Chatzisarantis et al. (2012) found that the autonomy supportive intervention was more influential on attending the gym for physically inactive university students.

Finally, the qualitative findings indicated that TCM-based intervention was effective in forming autonomous behavior toward PA participation as stated in the participants' perceptions of regular PA engagement, supportive and enjoyable social climate, finding ways to integrate and use of PA into daily life, and the need of knowledge for exercising.

6.2. Implications of the Study

The followings are number of implications of the present study. These were based on the present results.

1. TCM-based intervention was found effective in forming higher perceptions of autonomy support from significant others for university students.
2. TCM-based intervention was influential for establishing more autonomous forms of motivation (i.e., intrinsic types of motivation) either in physical education setting or in leisure time setting for university students.
3. TCM-based intervention had an effect on future PA intention, more positive attitudes toward PA, more perceived behavioral control over PA behavior, and more perceived social pressure from significant others for university students.
4. TCM-based intervention was influential for fulfilling basic psychological needs in exercise setting for university students.
5. TCM-based intervention was found effective in establishing regular LTPA behavior for university students.
6. Along with the university students' experiences in TCM-based intervention, it was found effective in becoming autonomous toward LTPA participation.

6.3. Recommendations

In light of the present results, the following recommendations were introduced for physical education teachers, leisure time exercise instructors, and finally for future studies.

6.3.1. Recommendations for Physical Education Teacher

As a result of the present results, the following recommendations for physical education teachers are listed below.

1. Providing students with autonomy supportive strategies in physical education classes would be highly recommended to make them more self-determined toward PA engagement after class.

2. The perceived autonomy support either from instructor or from peers was significantly affected by TCM-based intervention. This result indicated that increasing the students' perceptions of autonomy support both from instructor and from peers would be recommended in physical education class setting.
3. The use of autonomy supportive strategies was highly recommended to provide more autonomous motivational construct (e.g. intrinsic motivation and identification) in physical education setting.
4. It was recommended providing opportunities for having positive attitudes and more perceived control over PA participation in order to increase more intention to participate in LTPA.
5. It was recommended that fulfillment of basic psychological needs should be expressed, especially the sense of relatedness for young adult population.
6. The physical education teachers were recommended to provide opportunities for transferring motivational constructs in their physical education settings into different but related settings (like providing knowledge about the use of parks and gym, other exercise opportunities in community etc.).

6.3.2. Recommendations for Exercise Instructor

In order to design autonomy supportive exercise context in leisure time, there would appear to be a number of recommendations for exercise instructors. These recommendations were based on the current results.

1. These autonomy supportive instructional strategies were recommended using in designing the social climate in exercise context in order for making exercise participants more autonomous toward PA engagement.
2. For especially the young adult individuals (i.e., the university students), because the introjected behavioral regulation was found affected by TCM-based intervention, it was highly recommended to consider providing some external reasons (e.g., bogy image, physical appearance, body weight management) for motivating toward exercising in leisure time setting.

3. The exercise instructors were recommended to provide opportunities for transferring the motivational constructs in their exercise class settings into different but related settings (like providing knowledge about the use of parks, gym, other opportunities in campus setting etc.).

6.3.3. Recommendations for Future Studies

In light of the results of this study and the contribution of previous studies, there would appear some critical recommendations future studies. They are listed below.

1. As reflected in the positive effect of TCM-based intervention on increasing perceived autonomy support from different sources, it was recommended to examine the effect of intervention on which source would be higher than the other sources.
2. Because this research was designed to study with university students, it was highly recommended to reflect the results for school-age students.
3. Compared to earlier studies, this research found the significant effect of intervention on the fulfillment of relatedness need satisfaction, it was recommended to include relatedness need satisfaction in designing PA promotion intervention for young adult population.
4. In designing TCM-based intervention, it was also recommended to integrate the provision of autonomy supportive strategies with individual's interaction of immediate environment.
5. As TCM-based intervention was found effective both for in-class and for out-of-class PA participation, it was highly recommended to examine the effectiveness after intervention ended.

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APPENDICES

Appendix A: Ethical Committee Permission

1956

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10 Kasım 2011

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

Gönderen : Prof. Dr. Canan Özgen
IAK Başkan Yardımcısı

İlgi : Etik Onayı

" Use of Trans-Contextual Model Based Intervention in Developing Leisure Time Physical Activity Behaviors of University Students " isimli araştırmanız "İnsan Araştırmaları Komitesi" tarafından uygun görülerek gerekli onay verilmiştir.

Bilgilerinize saygılarımla sunarım.

Etik Komite Onayı

Uygundur

10/11/2011

Prof.Dr. Canan ÖZGEN
Uygulamalı Etik Araştırma Merkezi
(UEAM) Başkanı
ODTÜ 06531 ANKARA

Appendix B: Summary of Content for 12-Week Intervention

The content of 12-week intervention

Week	Session	Topic
Week1	P	Guidelines for PA and tests
	C	Introduction to wellness & fitness
Week2	P	Health related fitness tests
	C	Evaluation of the pretest results
Week3	P	Practice of PA (aerobic endurance, muscular endurance, flexibility)
	C	Discussions on fitness and PA
Week4	P	Body composition measurements
	C	Discussions on anatomy and exercise physiology
Week5	P	Heart rate, blood pressure and VO_2 max measurements
	C	Discussions on anatomy and exercise physiology
Week6	P	PA to support aerobic endurance, muscular endurance & flexibility
	P	Muscular endurance and flexibility measurements
Week7	P	PA to support aerobic endurance, muscular endurance & flexibility
	C	Discussions on aerobic endurance, muscular endurance & flexibility
Week8	P	PA to support aerobic endurance, muscular endurance & flexibility
Week 9	P	Development of exercise program – aerobic endurance
	P	Development of exercise program – aerobic endurance
Week10	P	Development of exercise program – aerobic endurance
	P	Development of exercise program – muscular fitness
Week11	P	Development of exercise program – muscular fitness
	P	Development of exercise program – flexibility
Week12	P	Development of exercise program – flexibility
	P	Health related physical fitness tests

P – Practice session conducted in gym, fitness court or at outdoor setting
C – Classroom discussion session conducted in traditional class setting

Appendix C: Interview Protocol for Qualitative Data

Interview Protocol	
Date:	Time:
Interviewee (nickname):	Interviewer:
Initial explanation of interview: *Before starting the interview, I want to give an explanation about the content of interview. I'm conducting this interview with you because I want to make a more deep conversation of your thoughts and experiences in the intervention that you involved in, and of your physical activity participation then and now. Your opinion and thoughts will be kept secret, and will not be shared nominally. They will only be used in academic paper and in my dissertation while giving you a private nickname. In order to use your opinion and thoughts, I'm going to tape record the whole interview process. Do you accept recording?*	
Before intervention: 1. What was your expectation to involve in intervention? Sub-question 1.1: What did you experience while you were satisfying your expectations? Sub-question 1.2: What were your reasons to involve in intervention? 2. What was your feeling in the first meeting? Sub-question 2.1: What changes existed in your expectations? Can you describe them? 3. What was your perspective toward PA participation before intervention? Sub-question 3.1: What changes existed in your perspective toward PA participation?	
During intervention: 4. What do you think about this intervention? 5. Can you describe the learning climate of intervention? 6. What is your most important experience in intervention? 7. What is the most enjoyable part of intervention?	
After intervention: 8. Can you describe your PA participation in your free time? Sub-question 8.1: Where do you participate in PA? Sub-question 8.2: Have you had a chance to play the games that you played in intervention? Sub-question 8.3: How are you going to incorporate PA into your life? 9. How can you transfer the information that you get from intervention into your real life setting? Sub-question 9.1: How do you share your knowledge with your friends?	

Appendix D: Questionnaires

Açıklama: Bu anket paketi iki bölümden oluşmaktadır. Her anketin başında açıklama kısımları yer almaktadır. Bu kısımları dikkatle okumanız önemle rica olunur. I. Bölümde toplam 5 adet anket bulunmaktadır. Aşağıdaki bilgileri doldurduktan sonra I. Bölüm ile başlayabilirsiniz. Katılımınız için teşekkür ederim. Mine Müftüler
İsim Soyisim:
Kod (telefon numarasının son beş rakamı):
e-mail:

Egzersiz Davranışı Değişim Basamakları Anketi (EDDBA)

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**

Egzersiz Ortamında Beden Eğitimi ve Spor Eğitmeninden Kaynaklanan Algılanan Özerklik Desteği Anketi (EOBESEKAÖDA)

Bu ankette Beden Eğitimi ve Spor Eğitmeninizin sizi serbest zamanınızda* aktif spor ve/veya şiddetli egzersiz yapmanıza dair desteklemesini değerlendiren maddeler yer almaktadır. Her bir maddeyi 1 (tamamen katılmıyorum)'den 7 (tamamen katılıyorum)'e doğru sıralanan ölçeğe göre değerlendiriniz. Her madde için size en yakın rakamı işaretleyiniz.

* Serbest zaman; sizin okul, iş, yeme-içme, uyuma v.b. zorunlu işlerinizden geriye kalan zamanı tanımlar.

1. Beden Eğitimi ve Spor eğitmenimin, serbest zamanımda aktif spor ve/veya şiddetli egzersiz yapmam konusunda bana seçenek, tercih ve imkan sağladığını hissediyorum.

1 2 3 4 5 6 7

tamamen katılmıyorum kararsızım tamamen katılıyorum

2. Beden Eğitimi ve Spor eğitmenimin, serbest zamanımda neden aktif spor ve/veya şiddetli egzersiz yapmayı tercih ettiğimi anladığını düşünüyorum.

1 2 3 4 5 6 7

tamamen katılmıyorum kararsızım tamamen katılıyorum

3. Beden Eğitimi ve Spor eğitmenim, serbest zamanımda aktif spor ve/veya şiddetli egzersiz yapabilme becerime güvenir.

1 2 3 4 5 6 7

tamamen katılmıyorum kararsızım tamamen katılıyorum

4. Beden Eğitimi ve Spor eğitmenim, serbest zamanımda aktif spor ve/veya şiddetli egzersiz yapmam için beni cesaretlendirir.

1 2 3 4 5 6 7

tamamen katılmıyorum kararsızım tamamen katılıyorum

5. Beden Eğitimi ve Spor eğitmenim, serbest zamanımda yaptığım aktif spor ve/veya şiddetli egzersiz hakkında konuşurken beni dinler.

1	2	3	4	5	6	7
tamamen katılmıyorum			kararsızım			tamamen katılıyorum
6. Beden Eğitimi ve Spor eğitmenim, serbest zamanımda aktif spor ve/veya şiddetli egzersiz yaptığım zaman bana olumlu geribildirim sağlar.						
1	2	3	4	5	6	7
tamamen katılmıyorum			kararsızım			tamamen katılıyorum
7. Beden Eğitimi ve Spor eğitmenimle serbest zamanımda yaptığım aktif spor ve/veya şiddetli egzersiz hakkında konuşabilirim.						
1	2	3	4	5	6	7
tamamen katılmıyorum			kararsızım			tamamen katılıyorum
8. Beden Eğitimi ve Spor eğitmenim, neden serbest zamanımda aktif spor ve/veya şiddetli egzersiz yaptığımdan emindir.						
1	2	3	4	5	6	7
tamamen katılmıyorum			kararsızım			tamamen katılıyorum
9. Beden Eğitimi ve Spor eğitmenim, serbest zamanımda yaptığım aktif spor ve/veya şiddetli egzersiz hakkındaki sorularıma cevap verir.						
1	2	3	4	5	6	7
tamamen katılmıyorum			kararsızım			tamamen katılıyorum
10. Beden Eğitimi ve Spor eğitmenim, serbest zamanımda yaptığım aktif spor ve/veya şiddetli egzersizle ilgilenir.						
1	2	3	4	5	6	7
tamamen katılmıyorum			kararsızım			tamamen katılıyorum
11. Beden Eğitimi ve Spor eğitmenimle aktif spor ve/veya şiddetli egzersiz deneyimlerimi paylaşabileceğimi hissediyorum.						
1	2	3	4	5	6	7
tamamen katılmıyorum			kararsızım			tamamen katılıyorum
12. Beden Eğitimi ve Spor eğitmenimin, serbest zamanımda yaptığım aktif spor ve/veya şiddeti egzersizle ilgili tavsiyesine güvenirim.						
1	2	3	4	5	6	7
tamamen katılmıyorum			kararsızım			tamamen katılıyorum

Algılanan Nedensellik Odağı (ANO)

Bu ankette Beden Eğitimi dersine neden katıldığınızı belirten maddeler yer almaktadır. Her bir maddeyi 4 (çok doğru)'ten 1 (hiç doğru değil)'e doğru sıralanan ölçeğe göre değerlendiriniz. Her madde için size en yakın rakamı işaretleyiniz.

Beden Eğitimi dersinde neden gayret ediyorum?

1. Çünkü eğer yapmazsam başıma kötü bir şey gelir			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
2. Çünkü benden beklenen bu			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
3. Böylece Beden Eğitimi ve Spor eğitmeni bana bağırmaz			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
4. Çünkü kural böyle			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
5. Böylece diğerleri bana kızmaz			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
6. Çünkü Beden Eğitimi ve Spor eğitmeninin benim iyi bir öğrenci olduğumu düşünmesini istiyorum			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
7. Çünkü eğer yapmazsam kendimi kötü hissedeceğim			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
8. Çünkü eğer yapmazsam kendimden utanacağım			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil

9. Çünkü diğer öğrencilerin benim iyi bir öğrenci olduğumu düşünmesini istiyorum			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
10. Çünkü yapmadığım zaman bu beni rahatsız ediyor			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
11. Çünkü insanların beni sevmesini istiyorum			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
12. Çünkü konuyu anlamak istiyorum			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
13. Çünkü yeni şeyler öğrenmek istiyorum			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
14. Doğru ya da yanlış olduğumu anlamak için			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
15. Çünkü Beden Eğitimi dersi benim için önemli			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
16. Çünkü olumsuz davranışlar yapmak istemezdim			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
17. Çünkü eğlenceli			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil
18. Çünkü keyif alıyorum			
4	3	2	1
çok doğru	kısmen doğru	doğru değil	hiç doğru değil

Uluslararası Fiziksel Aktivite Anketi (UFAA)

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.

