

AN ABSTRACT OF THE DISSERTATION OF

Maryam Arab for the degree of Doctor of Philosophy in Exercise and Sports Science
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Title: Barriers to Exercise: Kuwaiti Individuals With and Without Physical Disabilities

Abstract approved:

Joonkoo Yun

The purpose of this study was to investigate the stages of exercise change, the levels of physical activity, and barriers to exercise among Kuwaiti individuals with and without disabilities. This study was conducted on 100 participants (50 males and 50 females) aged from 18 to 55 years. Stage of exercise change scale was used to assess exercise behavior and behavioral intention among the participants. To assess physical activity, the short version of the International Physical Activity Questionnaire was used for individuals without disabilities and the Physical Activity Scale for Individuals with Physical Disabilities was used for individuals with physical disabilities. Barriers to Physical Activity and Disability Survey was used to identify the top barriers to exercise. Results from the 2×2 ANOVA showed that there was a significant difference between the two groups (with and without disabilities and individuals with physical disabilities) on the level of physical activity, $F(1, 96) = 8.13, p < .05, \eta^2 = .078$. There were no significant differences between male and female participants on the levels of physical activity, $F(1, 96) = 1.19, p > .05, \eta^2 = .036$. Chi-square tests showed that there were no significant associations between the stages of exercise change distribution and gender, $\chi^2(4, N = 100) = 5.50, p > .05$, or with and without

disability groups, $\chi^2(4, N = 100) = 4.68, p > .05$. When investigating barriers to exercise, the 2×2 chi-squares (gender \times barriers) showed significant differences between genders on the lack of time barrier. There were also significant differences between genders on the lack of energy barrier, females reporting higher percentages for the lack of energy barrier than males. The 2×2 chi-squares (group \times barriers) showed that lack of transportation was significant for individuals with disabilities. Individuals without disabilities reported higher percentages for lack of time and feeling bored when exercising than individuals with physical disabilities. Findings also indicated that Kuwaiti customs were not barriers to exercise. Hot weather was reported as an environmental barrier to exercise and the need for mass media-based campaigns to promote physical activity was also reported.

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Barriers to Exercise: Kuwaiti Individuals With and Without Physical Disabilities

by
Maryam Arab

A DISSERTATION

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degree of

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APPROVED:

Major Professor, representing Exercise and Sports Science

Chair of the Department of Nutrition and Exercise Sciences

Dean of the Graduate School

I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

Maryam Arab, Author

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CONTRIBUTION OF AUTHORS

Dr. Joonkoo Yun assisted in data interpretation of this dissertation. Ms. Susan Huot assisted in formatting and editing the chapters of this dissertation.

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DEDICATION

To my loving husband, Yousef Arti, you have always encouraged me to try my best and work toward achieving my goals. We have been through a lot together and I am forever grateful to have a caring and wonderful friend like you, I owe everything to you, I love you so much.

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To my father, Khaleefa Arab, it is unfortunate that you never saw your youngest baby earn her PhD. I miss you so much. You will be always in my heart.

CHAPTER 1: GENERAL INTRODUCTION

Considerable research has shown that individuals with and without disabilities can improve their health by participating in physical activity on a daily basis (U.S. Department of Health and Human Services [USDHHS], 1996). Several scientific studies showed that even a moderate amount of physical activity significantly lessens the risk of morbidity and mortality of coronary heart disease and provides preventive benefits for type 2 diabetes, osteoporosis, hypertension, colon cancer, and obesity (Branch, Pate, & Bourque, 2000; Lee & Paffenbarger, 2000). Physical activity also provides psychological benefits by reducing levels of anxiety and depression, enhancing self-esteem, and improving the mood state (Da Costa, Dobkin, Dritsa, & Fitzcharles, 2001; Schomer & Drake, 2001).

Due to the importance of physical activity, the Centers for Disease Control and Prevention (CDC) and the American College of Sports Medicine (ACSM) developed public health recommendations based on existing scientific research to promote physical activity that are more suitable and possible to the American public. According to the CDC (USDHHS, 1996), all adults should participate in at least 30 minutes of moderate intensity physical activity in a single session or accumulated in multiple sessions on most days of the week in order to achieve health benefits. These physical activities include either planned or unplanned activities such as brisk walking, household activities, and engaging in recreational programs (Dunn et al., 1998).

The research findings have indicated that different types of demographic characteristics are associated with decreased physical activity levels (Heesch, Brown, & Blanton, 2000; Rimmer, Rubin, Braddock, & Hedman, 1999). According to Healthy People 2010 (USDHHS, 2000), inactivity has been reported to be more common in (a) women than men, (b) African American and Hispanics adults than Caucasians, (c) elderly individuals than younger adults, (d) less affluent than people who receive a higher household income, (e) less educated than higher educated adults, and (f) people with disabilities.