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 düşünün.

3. **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.

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.

5. 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.

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.

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

Günde____saat

Günde____dakika

□ Bilmiyorum/Emin değilim.

I. BÖLÜM SONA ERMİŞTİR…
TEŞEKKÜRLER.

Açıklama:
Bu bölümde toplam 4 anket bulunmaktadır. Her anketin başında açıklama kısımları yer almaktadır. Bu kısımları dikkatle okumanız önemle rica olunur. **"Kod (telefon numarasının son beş rakamı)"** kısmını yazdıktan sonra ankete başlayabilirsiniz. Katılımınız için teşekkür ederim.

Mine Müftüler

Kod (telefon numarasının son beş rakamı):

Egzersizde Temel Psikolojik İhtiyaçlar Ölçeği (ETPİÖ)

Aşağıda belirtilen ifadeler özel durumlardan ziyade egzersizdeki genel deneyimlerinizle ilgilidir. 1-5 arasında derecelendirilen bu ölçeği kullanarak, size en uygun gelen cevabı daire içine alınız.

	Tamamen katılmıyorum	Katılmıyorum	Kısmen katılıyorum	Katılıyorum	Tamamen katılıyorum
1. Ulaşmak istediğim sonuçla ilgili çok büyük bir ilerleme gösterdiğimi hissederim.	1	2	3	4	5
2. Diğer egzersiz katılımcıları ile birlikte iken kendimi rahat hissederim	1	2	3	4	5
3. Yaptığım egzersiz programı tercihlerim ve ilgilerimle örtüşür.	1	2	3	4	5
4. Egzersiz programımda yer alan etkinlikleri etkili ve başarılı yaptığımı hissederim.	1	2	3	4	5
5. Diğer egzersiz katılımcıları ile arkadaşça ilişkiler kurduğumu hissederim.	1	2	3	4	5
6. Yaptığım egzersizlerin tam istediğim gibi olduğunu hissederim.	1	2	3	4	5
7. Egzersizin çok iyi yaptığım bir aktivite olduğunu hissederim.	1	2	3	4	5
8. Diğer egzersiz katılımcıları ile açık iletişimim olduğunu hissederim.	1	2	3	4	5

9. Yaptığım egzersizin kim olduğumu kesinlikle yansıttığını hissederim.	1	2	3	4	5
10. Katıldığım egzersiz programımın gerekliliklerini karşılayabildiğimi hissederim.	1	2	3	4	5
11. Diğer egzersiz katılımcılarının yanında rahatsız olmadığımı hissederim.	1	2	3	4	5
12. Egzersiz yapma şeklimle ilgili olarak seçimler yapma fırsatına sahip olduğumu hissederim.	1	2	3	4	5

Egzersiz Ortamında Arkadaşlardan Kaynaklanan Algılanan Özerklik Desteği Anketi (EOAKAÖDA)

Bu ankette arkadaşlarınızın sizi serbest zamanınızda* aktif spor ve/veya şiddetli egzersiz yapmanıza dair desteklemesini değerlendiren maddeler yer almaktadır. Her bir maddeyi 1 (tamamen katılmıyorum)'den 7 (tamamen katılıyorum)'e doğru sıralanan ölçeğe göre değerlendiriniz. Her madde için size en yakın rakamı işaretleyiniz.

* Serbest zaman; sizin okul, iş, yeme-içme, uyuma v.b. zorunlu işlerinizden geriye kalan zamanı tanımlar.

1. Arkadaşlarımın, serbest zamanımda aktif spor ve/veya şiddetli egzersiz yapmam konusunda bana seçenek, tercih ve imkan sağladıklarını hissediyorum.

1 2 3 4 5 6 7

tamamen katılmıyorum kararsızım tamamen katılıyorum

2. Arkadaşlarımın, serbest zamanımda neden aktif spor ve/veya şiddetli egzersiz yapmayı tercih ettiğimi anladığını düşünüyorum.

1 2 3 4 5 6 7

tamamen katılmıyorum kararsızım tamamen katılıyorum

3. Arkadaşlarım, serbest zamanımda aktif spor ve/veya şiddetli egzersiz yapabilme becerime güvenir.

1 2 3 4 5 6 7

tamamen katılmıyorum			kararsızım			tamamen katılıyorum
4. Arkadaşlarım, serbest zamanımda aktif spor ve/veya şiddetli egzersiz yapmam için beni cesaretlendirir.						
1	2	3	4	5	6	7
tamamen katılmıyorum			kararsızım			tamamen katılıyorum
5. Arkadaşlarım, serbest zamanımda yaptığım aktif spor ve/veya şiddetli egzersiz hakkında konuşurken beni dinler.						
1	2	3	4	5	6	7
tamamen katılmıyorum			kararsızım			tamamen katılıyorum
6. Arkadaşlarım, serbest zamanımda aktif spor ve/veya şiddetli egzersiz yaptığım zaman bana olumlu geribildirim sağlar.						
1	2	3	4	5	6	7
tamamen katılmıyorum			kararsızım			tamamen katılıyorum
7. Arkadaşlarımla serbest zamanımda yaptığım aktif spor ve/veya şiddetli egzersiz hakkında konuşabilirim.						
1	2	3	4	5	6	7
tamamen katılmıyorum			kararsızım			tamamen katılıyorum
8. Arkadaşlarım, neden serbest zamanımda aktif spor ve/veya şiddetli egzersiz yapmaya ihtiyaç duyduğumu anladığımdan emindir.						
1	2	3	4	5	6	7
tamamen katılmıyorum			kararsızım			tamamen katılıyorum
9. Arkadaşlarım, serbest zamanımda yaptığım aktif spor ve/veya şiddetli egzersiz hakkındaki sorularıma cevap verir.						
1	2	3	4	5	6	7
tamamen katılmıyorum			kararsızım			tamamen katılıyorum
10. Arkadaşlarım, serbest zamanımda yaptığım aktif spor ve/veya şiddetli egzersizle ilgilenir.						
1	2	3	4	5	6	7
tamamen katılmıyorum			kararsızım			tamamen katılıyorum
11. Arkadaşlarımla aktif spor ve/veya şiddetli egzersiz deneyimlerimi						

paylaşabileceğimi hissediyorum. 1 2 3 4 5 6 7 tamamen katılmıyorum kararsızım tamamen katılıyorum
12. Arkadaşlarım, serbest zamanımda yaptığım aktif spor ve/veya şiddetli egzersiz hakkındaki düşüncelerine güvenirim. 1 2 3 4 5 6 7 tamamen katılmıyorum kararsızım tamamen katılıyorum

Egzersizde Davranışsal Düzenlemeler Ölçeği-2 (EDDÖ-2)

NEDEN EGZERSİZ YAPIYORSUNUZ?

Aşağıda bireylerin egzersiz yapma ve yapmama nedenleri ile ilgili bazı ifadeler yer almaktadır. Lütfen aşağıdaki ifadeleri okuyarak her bir ifadenin sizin için ne kadar uygun olduğunu işaretleyin. Cevaplarınız gizli tutulacak ve sadece araştırma amaçlı kullanılacaktır.

	Kesinlikle doğru değil		Bazen doğru		Kesinlikle doğru
1. Başkaları egzersiz yapmam gerektiğini söyledikleri için egzersiz yaparım.	0	1	2	3	4
2. Egzersiz yapmadığımda kendimi suçlu hissederim.	0	1	2	3	4
3. Egzersiz yapmanın yararlarına önem veririm.	0	1	2	3	4
4. Eğlenceli olduğu için egzersiz yaparım.	0	1	2	3	4
5. Neden egzersiz yapmam gerektiğini anlamıyorum.	0	1	2	3	4
6. Arkadaşlarım/ailem/eşim egzersiz yapmam gerektiğini söylediği için egzersiz yapıyorum.	0	1	2	3	4
7. Bir egzersiz seansını kaçırdığımda utanç duyuyorum.	0	1	2	3	4
8. Düzenli egzersiz yapmak benim için önemlidir.	0	1	2	3	4
9. Neden egzersiz yapma zahmetine gireyim anlamıyorum.	0	1	2	3	4
10. Egzersiz yapmaktan zevk duyuyorum.	0	1	2	3	4
11. Egzersiz yapıyorum çünkü	0	1	2	3	4

yapmazsam çevremdekiler benden hoşlanmayacaktır.					
12. Egzersiz yapmanın gerekliliğini anlamış değilim.	0	1	2	3	4
13. Bir süre egzersiz yapmayınca kendimi başarısız hissediyorum.	0	1	2	3	4
14. Düzenli egzersiz için çaba sarfetmenin önemli olduğunu düşünüyorum.	0	1	2	3	4
15. Egzersizin keyifli bir etkinlik olduğunu düşünüyorum.	0	1	2	3	4
16. Egzersiz yapma konusunda arkadaşlarımın/ailemin baskısını hissediyorum.	0	1	2	3	4
17. Düzenli egzersiz yapmazsam kendimi huzursuz hissediyorum.	0	1	2	3	4
18. Egzersiz yapmaktan haz ve doyum alıyorum.	0	1	2	3	4
19. Egzersiz yapmanın zaman kaybı olduğunu düşünüyorum.	0	1	2	3	4

Planlı Davranış Kuramı Yapıları (PDK)

Bu anket dört alt bölümden oluşmaktadır. Her alt bölümde önümüzdeki 4 hafta boyunca, serbest zamanınızda*, haftada 3 gün, günde en az 20 dakika aktif spor ve/veya şiddetli egzersiz yapma durumunuzla ilgili maddeler bulunmaktadır. Her alt bölümde yer alan maddeleri kendinize göre değerlendirmeniz beklenmektedir.

* Serbest zaman; sizin okul, iş, yeme-içme, uyuma v.b. zorunlu işlerinizden geriye kalan zamanı tanımlar.

Niyetler

Bu bölümdeki her maddeyi 1 (hiç uygun değil)'den 7 (tamamen uygun)'e doğru sıralanan ölçeğe göre değerlendiriniz. Her madde için size en yakın rakamı işaretleyiniz.

1. Önümüzdeki 4 hafta boyunca, serbest zamanımda, haftada 3 gün, günde en az 20 dakika aktif spor ve/veya şiddetli egzersiz yapmak niyetindeyim

1 2 3 4 5 6 7

hiç uygun değil tamamen uygun

2. **Önümüzdeki 4 hafta boyunca, serbest zamanımda, haftada 3 gün, günde en az 20 dakika düzenli olarak aktif spor ve/veya şiddetli egzersiz yapmayı planlıyorum**

1 2 3 4 5 6 7

kesinlikle katılmıyorum kesinlikle katılıyorum

3. **Önümüzdeki 4 hafta boyunca, serbest zamanımda, haftada 3 gün, günde en az 20 dakika aktif spor ve/veya şiddetli egzersiz yapabileceğimi umuyorum**

1 2 3 4 5 6 7

kesinlikle yanlış kesinlikle doğru

Tutumlar

Bu bölümde önümüzdeki 4 hafta boyunca egzersiz yapma etkinliğinizi 1'den 7'e doğru sıralanan çift kutuplu sıfatlar ölçeğine göre değerlendiriniz. Her sıfat için size en yakın rakamı işaretleyiniz.

Önümüzdeki 4 hafta boyunca, serbest zamanımda, haftada 3 gün, günde en az 20 dakika aktif spor ve/veya şiddetli egzersiz yapma etkinliğim…

Eğlenceli değil	1	2	3	4	5	6	7	Eğlenceli
Kötü	1	2	3	4	5	6	7	İyi
Kullanışsız	1	2	3	4	5	6	7	Kullanışlı
Sıkıcı	1	2	3	4	5	6	7	İlginç
Zararlı	1	2	3	4	5	6	7	Faydalı

Algılanan Davranışsal Kontrol

Bu bölümdeki her maddeyi 1'den 7'e doğru sıralanan ölçeğe göre değerlendiriniz.

Her madde için size en yakın rakamı işaretleyiniz.

1. **Önümüzdeki 4 hafta boyunca, serbest zamanımda, haftada 3 gün, günde en az 20 dakika aktif spor ve/veya şiddetli egzersiz yapmak için ne kadar**

kontrole sahipsin?

1 2 3 4 5 6 7

çok az kontrol tamamen kontrol

2. **Eğer isteseydim, önümüzdeki 4 hafta boyunca, serbest zamanımda, haftada 3 gün, günde en az 20 dakika aktif spor ve/veya şiddetli egzersiz yapabilirdim**

1 2 3 4 5 6 7

kesinlikle katılmıyorum kesinlikle katılıyorum

3. **Önümüzdeki 4 hafta boyunca, serbest zamanımda, haftada 3 gün, günde en az 20 dakika aktif spor ve/veya şiddetli egzersiz yapıp yapamayacağım konusunda tüm kontrolün bende olduğunu düşünüyorum**

1 2 3 4 5 6 7

tamamen yanlış tamamen doğru

Öznel Normlar

Bu bölümdeki her maddeyi 1'den 7'e doğru sıralanan ölçeğe göre değerlendiriniz. Her madde için size en yakın rakamı işaretleyiniz.