Considerable progress in literature has been made in identifying the various components associated with inactivity such as personal and external factors (Brownson, Baker, Housemann, Brennan, & Bacak, 2001; Dishman, Sallis, & Orenstein, 1985; Wilcox, Oberrecht, Bopp, Kammermann, & McElmurray, 2005). Many people had their own personal factors that related to sedentary lifestyle such as lack of time, blue-collar occupation, unaware of the benefits of exercise, age, intensity of exercise, feeling too tired, and being lazy (Brownson et al.; Dergance et al., 2003). The external factors that associated with inactivity were lack of transportation, cost of exercise, and lack of facilities (Henderson & Ainsworth, 2000; Wilcox et al.). In addition to the previous factors, cultural differences may play an important role in governing women's participation in physical activity particularly in Islamic countries (Ogu, 1999; Sfeir, 1985). While few studies have been conducted on physical activity in Kuwait, one study by Al-Isa (2003) indicated that women are less physically active than men. Olusi, Al-Awadi, and Abraham (2003) investigated the incidence of risk

factors for coronary disease among Kuwaitis aged 15 years and older revealed that physical inactivity was more common among women (71.4%) than among men (50.6%).

Several studies have been utilized to understand the physical activity behavior and the stages of change (Cardinal & Sachs, 1996; Costakis, Dunnagan, & Haynes, 1999; Marcus & Simkin, 1993). Prochaska and DiClemente (1983) presented the transtheoretical model for incorporating current behavioral status with an individual's intention to change one's behavior. They highlighted the importance of designing programs that are modified to the appropriate stage of change. Moreover, this model suggests that individuals attempting to adopt a health behavior progress through five stages of changes. The stages of changes model was originally developed for smoking cessation, and has been modified to be appropriate for physical activity adoption and for the development of activity programs (Marcus, Selby, Niaura, & Rossi, 1992). The stages of change for physical activity are as follow:

1. Precontemplation: individuals have no intention to engage in any physical activity within the next 6 months.
2. Contemplation: individuals are not engaging in physical activity but they intend to participate within the next 6 months.
3. Preparation: individuals are engaging in some physical activity, but not regularly.
4. Action: individuals have been engaging in regular physical activity for less than 6 months.
5. Maintenance: individuals have sustained their physical activity for more than 6 months.

Statement of the Problem

Identifying factors that influence the involvement in exercise and physical activity is important (Cooper et al., 1999). Although several studies have suggested barriers that prevent people from participating in regular exercise (Brownson et al., 2001; Wilcox et al., 2005), one should not assume that the results apply to the different cultures and ethnicities. There are differences between the eastern and western cultures in customs and social attitudes regarding women's participation in physical activities (Kahan, 2003; Sfeir, 1985; Zaman, 1997). Moreover, identifying stages of exercise change for Kuwaiti women with physical disabilities may help to establish appropriate physical activity programs. There is limited information on stages of exercise change, barriers, and levels of physical activity among Kuwaiti individuals in general and Kuwaiti individuals with physical disabilities in particular. Therefore, this research may help to establish new plans to promote an active lifestyle for people with disabilities and also may help to create a health intervention program that could overcome the identified barriers to exercise and then improve the well-being and the health of individuals with disabilities.

Purpose of the Study and Research Questions

The purposes of this study were to investigate the stages of change, levels of physical activity, and perceived barriers among Kuwaiti individuals with and without physical disabilities.

Research Questions

1. Is there a significant difference among the four groups (men with and without physical disabilities, women with and without physical disabilities) on the level of physical activity?
2. Is there a relationship between the different groups (men with and without physical disabilities, women with and without physical disabilities) and the reported stages of exercise change?
3. What are the top perceived personal and environmental barriers that prevent Kuwaiti individuals with and without physical disabilities from participating in physical activity?
4. Are social values and traditional customs preventing Kuwaiti women with and without physical disabilities from participating in physical activity?

Limitations

1. All responses were self-reported, which may result in biased conclusions.
2. Most of the participants did not give detailed answers to the open-ended questions.

Delimitations

1. This study was conducted on 100 participants of Kuwaiti individuals with and without physical disabilities who were willing and able to volunteer for this study.
2. The sample of this study was individuals who ranged in age from 18 to 55 years old.

Assumptions

1. Kuwaiti individuals with and without physical disabilities could understand the questions, and would answer the questions in an honest and sincere manner.
2. The MET scores that were created from the International Physical Activity Questionnaire and the Physical Activity Scale for Individuals with Physical Disabilities represent comparative values.