1. **Benim için önemli kişilerin birçoğu önümüzdeki 4 hafta boyunca, serbest zamanımda, haftada 3 gün, günde en az 20 dakika aktif spor ve/veya şiddetli egzersiz yapmamı isterdi**

1 2 3 4 5 6 7

kesinlikle katılmıyorum kesinlikle katılıyorum

2. **Tanıdığım kişilerin birçoğu önümüzdeki 4 hafta boyunca, serbest zamanımda, haftada 3 gün, günde en az 20 dakika aktif spor ve/veya şiddetli egzersiz yapmamı onaylardı**

1 2 3 4 5 6 7

kesinlikle katılmıyorum kesinlikle katılıyorum

3. **Benim için önemli olan kişiler önümüzdeki 4 hafta boyunca, serbest zamanımda, haftada 3 gün, günde en az 20 dakika aktif spor ve/veya şiddetli egzersiz yapmamı…**

1 2 3 4 5 6 7

kesinlikle onaylamazdı kesinlikle onaylardı

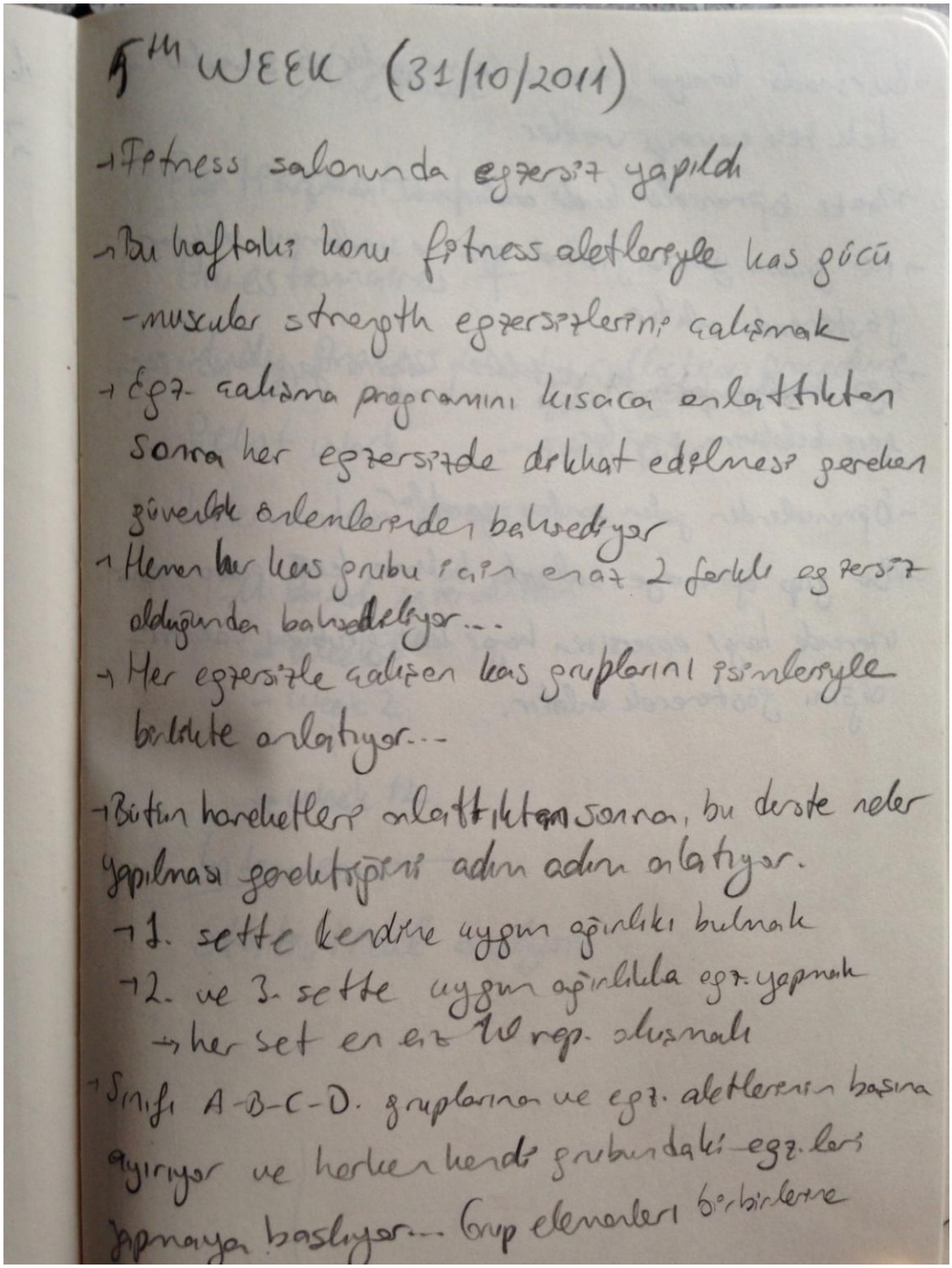
4. Bana yakın olan kişilerin birçoğu önümüzdeki 4 hafta boyunca, serbest zamanımda, haftada 3 gün, günde en az 20 dakika aktif spor ve/veya şiddetli egzersiz yapmamı bekler

1 2 3 4 5 6 7

kesinlikle katılmıyorum kesinlikle katılıyorum

ANKETLER BİTMİŞTİR.
KATILIMINIZ İÇİN TEŞEKKÜRLER…

Appendix E: Sample of Field Note



5TH WEEK (31/10/2011)

→Fitness salonunda egzersiz yapildi

→Bu haftaki konu fitness aletleriyle kas gücü -musculer strength egzersizlerini calismak

→Egz. calisma programini kisaca anlattiktan sonra her egzersizde dikkat edilmesi gereken güvenlik önlemlerinden bahsediyor

→Hemen her kas grubu için en az 2 farkli egzersiz oldugundan bahsediyor...

→Her egzersizle calisan kas gruplarini isimleriyle birlikte anlatiyor...

→Bütün hareketleri anlattiktan sonra, bu derste neler yapilmasi gerektigini adim adim anlatiyor.

→1. sette kendine uygun agirlik bulmak

→2. ve 3. sette uygun agirlikla egz. yapmak

→her set en az 10 rep. olusmali

→Sinifi A-B-C-D. gruplarina ve egz. aletlerinin basina ayiriyor ve herkes kendi grubundaki egz.leri yapmaya basliyor... Grup elemanlari birbirlerine

Appendix F: Statistical Assumptions Check

Testing Assumptions for Quantitative Data

Before all the inferential statistical analyses were conducted, quantitative data were being tested for normality and homogeneity of variance assumptions. The homogeneity of covariance matrices assumption was also performed for MANOVA. The normality means that the data are normally distributed. The homogeneity of variance means that the variance in each dependent variable should be equal for these variables. If the scores of any variable show a non-significant variation, then this means that the variance is homogeneous; if not, i.e. a significant variation, it means that the variance is heterogeneous. The homogeneity of covariance matrices means that the correlation between any of two dependent variables should be stable in all groups. For the homogeneity of covariance matrices, it should be assumed not only to have homogeneity of variance in each dependent variable but also to have same correlation between dependent variables in all groups. In order to properly interpret the statistical analyses, the related assumptions for statistical analyses should be met. Otherwise, the interpretation of the results would be skeptical.

Below was a detailed explanation of testing the assumptions for each statistical analysis. Later the basic assumptions check results for each research question were introduced.

Testing Normality Assumption

For paired samples *t*-test, univariate normality was performed for the difference mean scores (Field, 2009). For MANOVA, because there is no practical way for conducting multivariate normality, only the univariate normality for each dependent variable was performed. The univariate normality were examined through skewness and kurtosis values, the Kolmogorov-Smirnov and Shapiro-Wilk tests. The values for skewness and kurtosis should be between ±3.00. Not all of the dependent

variables' skewness and kurtosis values were within the criteria values (see Table F.1). The other way of checking normality assumption can be tested with Kolmogorov-Smirnov and Shapiro-Wilk tests. In order to meet this assumption, these tests should be non-significant, i.e., $p > .05$. Again some of the dependent variables were not reached the criteria level for these tests (see Table F.1, F.2, and F.3).

Testing Homogeneity of Covariance Matrices Assumption

The homogeneity of covariance matrices assumes that not only the variances for each dependent variable are equal, but also the correlation between any two dependent variables is the same in all other variables (Field, 2009). This is one of the basic assumptions for MANOVA and it was tested examining the Box's *M* test result. For this assumption being met, the Box's *M* test result should be non-significant, i.e., $p > .05$. This assumption was only met for the analysis for basic psychological need satisfaction in exercise setting. It was not met for the other two analyses (i.e., for autonomous motivation in LTPA setting and the Theory of Planned Behavior constructs).

Testing Homogeneity of Variance Assumption

The homogeneity of variance assumes that the variance in any of dependent variable should be stable for other variables. This assumption was tested for being the prerequisite of homogeneity of covariance matrices assumption of MANOVA. It was examined using the Levene's test result. In order to meet this assumption, the Levene's test should be non-significant, i.e., $p > .05$. Although all of the dependent variable scores in pretest reached this criteria not all of them in posttest met this assumption (see Table F.2, and F.3).

Assumption Check Results for Research Questions

The first research question was analyzed via paired samples *t*-test. The basic assumption for paired samples *t*-test is the normality assumption for the dependent variables. It was checked for the difference scores of dependent variable between the pretest and posttest scores. When examined with the tests of Kolmogorov-Smirnov and Shapiro-Wilk, these tests were not significant ($p > .05$) for the difference scores. Similarly, the skewness and kurtosis values were in acceptable criteria (i.e., ±3.00) for the difference scores. Thus it was interpreted that the normality assumption was met for each of the dependent variable.

The second research question had two separate sub-questions. The first sub-question was analyzed with repeated measures ANOVA. The normality assumption for each of the subscales was tested. For pretest scores, although the tests of Kolmogorov-Smirnov and Shapiro-Wilk were found to be significant ($p < .05$) for introjection and intrinsic motivation, the skewness and kurtosis values for all of subscales were in accepted criteria (i.e., ±3.00). For posttest scores, Kolmogorov-Smirnov and Shapiro-Wilk tests were found to be significant ($p < .05$) for external and intrinsic motivation, but introjection and identification motivation were found nonsignificant ($p > .05$). However, the skewness and kurtosis values for each subscale were in accepted criteria (i.e., ±3.00). Thus, it was interpreted that normality assumption was tenable for this variable. The other sub-question was analyzed with using mixed design MANOVA. The basic assumptions for this statistical analysis are the multivariate normality and homogeneity of covariance variances. In order to assume the multivariate normality, the univariate normality was tested for both the experimental and control groups' pretest and posttest scores for five of the subscales. If pretest scores were tested in terms of the tests of Kolmogorov-Smirnov and Shapiro-Wilk, it was found significant for each group in all of the subscales. However, the skewness and kurtosis values for pretest scores were in acceptable criteria (i.e., ±3.00). When posttest scores were tested in terms of the tests of Kolmogorov-Smirnov and Shapiro-Wilk, it was found significant for each group in all of the subscales. On the other hand, the skewness and kurtosis values were in

acceptable criteria (i.e., ±3.00), except for the kurtosis values of control group for external motivation (+3.255) and amotivation (+5.794). Even if there were some problems in normality assumption in the posttest scores, it was still tenable to accept the univariate normality for autonomous motivation in LTPA setting. This in turn was assumed as multivariate normality being met (Field, 2009). In terms of the assumption of homogeneity of covariance matrices, the Box's *M* test was found significant (M = 123.53, $F_{(55,\ 14932.33)}$ = 1.89, $p < .05$) being interpreted as that this assumption was violated. The reason why this assumption was violated might be the result of the homogeneity of variance assumption. Although the Levene's test was found non-significant ($p > .05$) for most of the subscales in both pretest and posttest scores, it was found significant ($p < .05$) for the posttest scores in identification and intrinsic motivation.

The third research question was analyzed via mixed design MANOVA as well. The univariate normality was checked with the tests of Kolmogorov-Smirnov and Shapiro-Wilk as well as with skewness and kurtosis values. For pretest scores, the tests of Kolmogorov-Smirnov and Shapiro-Wilk showed significant test results ($p < .05$) for intention and attitudes for each group, and for perceived behavioral control for control group, on the other hand the skewness and kurtosis values were in acceptable criteria (i.e., ±3.00). For posttest scores, the tests of Kolmogorov-Smirnov and Shapiro-Wilks showed significant test results ($p < .05$) for intention for experimental group, attitudes for each group, and perceived behavioral control for control group, on the other hand the skewness and kurtosis values were in accepted criteria (i.e., ±3.00), except for the kurtosis values of attitudes for experimental and control group (+6.692 and +3.549, respectively). Although the tests of Kolmogorov-Smirnov and Shapiro-Wilk and only the kurtosis values for attitudes were not reached the normality criteria, it was assumed that the univariate normality was achieved in general for this variable. The homogeneity of covariance matrices was tested with Box's *M* result, showing a significant test result (M = 66.78, $F_{(36,\ 15559.08)}$ = 1.62, $p < .05$). Thus, this assumption was violated. The reason might be based on

the homogeneity of variance assumption not reached for intention and perceived behavioral control in posttest scores.

For the forth research question, the basic assumptions of normality and homogeneity of covariance matrices were tested. For pretest scores, Kolmogorov-Smirnov and Shapiro-Wilk showed significant test results ($p < .05$) for each group in autonomy and competence, but skewness and kurtosis values were in acceptable criteria (i.e., ±3.00). For posttest scores, Kolmogorov-Smirnov and Shapiro-Wilks showed significant test results ($p < .05$) for each group in all subscales. The skewness and kurtosis values were in acceptable criteria (i.e., ±3.00), with the exception of kurtosis value of relatedness for experimental group. Although the tests of Kolmogorov-Smirnov and Shapiro-Wilk, the skewness and kurtosis values reached the accepted criteria. Thus, it was assumed that the univariate normality was tenable for this variable. The homogeneity of covariance matrices was tested with Box's *M* result, showing a non-significant test result ($M = 35.20$, $F_{(21, 17007.06)} = 1.52$, $p = .061$). Thus, this assumption was not violated.