Definitions of Terms

Duration: Quantity of minutes at elevated energy expenditure levels.

Handicapped Care Administration (HCA): An administration at the Ministry of Social Affairs and Labor in Kuwait State that provides benefits and services for individuals with disabilities.

Intensity: The degree of overload on selected physiological systems.

Moderate Activity: Three or more days of vigorous activity of at least 20 minutes per day, or 5 or more days of moderate-intensity activity or walking of at least 30 minutes per day, otherwise 5 or more days of any combination of walking, moderate-intensity or vigorous intensity activities achieving a minimum of at least 600 MET-min/week.

Physical Activity: Any bodily movement that is produced by contraction of large muscle groups and results in increased energy expenditure.

Physical Activity Frequency: The number of times per day in a week the individual involves in physical activities.

Vigorous Activity: Vigorous-intensity activity on at least 3 days and accumulating at least 1500 MET-minutes/week, or 7 or more days of any combination of walking, moderate-intensity or vigorous intensity activities achieving a minimum of at least 3000 MET-minutes/week.

CHAPTER 2

STAGES OF EXERCISE CHANGE AND PHYSICAL ACTIVITY LEVELS OF KUWAITI INDIVIDUALS WITH AND WITHOUT PHYSICAL DISABILITIES

Maryam Arab

Abstract

The purpose of this study was to investigate the stages of exercise change and the levels of physical activity among Kuwaiti individuals with and without physical disabilities. This study was conducted on 100 participants (50 males and 50 females) ranging in age from 18 to 55 years old. To assess physical activity, the short version of the International Physical Activity Questionnaire was used for individuals without disabilities and the Physical Activity Scale for Individuals with Physical Disabilities was used for individuals with physical disabilities. Also, the Stage of Exercise Change Scale was used to assess exercise behavior and exercise intention among the participants. Results from 2×2 (group \times gender) ANOVA showed that there was a significant difference between the two groups on the level of physical activity, $F(1, 96) = 8.13, p < .05, \eta^2 = .078$. Individuals without disabilities have higher levels of physical activity than individuals with physical disabilities. Also, results from this study indicated no significant interaction between males and females on the levels of physical activity. No relationship was found between the stages of exercise change distribution and the different groups.

Introduction

The linkages between individual lifestyle and health outcomes have been well documented (Lee & Paffenbarger, 2000; Lee, Rexrode, Cook, Manson, & Buring, 2001; U.S. Department of Health and Human Services [USDHHS], 2000). According to Healthy People 2010 (USDHHS), insufficient physical activity increases the risk of developing diabetes, coronary heart disease (CHD), high blood pressure, and colon cancer. In addition, regular physical activity increases lean muscles, helps decrease body fat, enhances psychological well-being, and may reduce the risk of developing depression.

Encouraging results from several scientific studies indicate that even a moderate amount of physical activity significantly reduces the risk of morbidity and mortality from heart disease. Lee et al. (2001) examined the association between physical activity, particularly walking, and CHD among women with high risks of CHD. The results showed that while light to moderate exercise is related to lower CHD rates in women, the researchers also observed that vigorous activities were not necessary to lower CHD rates. Walking 1 hour per week predicted lower risk, and time spent walking was more significant than walking pace (Lee et al.). Other studies found that moderate physical activity can lower mortality rates, prevent stroke by strengthening the heart muscle, lowering blood pressure, raising high-density lipoprotein (HDL) levels (good cholesterol) and lowering low-density lipoprotein

(LDL) levels (bad cholesterol), improving blood flow, and increasing the heart's working capacity (Fonong et al., 1996; Lee & Paffenbarger, 2000; Williams, 1998).

In the United States, the proportion of adults who do regularly exercise is only 15% and 40% of adults were not involved in leisure-time physical activities (USDHHS, 2000). Furthermore, physical activity is less common among women than men and among those with lower income and less education. Also, people with disabilities are less physically active than people without disabilities (USDHHS). Several studies in Kuwait suggest that the Kuwaiti population has very low levels of physical activity. Results from these studies also showed that women were more sedentary than men (Al-Asi, 2003; Olusi et al., 2003). Also, the obesity rate is very high and the chronic diseases such as high blood pressure and diabetes are common among inactive individuals (Al-Isa, 2003). It was concluded that overweight and obesity are associated to health problems and are more common among inactive individuals. In addition, Kuwaiti women, similar to men, have high risk factors for coronary artery disease (Al-Asi; Olusi et al.).