Table F.1

Normality assumption for paired samples t-test

		Normality			
R.Q.	**Variables**	**KS**	**SW**	**Skew**	**Kurt**
R.Q.1.1.	PASins	.200*	.462	0.426	1.279
R.Q.1.2.	PASpeers	.200*	.724	0.370	0.024

Table F.2

Normality & homogeneity of variance assumptions for pretest scores

		Normality				Hom.of var.
R.Q.	**Variables**	**KS**	**SW**	**Skew**	**Kurt**	**Levene**
R.Q.2.1.	External	.108	.978	-0.050	-0.129	
	Introjection	.148*	.969	-0.393	-0.241	
	Identification	.086	.976	-0.200	-0.373	
	Intrinsic	.281*	.770*	-1.326	2.355	
R.Q.2.2.	External					.472
	Experimental	.003*	.003*	0.949	0.365	
	Control	.000*	.001*	0.565	-0.856	
	Introjection					.908
	Experimental	.030*	.146	-0.470	0.837	
	Control	.017*	.147	-0.239	0.102	
	Identification					.492
	Experimental	.008*	.001*	-1.262	1.378	
	Control	.009*	.064	-0.544	0.023	
	Intrinsic					.982
	Experimental	.018*	.011*	-0.947	1.004	
	Control	.003*	.021*	-0.938	1.465	
	Amotivation					.073
	Experimental	.000*	.000*	1.086	0.293	
	Control	.075	.005*	0.493	-0.229	
R.Q.3.	Intention					.229
	Experimental	.000*	.000*	-1.091	0.417	
	Control	.029*	.001*	-1.091	0.539	
	Attitudes					.146
	Experimental	.002*	.000*	-1.618	2.079	
	Control	.001*	.000*	-1.410	1.426	
	PBC					.415
	Experimental	.200	.057	-0.346	-0.782	
	Control	.002*	.000*	-1.505	2.716	
	S.Norms					.565
	Experimental	.200	.488	-0.394	-0.315	
	Control	.200	.154	-0.697	0.430	
R.Q.4.	Autonomy					.646
	Experimental	.001*	.028*	-0.747	0.922	
	Control	.184	.223	0.129	0.985	
	Competence					.569
	Experimental	.003*	.004*	-1.198	2.260	
	Control	.000*	.003*	-0.979	0.274	
	Relatedness					.558
	Experimental	.097	.148	-0.503	-0.343	
	Control	.068	.586	-0.077	-0.271	

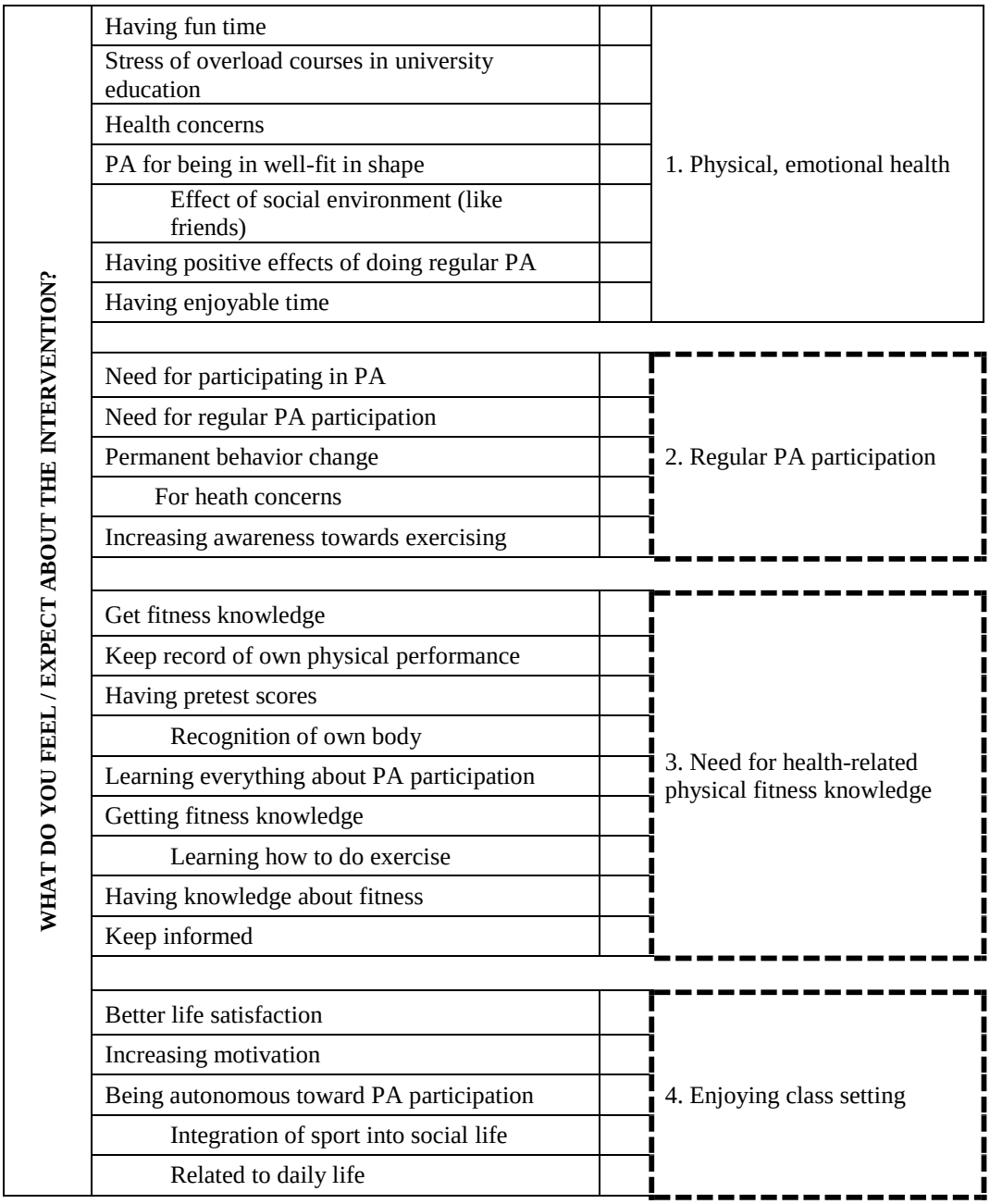
Table F.3

Normality & homogeneity of variance assumptions for posttest scores

		Normality				Hom.of var.
R.Q.	**Variables**	**KS**	**SW**	**Skew**	**Kurt**	**Levene**
R.Q.2.1.	External	.178*	.927*	-0.104	-1.079	
	Introjection	.117	.984	0.035	0.332	
	Identification	.133	.963	-0.298	-0.504	
	Intrinsic	.462*	.543*	-1.819	1.898	
R.Q.2.2.	External					.134
	Experimental	.200	.023*	0.563	-0.151	
	Control	.007*	.000*	1.584	3.255	
	Introjection					.127
	Experimental	.028*	.159	-0.578	0.375	
	Control	.200	.268	0.119	-.0638	
	Identification					.005*
	Experimental	.050*	.025*	0.117	-1.094	
	Control	.003*	.003*	-1.080	0.678	
	Intrinsic					.000*
	Experimental	.016*	.001*	-0.578	0.251	
	Control	.050*	.041*	-0.625	-0.307	
	Amotivation					.825
	Experimental	.000*	.000*	2.442	5.794	
	Control	.000*	.000*	0.859	-0.530	
R.Q.3.	Intention					.001*
	Experimental	.017*	.007*	-0.422	-0.760	
	Control	.064	.021*	-0.389	-0.535	
	Attitudes					.439
	Experimental	.001*	.000*	-2.352	6.692	
	Control	.002*	.000*	-1.701	3.549	
	PBC					.000*
	Experimental	.200	.169	0.107	-0.800	
	Control	.009*	.006*	-0.751	-0.449	
	S.Norms					.053
	Experimental	.200	.314	-0.402	0.189	
	Control	.138	.499	-0.492	0.126	
R.Q.4.	Autonomy					.057
	Experimental	.010*	.087	-0.012	0.022	
	Control	.040*	.023*	-0.706	-0.138	
	Competence					.014
	Experimental	.001*	.053	0.248	0.629	
	Control	.000*	.004*	-0.751	-0.442	
	Relatedness					.007*
	Experimental	.000*	.000	-0.818	4.364	
	Control	.029*	.099	-0.372	-0.317	

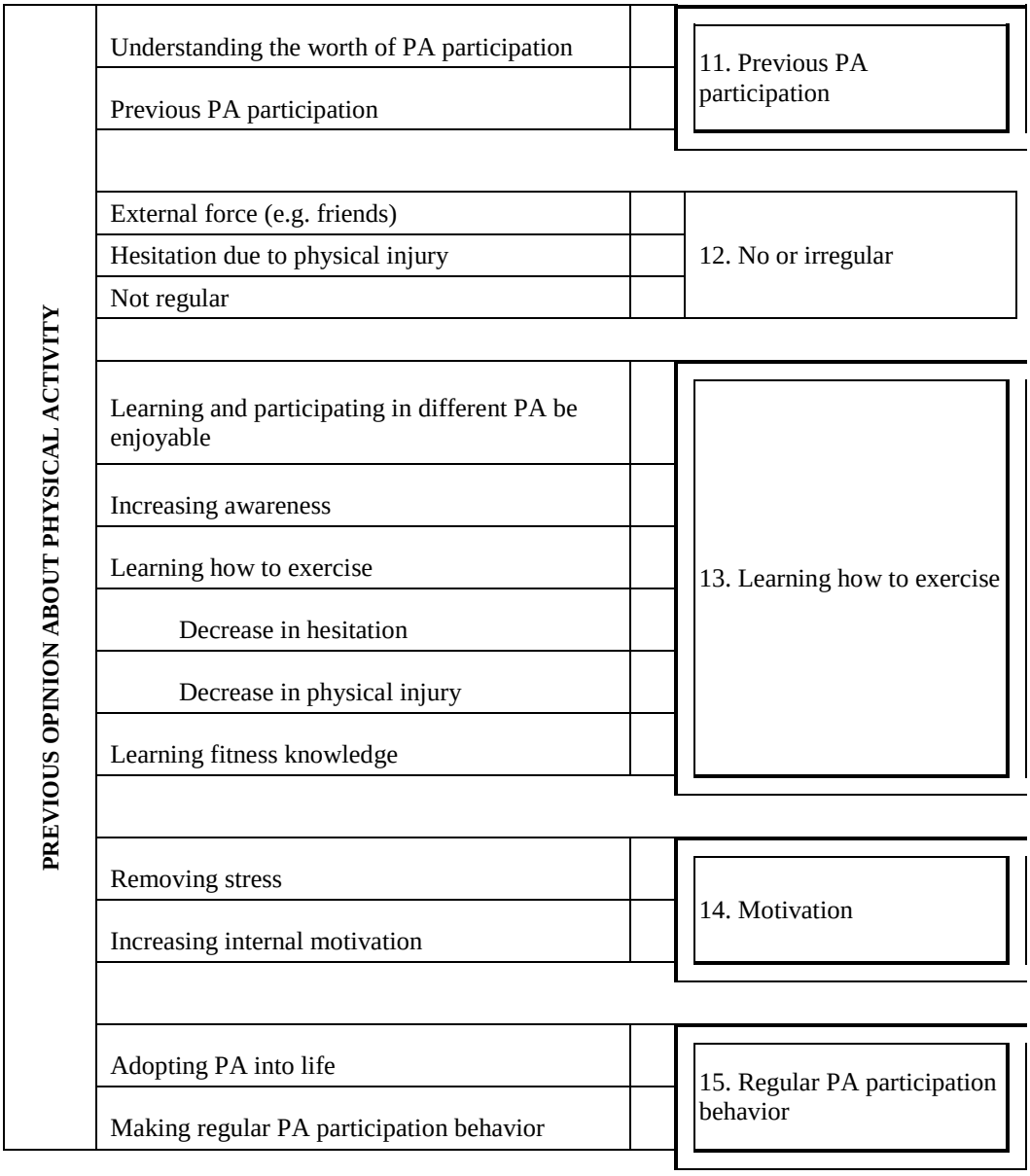
Appendix G: Flowchart of Qualitative Data Coding

Step 1: The process through microscopic analyses to open coding



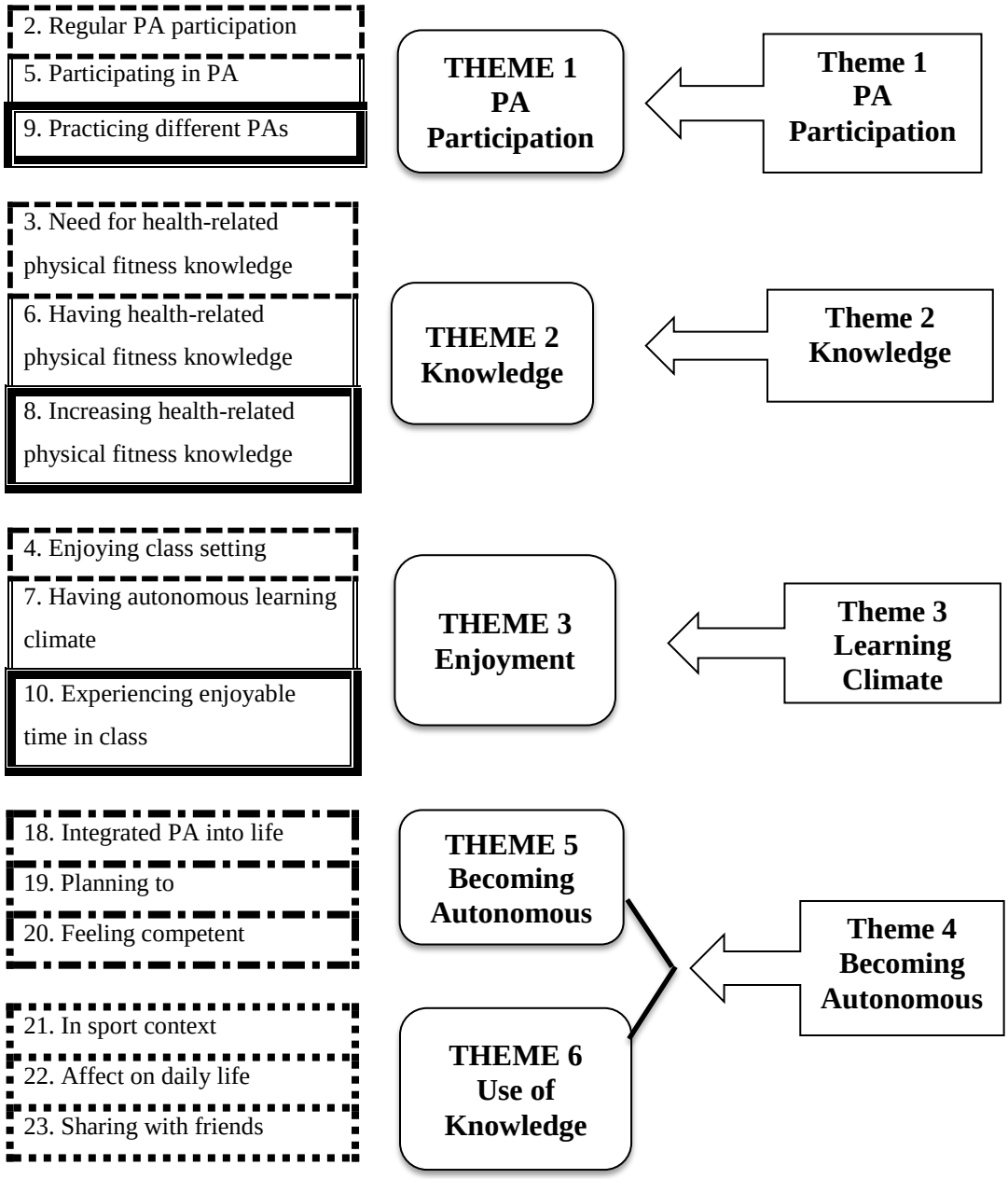
HOW DO YOU DEFINE THIS INTERVENTION?	Playing different games and different activities		5. Participating in PA
	Doing regular PA		
	Increase in awareness in sport		6. Having health-related physical fitness knowledge
	Increase in fitness knowledge		
	Having up-to-date information		
	Integration PA into real life situation		
	Having practice		
	Being provided related knowledge		
	Learning permanent information		
	Theory into practice		
	Having everyday life knowledge		
	Increase in motivation		7. Having autonomous learning climate
	Enjoyable time		
	Having fun		
	Flexible climate		
	Learning climate		
	Having peer and instructor support		
	Instructor support		
	Peer support		

EXPERIENCE IN THIS INTERVENTION	Increasing awareness		8. Increasing health-related physical fitness knowledge
	Learning what and how to do		
	Learning different information		
	Regular exercising		9. Practicing different PAs
	Practicing different PA		
	Having enjoyable time		10. Experiencing enjoyable time in class
	Practicing enjoyable PA and games		
	Practicing different PA and knowledge		
	Increasing motivation		


PREVIOUS OPINION ABOUT PHYSICAL ACTIVITY
Understanding the worth of PA participation
Previous PA participation
11. Previous PA participation
External force (e.g. friends)
Hesitation due to physical injury
Not regular
12. No or irregular
Learning and participating in different PA be enjoyable
Increasing awareness
Learning how to exercise
Decrease in hesitation
Decrease in physical injury
Learning fitness knowledge
13. Learning how to exercise
Removing stress
Increasing internal motivation
14. Motivation
Adopting PA into life
Making regular PA participation behavior
15. Regular PA participation behavior

LEISURE TIME PHYSICAL ACTIVITY (LTPA)	Having a fitness program		16. Previous LTPA experience
	Preference of PA participation		
	Previous experience		
	No participation		17. No or irregular
	Feeling guilty about not doing PA		
	Irregular PA participation		
	PA integrated into my life		18. Integrated PA into life
	If equipment and peers are available		
	Want to join outdoor activities		
	Planning to…		19. Planning to
	The effect of the course		
	Sometimes		
	Want to…		
	Yes cause I'm feeling confident		20. Feeling competent
	If I'm successful		
USE OF KNOWLEDGE IN DAILY LIFE	In sport contexts		21. In sport context
	Regulating the intensity of exercise		
	Regulating daily life		22. Affect on daily life
	Feeling healthy		
	Using updated examples		23. Sharing with friends
	Affecting significant others		

Step 2: The process through open coding to axial coding: Conceptualizing themes



Appendix H: Turkish Summary

GİRİŞ

Fiziksel aktiviteye (FA) düzenli olarak katılım sağlıklı yaşamın önemli bir göstergesi olarak kabul edilmektedir. Fiziksel aktivitenin sağlığa faydasının kalıcı olması için özellikle çocukluk ve ergenlik dönemlerinde düzenli FA davranışı edinmeleri gerekmektedir. Çünkü yetişkinlik dönemindeki FA davranışı çocukluk ve ergenlik dönemlerinde edinilen alışkanlıktan kaynaklanmaktadır (Hallal, Victora, Azevedo ve Wells, 2006). Ancak, bazı çalışmalar ergenlikten yetişkinliğe geçiş döneminde fiziksel aktiviteye katılımda azalma olduğunu göstermektedir (Hirvensalo ve Lintunen, 2011).

Dünya Sağlık Örgütü (DSÖ, 2010) tarafından okul çağındaki çocukların (5-17 yas arası) günde en az 60 dakika orta-şiddetli fiziksel aktiviteye katılmaları ve haftada en az 3 kere kas ve kemik güçlendirici egzersizlere katılmaları önerilmektedir. Yetişkinler ise (18-64 yaş arası) haftada toplamda en az 150 dakika orta- şiddetli FA veya 75 dakika şiddetli FA ve haftada en az 2 kere kas güçlendirici egzersizlere katılmaları önerilmiştir. 2005/2006 yılında DSÖ tarafından yürütülen uluslararası bir araştırmada okul çağındaki çocukların sağlık durumu incelenmiştir (Currie ve diğ., 2008). Elde edilen bulgular okul çağındaki çocukların fiziksel aktiviteye katılım oranının çok düşük olduğunu göstermiştir. Türkiye için de benzer bir durum söz konusudur (Currie ve diğ., 2008).

Türkiye Sağlık Bakanlığı tarafından yürütülen hane halkı araştırmasında 18 yaş üzeri bireylerin sigara içme, beslenme, obezite ve FA katılım durumu gibi bazı sağlıkla ilişkili faktörleri incelenmiştir (Ünüvar, Mollahaliloğlu, Yardım ve Bora Başara, 2006). Elde edilen bulgular 18-24 yaş arası bireylerin fiziksel aktiviteye katılım durumunun düşük olduğunu göstermektedir. Daha yakın zamanda yapılan araştırmalar da Türkiye'deki üniversite öğrencilerinin fiziksel olarak aktif olmayan

bir yasam tarzına sahip olduklarını göstermiştir (Cengiz, İnce ve Çiçek, 2009; Karaca, Çağlar ve Cinemre, 2009).

Ulusal ve uluslararası boyutlarda yapılan araştırmalar çocuk ve ergenler arasında fiziksel aktiviteye katılımın oldukça düşük seviyelerde olduğunu ve katılım sıklığının yaş ilerledikçe daha çok düştüğünü göstermiştir. Bu azalmanın bazı nedenleri fiziksel aktiviteye yönelik motivasyon, niyet ve tutumlardan kaynaklanmaktadır. Bu nedenle gençlerin FA davranışının altında yatan motivasyonun ve FA davranış belirleyicilerinin araştırılması önerilmektedir. Fiziksel aktiviteye katılım nedenlerinin anlaşılması araştırmacılar ve uygulayıcıların yaşam boyu fiziksel aktiviteye katılımı destekleyen eğitimin tasarlamasına yardımcı olacaktır.

Ancak, gençlerin fiziksel olarak aktif olmayan yaşam tarzına sahip olmaları fiziksel aktiviteye katılımı destekleyen eğitimin ne kadar yeterli olduğu sorusunu akla getirmektedir. Meta-analiz çalışmalarının bir çoğu motivasyona-dayalı (Baranowski, Anderson ve Carmack, 1998) ve davranış değişimi (Kahn ve diğ., 2002) eğitimlerinin en etkili yöntemler olduğunu önermektedir. Türkiye'de yapılan bazı araştırmalar gençlerde uygulanan eğitimin fiziksel aktiviteyi desteklemekte önemli bir rol oynadığını göstermektedir (İnce, 2008). Ayrıca, serbest zaman fiziksel aktiviteye katılımı destekleyen teoriye dayalı eğitime de ihtiyaç duyulmaktadır (Chatzisarantis ve Hagger, 2009).

Bağlamlar Arası Model (BAM); öz-belirleme kuramı (ÖBK, Self-Determination Theory – SDT, Deci ve Ryan, 1985; 2000), planlı davranış kuramı (PDK, Theory of Planned Behavior – TPB, Ajzen, 1985; 1987) ve içsel-dışsal motivasyon hiyerarşik modelinin (hierarchical model of intrinsic-extrinsic motivation, Vallerand, 1997) yapılarından oluşan bütünleştirilmiş bir modeldir. ÖBK bir davranışın motivasyon yönelimi ve içsel ve dışsal motivasyon ayırımına teorik bir temel oluşturmaktadır. PDK bir davranışın belirleyicilerini niyetler, tutum, öznel normlar ve algılanan davranışsal kontrol açısından açıklamaktadır. İçsel-dışsal motivasyon hiyerarşik modeli ise bağlamsal motivasyonun yukarıdan-aşağıya

etkisini ve motivasyonun bir ortamdan diğer bir ortama aktarılmasını incelemek için teorik bir temel oluşturmaktadır.

Bağlamlar Arası Model (BAM), bir ortamdaki (mesela Beden Eğitimi dersi) motivasyonun bir başka ortama (mesela serbest zaman fiziksel aktivite ortamı) aktarılması üzerine kuruludur (Hagger ve Chatzisarantis, 2005, 2007; Hagger, Chatzisarantis, Culverhouse ve Biddle, 2003). Bu modelde motivasyonel bir sıralama mevcuttur. Bu sıralamada, önce algılanan özerklik desteği Beden Eğitimi dersindeki fiziksel aktivite davranışını etkilemek için sunulur. Beden Eğitimi dersinde sunulan motivasyonel öğe serbest zaman ortamındaki fiziksel aktiviteye yönelik otonom motivasyonu da etkilemektedir (Hagger, Chatzisarantis, Hein, Soos, Karsai, Lintunen ve Leemans, 2009; Barkoukis, Hagger, Lambropoulos ve Tsorbatzoudis, 2010). Bu öğelerin olası fiziksel aktiviteye katılıma yönelik niyetler üzerinde de etkisi vardır.

Bu modeli inceleyen çalışmaların büyük bir çoğunluğu ilişkisel çalışmalardır ve bulgular algılanan özerklik desteğinin fiziksel aktiviteye katılıma etkisi açıkça gösterilmiştir. Ancak, özerklik desteğine dayalı uygulamanın fiziksel aktiviteye katılıma etkisini inceleyen çalışmalara da gereksinim duyulmaktadır (Hagger, Chatzisarantis, Barkoukis, Wang ve Baranowski, 2005; Hagger ve diğ., 2009; Lim ve Wang, 2009; Wallhead, Hagger ve Smith, 2010).

Geçmişte yapılan çalışmalara dayanarak, teoriye dayalı eğitimin tasarlanması ve yürütülmesine ve bu eğitimin serbest zaman fiziksel aktiviteye katılıma etkilerinin incelenmesine gereksinim duyulmaktadır. Bu çalışmanın amacı BAM-dayalı eğitimin üniversite öğrencilerinin algılanan özerklik desteği, otonom motivasyon, serbest zaman fiziksel aktivite (SZFA) davranışı belirleyicileri, egzersiz ortamındaki temel psikolojik ihtiyaçlar doyumu ve fiziksel aktivite (FA) davranışı üzerine etkisini incelemektir. Buna ek olarak, katılımcıların BAM-dayalı eğitim deneyimleri de incelenmiştir.

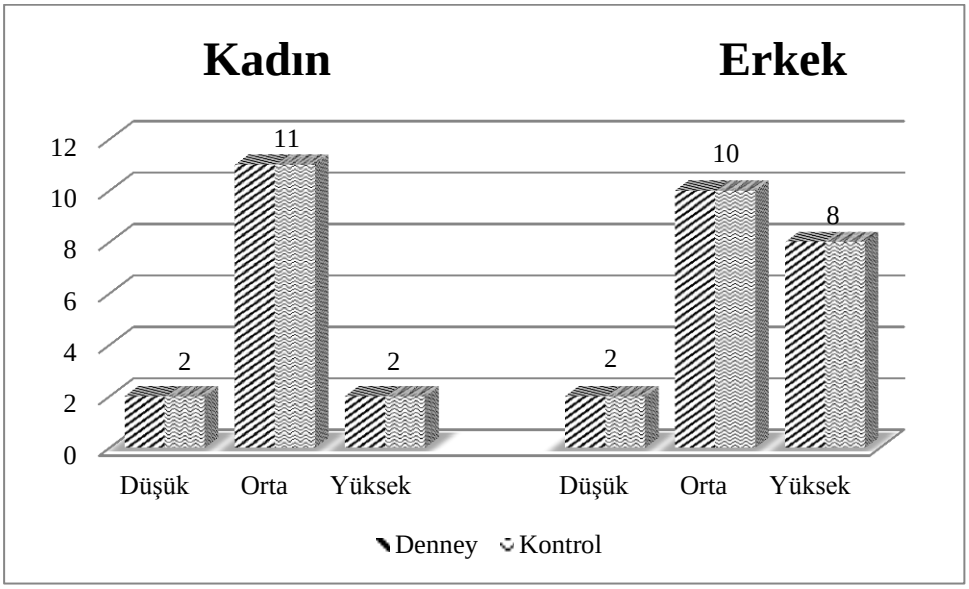
YÖNTEM

Araştırma Deseni

Bu çalışma rastgele yöntem öntest-sontest kontrol grup araştırma yöntemiyle yürütülmüştür. Bu yöntemde bir grup öğrenci rastlantısal yöntemle deney grubu ve kontrol gruplarına atanmıştır. Deney grubundaki katılımcılar 12 hafta boyunca serbest zaman fiziksel aktiviteye katılımı destekleyen BAM-dayalı eğitime katılmıştır. Kontrol grubu ise herhangi bir eğitime almamıştır. BAM-dayalı eğitimin etkisini incelemek için hem öntest hem de sontestte her iki gruptaki katılımcılara bir dizi anket uygulanmıştır. Öntestte ve sontestte uygulanan anketler bir haftalık ara ile sunulmuştur. Bu aranın verilme nedeni, benzer ölçüm araçlarının kullanılmasından kaynaklanabilecek olası hata oranını düşürmektir. Ayrıca 12 haftalık BAM-dayalı eğitimin ardından deney grubundan 13 gönüllü katılımcıyla eğitimin etkinliği hakkında birebir görüşmeler yapılmıştır. Birebir görüşmeler yaklaşık 30 dakika sürmüştür ve araştırmacı tarafından bağımsız olarak yürütülmüştür.