One of the most effective models to understand the reason why people choose not to be active is the transtheoretical model (TTM) of behavior change. It was developed by Prochaska and DiClemente (1983) as a general model of intentional behavior change. TTM was developed for application in the area of smoking cessation, and it has been extended to research in many forms of health behavior including exercise. TTM postulates that individuals' behaviors can be classified as follows: (a) precontemplation: individuals have no intention of engaging in any

physical activity within the next 6 months; (b) contemplation: individuals are not engaging in physical activity but intend to participate within the next 6 months; (c) preparation: individuals are engaging in some physical activity, but not regularly; (d) action: individuals have been engaging in regular physical activity for less than 6 months; and (e) maintenance: individuals have sustained their physical activity for more than 6 months (Cardinal, 1997; Marcus & Simkin, 1993).

The TTM framework is considered one of the promising approaches for enhancing physical activity behavior. Targeting interventions to individual stages of change for physical activity, TTM shows promise for enhancing readiness to adopt physical activity and for achieving improved stage progress toward physical activity adherence (Griffin-Blake & DeJoy, 2006). In order to develop a suitable physical activity program targeting the individual's needs, it is important to explore stages of exercise changes. There is very limited information about the stages of exercise change and physical activity level among Kuwaiti individuals in general and Kuwaiti individuals with physical disabilities in particular. Therefore, the purpose of this study was to investigate the stages of exercise change and the levels of physical activity among Kuwaiti individuals with and without physical disabilities. The specific questions for this study were: (a) Is there a significant difference among the four groups (men with and without physical disabilities, women with and without physical disabilities) on the level of physical activity? (b) Is there a relationship between the different groups and the reported stages of exercise change?

Methods

Participants

Participants in this study included 100 Kuwaiti individuals with and without physical disabilities, ranging in age from 18 to 55 years old. Table 2.1 shows specific demographic information. Participants with physical disabilities were convenience samples recruited from the Handicapped Care Administration (HCA) at the Ministry of Social Affairs and Labor. The participants without physical disabilities were also convenience samples from the Ministry of Education. The HCA and the Ministry of Education provided the researcher with the participants' names, types of disabilities, and telephone numbers. The participants were contacted by phone to request their involvement in this study. A total of 62 individuals with physical disabilities were contacted, 50 of them consented to participate and the remaining 12 declined to participate. Eighty-six individuals without physical disabilities were contacted, 50 of them agreed to participate, 11 could not be reached, and 25 were not interested in this study. All participating individuals read and signed the informed consent documents before proceeding to the questionnaires.

Table 2.1.
Demographics Information

Group ^a	Male		Female	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
With Disability	25.88	7.84	28.16	7.71
Without Disability	30.96	9.99	29.16	10.21

^a *n* = 25 for each group.

Instruments

The stage of exercise change scale (Cardinal, Kosma, & McCubbin, 2004) was used to assess the participant's exercise behavior and intention. The scale included five-choice responses to indicate their readiness to be involved in exercise. The content of the five choices are: "Yes, I have been for more than 6 months (*Maintenance*)"; "Yes, I have been, but for less than 6 months (*Action*)"; "Not regularly, but I engage in such activities occasionally and plan to start on a regular basis within the next month (*Preparation*)"; "No, but I'm thinking of starting in the next 6 months (*Contemplation*)"; and "No, and I am not thinking of starting in the next 6 months (*Precontemplation*)" (see Appendix B).

To measure physical activity, the short version of the International Physical Activity Questionnaire (IPAQ) was used for individuals without disabilities. The short form of the IPAQ survey is suitable for assessing individuals' levels of physical activity across countries (Craig et al., 2003). The items in the short IPAQ form were structured to provide separate scores on walking, moderate-intensity, and vigorous-intensity activities (see Appendix C). Computation of the total score for the short form requires summation of the duration (minutes) and frequency (days) of walking, moderate-intensity, and vigorous-intensity activities.

Data from the IPAQ was used to estimate the total weekly physical activity by weighting the reported minutes per week within each activity category by a MET energy expenditure estimate assigned to each category of activity (Craig et al., 2003). METs are multiples of the resting metabolic rates and a MET-minute is calculated by

multiplying the MET score of an activity by the minutes performed by the number of days that activity was performed. According to the IPAQ executive committee (IPAQ, n.d.), the MET-minutes per week was 8 for vigorous activity, 4 for moderate activity, and 3.3 for walking. For example, a person who engaged twice a week in vigorous physical activity for 10 minutes ($8 \text{ MET value} \times 10 \text{ min} \times 2 \text{ days} = 160 \text{ MET-min/wk}$), engaged in moderate physical activity twice a week for 10 minutes ($4 \text{ MET value} \