Katılımcılar

Bu çalışmaya 70 üniversite öğrencisi gönüllü olarak katılmıştır. Katılımcılardan 35 kişi ($M_{yaş}$ = 23.23, SD = 3.82; 15 kadın, 20 erkek) deney grubunda 35 kişi de ($M_{yaş}$ = 23.29, SD = 2.52; 15 kadın, 20 erkek) kontrol grubunda yer almıştır. Homojen bir katılımcı grubu elde etmek için her iki gruptaki kadın ve erkek katılımcıların sayısı FA seviyelerine göre denkleştirilmiştir (Figür 1). Bu çalışmada gönüllü katılım esas alınmış olup her iki gruptaki katılımcılara bilgilendirilmiş onam sunulmuştur.



Figür 1 Katılımcıların FA seviyeleri

Eğitim

BAM-dayalı eğitim 2011 – 2012 Güz döneminde 12 hafta boyunca sürmüştür. Deney grubundaki katılımcılar FA uygulaması ve teorik tartışma için haftada 2 kere bir araya gelmişlerdir. Her haftadaki oturumlar video kamera ile kayıt altına alınmıştır. Araştırmacı aynı zamanda her oturum esnasında alan-notları tutmuştur.

12 haftalık eğitim esnasında katılımcılara özerklik destekleyici öğrenme iklimi sağlanmıştır. Yapılan araştırmalarda eğitim ortamında özerklik destekleyici öğrenme ikliminin sağlanabilmesi için eğitmenin farklı özerklik destekleyici stratejilerinden bir veya bir kaçını kullanması gerektiği önerilmektedir. Bu stratejiler; (1) açıklayıcı gerekçeler sunmak, (2) içsel motivasyon kaynaklarını beslemek, (3) bilgilendirici ve denetlemeyen bir anlatım dili kullanmak, (4) seçenekler sunmak ve (5) öğrencilerin negatif düşüncelerini bilmek olarak sıralanabilir (Reeve, 2009; Su ve Reeve, 2011). Aynı şekilde, Beden Eğitimi ortamında da Beden Eğitimi öğretmeninin öğrencilerine anlamlı gerekçeler sunması, farklı fiziksel aktivite seçenekleri sunması ve öğrencilerinin bireysel farklılıklarını ve davranışsal hislerini

bilmesi gerektiği önerilmektedir (Shen, 2010; Shen, McCaughtry, Martin ve Fahlman, 2009). Bu çalışmada uygulanan BAM-dayalı eğitimin ana odağını katılımcılara sağlıkla ilişkili fiziksel uygunluk bilgisi sunmak, farklı fiziksel aktiviteleri uygulama fırsatları tanımak, fiziksel aktiviteye katılımı destekleyen özerklik destekleyici öğrenme iklimi sağlamak ve öğrencileri serbest zaman fiziksel aktiviteye katılıma dair motive etmek oluşturmuştur.

BAM-dayalı eğitimin ilk haftalarında katılımcıların kendi performans seviyelerinin belirlenmesi amacıyla gerekli fiziksel uygunluk testleri yapılmıştır. Sonraki 3 haftalık süreçte sağlıkla ilişkili fiziksel uygunluk unsurları hakkında temel bilgiler sunulmuş ve onlara çeşitli fiziksel aktivitelere katılma olanakları sağlanmıştır. Bu süreç içerisinde katılımcılar hem kendi fiziksel uygunluk seviyeleri hakkında hem de kendilerini hangi unsurlarda geliştirmeye ihtiyaçları olduğuna dair bilgi edinmişlerdir. Bir sonraki 3 haftalık süreçte sağlıkla ilişkili fiziksel uygunluk unsurlarından her birine yönelik egzersizler yapılmıştır. Bu süreçte katılımcılar kendi ihtiyaçları doğrultusunda ne tür egzersizler yapması gerektiğine dair bilgi edinmiştir. Eğitimin son 4 haftasında katılımcılar kendi ihtiyaçları doğrultusunda istedikleri egzersizleri yapmaya dair motive edilmiş ve gerektiği noktalarda kendilerine geri bildirim sağlanmıştır. Tüm eğitim esnasında özerklik destekleyici öğrenme iklimi sağlayan stratejilerden faydalanılmış olup aynı zamanda katılımcıların ders dışında kalan serbest zamanlarında fiziksel aktiviteye katılmaları desteklenmiştir.

Nicel Veri Ölçüm Araçları

Algılanan Özerklik Desteği:

Egzersiz ortamında algılanan özerklik desteğini değerlendirmek için "Egzersiz Ortamında Algılanan Özerklik Desteği Anketi" (Hagger ve diğ. 2007; 2009) kullanılmıştır. Bu anketin bireyin kendisi için önemli başkalarından (beden eğitimi ve spor eğitmeni ve arkadaşlar) kaynaklanan algılanan özerklik desteğini

değerlendirebilmek için iki boyutu bulunmaktadır: (1) Egzersiz Ortamında Beden Eğitimi ve Spor Eğitmeninden Kaynaklanan Algılanan Özerklik Desteği Anketi (EOBESEKAÖDA) ve (2) Egzersiz Ortamında Arkadaşlardan Kaynaklanan Algılanan Özerklik Desteği Anketi (EOAKAÖDA). Her iki boyut 12'şer maddeden oluşmaktadır. Maddeler tamamen katılmıyorum (1)'dan tamamen katılıyorum (7)'a doğru sıralanan 7'li Likert ölçeğe göre değerlendirilmiştir. Anketler Türkçe'ye üç farklı uzman tarafından çevrilmiştir ve bir grup üniversite öğrencisine uygulanmıştır. Güvenirlik analizi iç tutarlılık katsayısı ile yapı geçerliği ise Doğrulayıcı Faktör Analizi ile incelenmiştir. Elde edilen bulgulara göre her iki anket güvenilir ve geçerli olduğu bulunmuştur (Müftüler ve İnce, 2012a). Egzersiz Ortamında Beden Eğitimi ve Spor Eğitmeninden Kaynaklanan Algılanan Özerklik Desteği Anketi 324 üniversite öğrencisine uygulanmıştır. Anketin güvenirlik analizi sonuçları (α = .97) yüksek çıkmıştır. Doğrulayıcı Faktör Analizi anketin iyi uyum endeks değerlerine sahip olduğunu göstermiştir (χ^2 = 107.04; df = 41; p < .001; CFI= .98; TLI= .98; RMSEA= .07). Egzersiz Ortamında Arkadaşlardan Kaynaklanan Algılanan Özerklik Desteği Anketi ise 265 üniversite öğrencisine uygulanmıştır. Anketin güvenirlik analizi sonuçları da (α = .94) yüksek çıkmıştır. Doğrulayıcı Faktör Analizi sonuçlarına göre anketin iyi uyum endeks değerlerine sahip olduğu bulunmuştur (χ^2 = 116.04; df = 41; p < .001; CFI= .97; TLI= .95; RMSEA= .08).

Otonom Motivasyon:

Beden Eğitimi ortamındaki otonom motivasyonu değerlendirmek için Ryan ve Connell (1989) tarafından geliştirilen "Algılanan Nedensellik Odağı (ANO)" anketi kullanılmıştır. 18 maddeden oluşan Algılanan Nedensellik Odağı anketindeki maddeler çok doğru (4)'dan hiç doğru değil (1)'e doğru sıralanan 4-puanlı Likert tipi ölçeğe göre değerlendirilmiştir. Bu anketin 4 alt-boyutu bulunmaktadır: (1) dışsal düzenleme, (2) içe yansıtım, (3) özdeşim ve (4) içsel güdülenme. Üç farklı uzman tarafından Türkçe'ye çevrilmiştir ve 366 üniversite öğrencisine uygulanmıştır. Anketin güvenirlik analizi için iç tutarlılık katsayısı ve yapı geçerliği için

Doğrulayıcı Faktör Analizi uygulanmıştır. Alt-boyutların güvenirlik sonuçları dışsal güdülenme için α = .74, içe yansıtım için α = .79, özdeşim için α = .79 ve içsel güdülenme için α = .93 olarak bulunmuştur. Doğrulayıcı Faktör Analizi sonuçlarına göre anketin uyum endeksleri (χ^2 = 328.86; df = 113; p < .001; CFI= .93; TLI= .90; RMSEA= .07) tatmin edici düzeydedir.

Serbest zaman fiziksel aktivite ortamındaki otonom motivasyon ise Markland ve Tobin (2004) tarafından düzenlenen "Egzersizde Davranışsal Düzenlemeler Ölçeği-2" (EDDÖ-2) ile değerlendirilmiştir. 19 maddeden oluşan anketteki maddeler kesinlikle doğru değil (0)'den kesinlikle doğru (4)'a doğru sıralanan 5-puanlı Likert tipi ölçeğe göre değerlendirilmiştir. Anketin 5 alt-boyutu bulunmaktadır: (1) dışsal düzenleme, (2) içe yansıtımla düzenleme, (3) özdeşimle düzenleme, (4) içsel güdülenme ve (5) güdülenmeme (amotivasyon). Bu anketin Türkçe uyarlaması Ersöz, Aşçı ve Altıparmak (2012) tarafından yapılmıştır ve anketin geçerli ve güvenilir bir ölçüm aracı olduğunu bulmuşlardır. Bu çalışma için uygulanan güvenirlik analizi sonuçları dışsal düzenleme için α = .72, içe yansıtımla düzenleme için α = .67, özdeşimle düzenleme için α = .85, içsel düzenleme için α = .90 ve güdülenmeme (amotivasyon) için α = .82 olarak bulunmuştur.

Temel Psikolojik İhtiyaç Doyumu:

Katılımcıların egzersiz ortamındaki temel psikolojik ihtiyaç doyumu Vlachopoulos ve Michailidou (2006) tarafından geliştirilen "Egzersizdeki Temel Psikolojik İhtiyaçlar Doyumu Anketi" (ETPİDA) ile değerlendirilmiştir. 12-maddeli anketin maddeleri tamamen katılmıyorum (1)'dan tamamen katılıyorum (5)'a doğru sıralanan 5-puanlı Likert tipi ölçeğe göre değerlendirilmiştir. Anketin üç alt-boyutu bulunmaktadır: (1) özerklik ihtiyacı, (2 yeterlik ihtiyacı ve (3) aidiyet ihtiyacı. Vlachopoulos ve diğ. (2013) bu anketin, Türkiye de dahil, kültürler arası değişmezliğini saptamıştır. Bu çalışma için uygulanan güvenirlik analizi sonuçları özerklik ihtiyacı (α = .62) alt-boyutu için orta seviyede, yeterlik ihtiyacı (α = .77) ve aidiyet ihtiyacı (α = .69) alt-boyutları için orta seviyede çıkmıştır.

Planlı Davranış Kuramı Yapıları:

Planlı Davranış Kuramı yapılarının ölçeği Ajzen'in (2003) prensiplerine göre geliştirilmiştir ve kuramının açıklayıcı boyutları olan *niyetler*, *tutumlar*, *algılanan davranışsal kontrol* ve *öznel normlar*ı içermektedir. 3-maddeli *niyetler* boyutu 1'den 7'e doğru sıralanan 7-puanlı Likert tipi ölçeğe göre değerlendirilmiştir. *Tutumlar* beş maddeli 1'den 7'ye doğru sıralanan 7-puanlı çift kutuplu sıfatları olan anlam farklılıkları ölçüleri ile değerlendirilmiştir. 3-maddeli *algılanan davranışsal kontrol (ADK)* boyutu 1'den 7'e doğru sıralanan 7-puanlı Likert tipi ölçekle değerlendirilmiştir. 4-maddeli *öznel normlar* boyutu 1'den 7'ye doğru sıralanan 7-puanlı Likert tipi ölçeğe göre değerlendirilmiştir. Bu anketin adaptasyonu Müftüler ve İnce (2012b) tarafından yapılmış olup 264 üniversite öğrencisine uygulanmıştır. Anketin güvenirlik analizi iç tutarlılık katsayısı ile yapı geçerliği ise Doğrulayıcı Faktör Analizi ile incelenmiştir. Güvenirlik sonuçları *niyetler* (α = .96), *tutumlar* (α = .88), *algılanan davranışsal kontrol* (α = .86) ve *öznel normlar* (α = .85) için yüksek çıkmıştır. Doğrulayıcı Faktör Analizi sonuçlarına göre anketin uyum endeks değerleri (χ^2 = 208.60; df = 75; p < .001; CFI = .96; TLI = .94; RMSEA = .08) tatmin edici düzeydedir (Müftüler ve İnce, 2012b).

Fiziksel Aktivite Davranışı:

Katılımcıların FA davranışı FA seviyesi ve basamaklarının belirlenmesi ile değerlendirilmiştir. Katılımcıların FA seviyesi "Uluslararası Fiziksel Aktivite Anketi-Kısa Form" (UFAA; Craig ve diğ., 2003) ile değerlendirilmiştir. UFA anketi son 7 gün içerisinde yapılan fiziksel aktivitenin sıklığını, süresini ve şiddetini değerlendirir. UFA anketinin yönergesinde (IPAQ, 2005) belirtilen metabolik eşdeğer hesaplaması yapılabilir. Yapılan hesaplamalar doğrultusunda bireylerin fiziksel aktivite seviyesi düşük, orta ve yüksek düzey şeklinde sınıflandırılmaktadır. Bu anketin Türkçe uyarlaması Sağlam ve diğ. (2010) tarafından yapılmıştır.

Katılımcıların FA basamakları Marcus ve diğ. (1992)'nin geliştirdiği "Egzersiz Davranışı Değişim Basamakları Anketi" (EDDBA) ile değerlendirilmiştir.

4 maddeden oluşan bu ankette yer alan maddeler evet/hayır şeklinde cevaplanmaktadır. Bireyler egzersiz yapma niyetleri ve alışkanlıkları doğrultusunda verdikleri yanıtlara göre 5 farklı egzersiz davranışı basamağına ayrılmaktadır: (1) eğilim öncesi, (2) eğilim, (3) hazırlık, (4) hareket ve (5) devamlılık. Bu anketin Türkçe uyarlaması Cengiz, Aşçı ve İnce (2010) tarafından yapılmıştır.

Nitel Veri Ölçüm Araçları

BAM-dayalı eğitim hakkında daha detaylı görüşe sahip olmak için, katılımcıların eğitim hakkındaki görüşlerine, araştırmacı tarafından tutulan alan notlarına ve eğitimin video kayıtlarına başvurulmuştur.

Katılımcılarla yapılan bireysel görüşmeler eğitimin bitiminden sonra uygulanmıştır. Bu görüşmelerde katılımcılara fiziksel aktiviteye katılım ile ilgili (1) eğitim öncesi, (2) eğitim esnası ve (3) eğitim sonrası görüşlerini açıklaması istenilmiştir.

Bu çalışmada araştırmacı tarafından tutulan alan notları ve eğitim video kayıtları BAM-dayalı eğitimin tanımlanması için ikincil nitel veri olarak kullanılmıştır. BAM-dayalı eğitim esnasındaki eğitmen davranışları, eğitimin nasıl ilerlediği, katılımcıların durumları ve özerklik destekleyici stratejilerin nasıl uygulandığı hakkındaki detaylı bilgiler bu ikincil nitel verilere dayanarak tanımlanmıştır.

İstatistiksel Analiz

Bu çalışmada elde edilen nicel veriler hem tanımlayıcı hem de çıkarımsal istatistiksel analiz yöntemleri ile incelenmiştir. Kullanılan anketlerin Türkçeye uyarlamasında anketlerin güvenirlik analizi iç tutarlılık katsayısı ile yapı geçerliği ise Doğrulayıcı Faktör Analizi yöntemiyle incelenmiştir. Nicel veri eşleştirilmiş örneklem *t*-testi, çok tekrarlı varyans analizi, karışık desen çok değişkenli varyans analizi, ve ki-kare testi ile analiz edilmiştir. Çıkarımsal analiz yöntemleri için

istatistiksel anlamlılık seviyesi (p değeri) .05 olarak belirlenmiştir. Bireysel görüşmeler ise sistematik nitel veri analizi ile incelenmiştir. Sistematik nitel veri analizi 4 aşamada yapılmıştır: (1) mikroanaliz, (2) açık kodlama, (3) aksiyal kodlama, (4) seçici kodlama (Strauss ve Corbin, 1998).

BULGULAR

Araştırma sorusu 1: BAM-dayalı eğitimin üniversite öğrencilerinde algılanan özerklik desteğine etkisi var mıdır?

Bu çalışmada sadece deney grubunun hem eğitmenden kaynaklanan hem de arkadaşlardan kaynaklanan algılanan özerklik desteği incelenmiştir. BAM-dayalı eğitimin algılanan özerklik desteğine etkisini incelemek için eşleştirilmiş örneklem t-testi kullanılmıştır.

Elde edilen bulgular, BAM-dayalı eğitimin eğitmenden kaynaklanan algılanan özerklik desteğine anlamlı yönde etkilediğini göstermiştir. Tanımlayıcı analiz sonuçlarına göre sontest değerlerinde (M = 6.06, SE = 0.10) öntest değerlerine göre (M = 4.75, SE = 0.19) bir artış olduğu gözlemlenmiştir. Çıkarımsal analiz sonuçlarına göre öntest değerleri ile sontest değerleri arasında istatistiksel olarak anlamlı farklılık bulunmuştur ($t_{(34)} = 6.54$, $p < .05$).

BAM-dayalı eğitimin arkadaşlardan kaynaklanan algılanan özerklik desteğine de etkisi olduğu gözlenmiştir. Tanımlayıcı analiz sonuçlarına göre sontest değerlerinde (M = 5.41, SE = 0.12) öntest değerlerine göre (M = 4.88, SE = 0.15) bir artış olduğu gözlemlenmiştir. Çıkarımsal analiz sonuçlarına göre öntest değerleri ile sontest değerleri arasında istatistiksel olarak anlamlı farklılık bulunmuştur ($t_{(34)} = 3.75$, $p < .05$). Bu sonuçlar BAM-dayalı eğitimin katılımcıların eğitmenden ve arkadaşlardan kaynaklanan algılanan özerklik desteğine anlamlı etkisi olduğunu göstermiştir.

Araştırma sorusu 2: BAM-dayalı eğitimin üniversite öğrencilerinde otonom motivasyona etkisi var mıdır?

Bu çalışmada hem Beden Eğitimi hem de SZFA ortamındaki otonom motivasyon değerlendirilmiştir. Beden Eğitimi ortamındaki otonom motivasyon sadece deney grubunda incelenmiş olup çok tekrarlı varyans analizi yöntemi ile yordanmıştır.

Bu ankette yer alan 4 alt boyuttan dışsal güdülenme alt boyutunun sontest değerlerinde (M = 1.86, SS = 0.57) öntest değerlerine oranla (M = 2.05, SS = 0.49) bir düşüş olmuştur. İçe yansıtım alt boyutunda ise sontest değerlerinde (M = 2.52, SS = 0.46) öntest değerlerine oranla (M = 2.46, SS = 0.52) çok az bir artış olduğu gözlemlenmiştir. Özdeşim alt boyutunda sontest değerlerinde (M = 3.35, SS = 0.41) öntest değerlerine göre (M = 3.05, SS = 0.54) artış olmuştur. İçsel güdülenme alt boyutunda da sontest değerleri (M = 3.83, SS = 0.34) öntest değerlerine göre (M = 3.51, SS = 0.59) artmıştır. Yapılan çok tekrarlı varyans analizi sonuçlarına göre öntest ile sontest değerleri arasında özdeşim ($F_{(1,\ 34)}$ = 8.85, p < .05) ve içsel güdülenme ($F_{(1,\ 34)}$ = 8.33, p < .05) alt boyutlarında istatistiksel olarak anlamlı farklılık bulunmuştur. Dışsal güdülenme ($F_{(1,\ 34)}$ = 3.77, p = 0.06) ve içe yansıtım ($F_{(1,\ 34)}$ = 0.29, p = 0.60) alt boyutlarında ise anlamlı farklılık bulunamamıştır. Bu sonuçlar BAM-dayalı eğitimin katılımcıların Beden Eğitimi ortamındaki otonom motivasyondan özdeşim ve içsel güdülenme üzerinde olumlu yönde etkisi olduğunu göstermektedir.

SZFA ortamındaki otonom motivasyon 5 alt boyuttan oluşmaktadır. Her alt boyut hem deney ve kontrol grubu hem de öntest ve sontest değerleri için karışık desen çok değişkenli varyans analizi yöntemiyle yordanmıştır. Elde edilen bulgulara göre, BAM-dayalı eğitimin sadece gruplar arasında anlamlı farklılık yarattığı ortaya çıkmıştır (V = 0.25, $F_{(5,\ 64)}$ = 4.32, p < .05). Tek değişkenli varyans analizi sonuçlarına göre içe yansıtımla düzenleme ($F_{(1,\ 68)}$ = 9.80, p < .01), özdeşimle düzenleme ($F_{(1,\ 68)}$ = 18.33, p < .01) ve içsel düzenleme ($F_{(1,\ 68)}$ = 15.15, p < .01) alt boyutlarında anlamlı grup farklılığı saptanmıştır. Ancak dışsal düzenleme ($F_{(1,\ 68)}$ = 0.01, p = .921) ve güdülenmeme ($F_{(1,\ 68)}$ = 0.30, p = .584) alt boyutlarında ise anlamlı

grup farklılığı bulunmamıştır. Tanımlayıcı istatistiksel analiz sonuçlarına göre deney grubu içe yansıtımla, özdeşimle ve içsel düzenleme alt boyutlarında kontrol grubundan daha yüksek puan almıştır. Dışsal düzenleme ve güdülenmeme alt boyutlarında ise gruplar arasında benzer sonuçlar bulunmuştur. Bu sonuçlar BAM-dayalı eğitimin katılımcıların SZFA ortamında içe yansıtımla, özdeşimle ve içsel düzenlemede anlamlı etkisi olduğunu göstermiştir.

Araştırma sorusu 3: BAM-dayalı eğitimin üniversite öğrencilerinde serbest zaman fiziksel aktivite davranışı belirleyicilerine etkisi var mıdır?

BAM-dayalı eğitimin serbest zaman fiziksel aktivite davranışı belirleyicilerine etkisi karışık desen çok değişkenli varyans analizi yöntemiyle incelenmiştir. Elde edilen bulgulara göre, BAM-dayalı eğitimin gruplar (V = 0.19, $F_{(4, 65)}$ = 3.71, p < .05), zaman (V = 0.17, $F_{(4, 65)}$ = 3.31, p < .05) ve grup ve zaman etkileşimi (V = 0.15, $F_{(4, 65)}$ = 2.96, p < .05) üzerinde anlamlı etkisi olduğu bulunmuştur.

Grup ve zaman etkileşimi üzerinde elde edilen anlamlı farklılık için yürütülen tek değişkenli varyans analizi sonuçlarına göre, BAM-dayalı eğitimin SZFA davranışına yönelik niyet ($F_{(1, 68)}$ = 10.35, p < .0125) ve algılanan davranışsal kontrol ($F_{(1, 68)}$ = 6.61, p < .0125) boyutlarında anlamlı etkisi olduğu saptanmıştır. Ancak grup ve zaman etkileşiminin tutumlar ($F_{(1, 68)}$ = 1.21, p = .275) ve öznel normlar ($F_{(1, 68)}$ = 3.83, p = .053) üzerinde anlamlı etkisi yoktur. Tanımlayıcı istatistiksel analizi bulgularına göre, deney grubu SZFA davranışına yönelik niyet ve algılanan davranışsal kontrolü puanlarında öntestten sontest ölçümüne artırmış olmasına rağmen kontrol grubundakilerde hızlı bir düşüş olduğu gözlenmiştir. Bu sonuçlar BAM-dayalı eğitimin katılımcıların SZFA davranışına yönelik niyet ve algılanan davranışsal kontrolüne anlamlı etkisi olduğunu göstermiştir.

Araştırma sorusu 4: BAM-dayalı eğitimin üniversite öğrencilerinde egzersiz ortamındaki temel psikolojik ihtiyaç doyumuna etkisi var mıdır?

Karışık desen çok değişkenli varyans analizi sonuçlarına göre BAM-dayalı eğitimin egzersiz ortamındaki temel psikolojik ihtiyaç doyumuna anlamlı yönde grup ve zaman etkileşimi etkisi olduğu saptanmıştır ($V = 0.19$, $F_{(3, 66)} = 5.10$, $p < .05$). Tek değişkenli varyans analizi bulgularına göre, BAM-dayalı eğitimin özerklik ($F_{(1, 68)} = 11.31$, $p < .017$) ve aidiyet ($F_{(1, 68)} = 7.37$, $p < .017$) ihtiyaçları boyutlarında anlamlı etkisi olduğu saptanmıştır. Ancak yeterlilik ($F_{(1, 68)} = 1.14$, $p = .289$) ihtiyacında anlamlı bir etkisi bulunamamıştır. Tanımlayıcı istatistiksel analiz bulguları, deney grubunun özerklik ve aidiyet ihtiyaçlarında sontestte artış olmasına rağmen kontrol grubunda düşüş gözlenmiştir. Bu sonuçlar BAM-dayalı eğitimin katılımcıların özerklik ve aidiyet ihtiyaç doyumunda anlamlı etkisi olduğunu göstermiştir.

Araştırma sorusu 5: BAM-dayalı eğitimin üniversite öğrencilerinde fiziksel aktivite davranışına etkisi var mıdır?

Bu çalışmada katılımcıların FA davranışı FA seviyesi ve basamakları ile değerlendirilmiştir. Hem deney grubu hem de kontrol grubu katılımcılarının öntest ve sontest değerleri ki-kare yöntemi ile analiz edilmiştir.

Elde edilen bulgularına göre, sadece deney grubunun FA seviyesinde ($\chi^2_{(2)} = 7.46$, $p < .05$) öntest ve sontest değerlerinde anlamlı farklılık saptanmıştır. Kontrol grubunda anlamlı farklılık bulunamamıştır ($\chi^2_{(4)} = 4.87$, $p = .301$). Katılımcıların FA basamakları bulgularına göre, hem deney grubunda ($\chi^2_{(9)} = 19.43$, $p < .05$) hem de kontrol grubunda ($\chi^2_{(16)} = 27.68$, $p < .05$) öntest ve sontest değerlerinde istatistiksel olarak anlamlı farklılık bulunmuştur. Bu sonuçlar BAM-dayalı eğitimin katılımcıların FA davranışına anlamlı etkisi olduğunu göstermiştir.

Araştırma sorusu 6: Üniversite öğrencileri BAM-dayalı eğitimin deneyimlerini nasıl tanımlıyorlar?

Katılımcıların BAM-dayalı eğitim deneyimleri hakkında daha detaylı bilgi almak amacıyla bireysel görüşmeler yapılmıştır. Buna göre katılımcıların BAM-dayalı eğitim ortamını tanımladıkları ortak görüşleri 4 ana tema üzerinde odaklanmıştır. Bunlar (1) düzenli olarak fiziksel aktiviteye katılım, (2) bilgi ihtiyacı, (3) öğrenme ortamı ve (4) fiziksel aktiviteye katılıma dair özerkleşme olarak sıralanabilir.

TARTIŞMA ve SONUÇ

Yapılan analizler sonucunda BAM-dayalı eğitimin üniversite öğrencilerinin SZFA davranışı üzerine olumlu yönde etkisi olduğu söylenebilir. Tanımlayıcı istatistik analizi sonuçlarına göre dönem başında uygulanan öntest sonuçları ile dönem sonunda uygulanan sontest sonuçları arasında özerklik desteği, otonom motivasyon, Planlı Davranış Kuram yapıları ve temel psikolojik ihtiyaç doyumunda genel olarak bir artış olduğu gözlemlenmiştir. Çıkarımsal istatistik analizi sonuçlarına göre Bağlamlar Arası Model'in yapılarının bazılarında istatistiksel olarak anlamlı farklılıklar bulunmuştur. Bunun yanı sıra, eğitime katılan öğrencilerin kontrol grubu öğrencilerine nazaran SZFA davranışında anlamlı değişiklikler olduğu gözlenmiştir.

Algılanan özerklik desteğinin hem eğitmen hem de arkadaşlar boyutlarında öntest ve sontest değerlerindeki artış ve ortaya çıkan anlamlı farklılık eğitime katılan bireylerin algılanan özerklik desteğini olumlu yönde etkilendiğini göstermektedir. Bu bulgular alan yazındaki çalışmalarla da benzerlik göstermektedir. Ortaokul öğrencileriyle yapılan bir çalışmada Beden Eğitimi dersindeki özerklik destekleyici öğrenme ikliminin etkisi incelenmiştir (Shen ve diğ., 2009). Elde edilen bulgular Beden Eğitimi öğretmeninden kaynaklanan özerklik desteği ders içerisindeki

öğrenme ve öğrencilerin otonom motivasyonunu geliştirdiğini göstermiştir. Bir başka çalışmada ise Beden Eğitimi öğretmeninin özerklik destekleyici davranışlarının serbest zaman fiziksel aktiviteye katılıma etkisi incelenmiştir (Pihu, Hein, Koka ve Hagger, 2008). Bulgular Beden Eğitimi öğretmeninin özerklik destekleyici davranışları lise öğrencilerini serbest zaman fiziksel aktiviteye katılmaya dair motive ettiğini göstermiştir. Hagger ve diğ. (2009)'nin çalışmasında Beden Eğitimi öğretmeninin yanı sıra arkadaşlardan ve ebeveynlerden kaynaklanan algılanan özerklik desteğinin de serbest zaman fiziksel aktiviteye katılıma etkisi olduğu bulunmuştur. Bu çalışmada elde edilen bulgular BAM-dayalı eğitimin eğitmenden ve arkadaşlardan kaynaklanan algılanan özerklik desteğine olumlu yönde etkilediğini göstermektedir.

Beden Eğitimi dersi ortamındaki otonom motivasyon alt-boyutlarından özdeşim ve içsel güdülenme boyutlarında anlamlı farklılık bulunmasına rağmen içe yansıtım ve dışsal güdülenme boyutlarında anlamlı farklılık bulunamamıştır. SZFA ortamındaki otonom motivasyon alt-boyutları incelendiğinde ise içe yansıtımla düzenleme, özdeşimle düzenleme ve içsel düzenleme alt-boyutlarında anlamlı farklılık ortaya çıkmıştır. Diğer alt-boyutlarda anlamlı farklılık bulunamamıştır. Bu bulgular BAM-dayalı eğitimin hem Beden Eğitimi hem de SZFA ortamındaki otonom motivasyonun daha çok özerkleşmiş çeşitlerine (yani içe yansıtım, özdeşim ve içsel güdülenme) olumlu yönde etkisi olduğunu, daha az özerkleşmiş çeşitlerine ise (yani dışsal güdülenme ve güdülenmeme) etkisi olmadığını göstermektedir. Alan yazında da benzer bulgular bulunmaktadır. Ortaokul öğrencileriyle yapılan bir çalışmada öğrencilerin algılanan özerklik desteği, davranışsal düzenlemeleri ve okul dışı fiziksel aktiviteye katılıma dair niyetleri arasındaki ilişki incelenmiştir (Lim ve Wang, 2009). Bu çalışmada elde edilen bulgular, ortaokul öğrencilerinin Beden Eğitimi öğretmeninden kaynaklanan algılanan özerklik desteğinin Beden Eğitimi dersi ortamındaki özdeşim ve içsel güdülenme üzerinde etkili olduğunu göstermiştir. SZFA ortamındaki otonom motivasyonu inceleyen başka çalışmalar da benzer sonuçlar göstermiştir. İçeriğinde özerklik destekleyici eğitim uygulaması bulunan çalışmalar özerklik destekleyici eğitimlerin hem Beden Eğitimi dersi ortamındaki

(Mandigo, Holt, Anderson ve Sheppard, 2008; Wallhead ve diğ., 2010) hem de SZFA ortamındaki (Edmunds, Ntoumanis ve Duda, 2008; Moustaka, Vlachopoulos, Kabitsis ve Theodorakis, 2012) daha çok özerkleşmiş motivasyon çeşitlerine olumlu etkisi olduğunu göstermiştir. Bu bulgular doğrultusunda bireylerin hem Beden Eğitimi dersi hem de SZFA ortamındaki kişisel tatmini ve zevkine dayanarak kendi başına fiziksel aktiviteye katılması için gerekli olan kişisel isteklerinin olumlu yönde etkilendiği söylenebilir (Hagger ve diğ., 2005).

Planlı Davranış Kuramı yapıları (niyetler, tutumlar, öznel normlar ve algılanan davranışsal kontrol) açısından incelendiğinde tanımlayıcı istatistik bulguları uygulamaya katılan öğrencilerin önümüzdeki 4 hafta boyunca fiziksel aktiviteye katılıma dair niyetlerinin olduğunu, olumlu tutumlar geliştirdiğini, sosyal çevrelerinden desteklendiğini ve kendi yeteneklerini olumlu algıladığını göstermiştir. Çıkarımsal istatistik analizi sonuçları ise SZFA davranışına yönelik niyet ve algılanan davranışsal kontrol boyutlarında hem grup hem de ölçüm zamanında anlamlı farklılık olduğunu göstermiştir. Buna göre BAM-dayalı eğitime katılan bireylerin SZFA davranışına yönelik niyeti ve algılanan davranışsal kontrolü eğitime katılmayan bireylerden daha yüksek olduğu ve bu bireylerde sontestte hızlı bir düşüş olduğu ortaya çıkmıştır. Alan yazında belirtilen meta-analiz çalışmalarında egzersize katılım ve beslenme gibi sağlıkla ilişkili davranışlar için Planlı Davranış Kuramı ile Öz-Belirleme Kuramı yapılarının bütünleştirilebileceği önerilmektedir (Hagger ve Chatzisarantis, 2009; Hagger, Chatzisarantis ve Harris, 2006). Bu meta-analiz çalışmaları bireylerin sağlıkla ilişkili davranışına yönelik içsel güdülenme düzeyi arttıkça o davranışı gösterme ve uygulama niyetlerinin arttığını göstermektedir. Alan yazında yer alan deneysel çalışmalar da benzer sonuçları göstermektedir (Wallhead ve diğ., 2010). Bu bulgular BAM-dayalı eğitimin SZFA davranışına yönelik niyet ve algılanan davranışsal kontrol üzerinde olumlu etkisi olduğunu göstermektedir.

Bireylerin egzersiz ortamındaki temel psikolojik ihtiyaçlarından özerklik ve aidiyet ihtiyacı boyutlarında anlamlı farklılık ortaya çıkmıştır. Yeterlik ihtiyacı boyutunda ise anlamlı farklılık bulunamamıştır. Alan yazında temel psikolojik ihtiyaç doyumunun Beden Eğitimi ve SZFA ortamındaki otonom motivasyonu

yordadığına dair çalışmalar yer almaktadır (Barkoukis ve diğ., 2010). Ortaokul öğrencilerinin Beden Eğitimi dersindeki motivasyonu ve FA davranışındaki değişimi inceleyen bir araştırmada elde edilen bulgular temel psikolojik ihtiyaç doyumunun önemli değişkenler olduğu önerilmektedir. Bu çalışmanın sonuçlarına göre özerklik ve aidiyet ihtiyaç doyumu zaman içerisinde daha çok değişkenlik göstermiştir (Cox, Smith ve Williams, 2008). Edmunds ve diğ., (2008) tarafından yürütülen bir başka araştırmada ise Öz-Belirleme Kuramına dayalı egzersiz programının kadın üniversite öğrencilerinin temel psikolojik ihtiyaç doyumu, davranışsal düzenlemeleri, egzersiz davranışları ve davranışsal niyetlerine etkisi incelenmiştir. Eğitime katılan kadın öğrencilerin aidiyet ve yeterlik ihtiyaç doyumunda sürekli bir ilerleme olduğu gözlenmiştir. Bu çalışmada elde edilen bulgular BAM-dayalı eğitimin özerklik ve aidiyet ihtiyacı doyumuna olumlu etkisi olduğunu göstermektedir.

Bu çalışmanın bulgularına genel olarak bakıldığında eğitime katılan bireylerin FA seviyesi ve basamaklarında önemli değişikliklerin olması BAM-dayalı eğitimin üniversite öğrencilerinin SZFA davranışı üzerinde olumlu yönde etkisi olduğu söylenebilir. Bu bulgular alan yazındaki benzer çalışmalar tarafından desteklenmektedir. Özerklik destekleyici ortam hem Beden Eğitimi (Pearlman, 2013) hem de serbest zaman ortamındaki (Chatzisarantis ve Hagger, 2009; Wallhead ve diğ., 2010) fiziksel aktiviteye katılımı desteklemektedir. Böylece, BAM-dayalı eğitimin hem ders içi hem de ders dışı fiziksel aktiviteye katılımı olumlu yönde etkilediği belirtilmektedir.

Bu bulguların yanı sıra, BAM-dayalı eğitim ortamını tanımlayan ana temalar da incelenmiş olup alan yazındaki benzer çalışmalarla desteklenmiştir. Buna göre katılımcılar düzeni olarak fiziksel aktiviteye katılmaya ihtiyaç duymakta (O'Dougherty, Kurzer ve Schmitz, 2010), uygulanan eğitimin öğrenme ortamını keyifli geçirilen zaman olarak tanımlamakta (Jenkins ve Alderman, 2011) ve FA davranışına dair daha çok özerkleştiğini (McBride ve Xiang, 2013) belirtmektedir. Ayrıca bir diğer önemli tanımlamada ise katılımcılar fiziksel aktiviteye dair bilgi ihtiyacı duyduklarını da belirtmişlerdir.

ÖNERİLER

Bu çalışmada elde edilen bulgular doğrultusunda bazı öneriler sunulmaktadır. Bunlar:

1. BAM-dayalı eğitimin algılanan özerklik desteği kaynaklarından (öğretmen, arkadaş, antrenör, ebeveyn ve benzeri) hangisine daha çok etki ettiğinin araştırılması,
2. BAM-dayalı eğitimin etkililiğinin okul çağı öğrencilerde araştırılması,
3. Ders ortamında oluşturulan özerklik destekleyici iklimin bireyin yakın çevresinde oluşturulması ve bunun bireyin fiziksel aktiviteye katılımına etkisinin incelenmesi
4. SZFA davranışının kalıcılığının incelenmesi için BAM-dayalı eğitim bittikten sonra da bireylerin fiziksel aktiviteye katılım durumlarının araştırılması olarak sıralanmaktadır.

Appendix I: Curriculum Vitae

PERSONAL INFORMATION
Surname, Name: Müftüler, Mine
Date and Place of Birth: 30 June 1980, Denizli
e-mail: minemuftuler@gmail.com

EDUCATION

Degree	Institution	Year
MS	Muğla University, Recreation Department	2008
MS	Middle East Technical University, Physical Education and Sport Department	2005
BS	Middle East Technical University, Physical Education and Sport Department	2002

WORK EXPERIENCE

2012 – 2013	Visiting scholar at North Carolina State University, Department of Parks, Recreation & Tourism Management
2008 – present	Research assistant at Middle East Technical University, Department of Physical Education and Sport
2005 – 2008	Research assistant at Muğla University, School of Physical Education and Sport

PUBLICATIONS

1. Müftüler, M. and İnce, M.L. (2013). Facilitating leisure-time physical activity by autonomy supportive learning climate. *Research Quarterly for Exercise and Sport*, 84(S1), A51.
2. Yıldırım, G., İnce, M.L., and Müftüler, M. (2012). Physical Activity Perceptions of Neighborhood Walkability among Turkish Women in Low and High Socio-Economic Environments: An Exploratory Study. *Perceptual and Motor Skills*, 115(2), 661-675.
3. Müftüler, M., Yapar, A., İrez, S.G., and İnce, M.L. (2011). Examination of public parks for physical activity participation by their location, size and facilities. *The Shield – International Journal of Physical Education & Sports Science*, 6, 14-25.

Appendix J: TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

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

YAZARIN

Soyadı : Müftüler
Adı : Mine
Bölümü : Beden Eğitimi ve Spor Bölümü

TEZİN ADI (İngilizce) : Use of Trans-Contextual Model Based Intervention in Developing Leisure-Time Physical Activity Behavior

TEZİN TÜRÜ : Yüksek Lisans [ ] Doktora [X]

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

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: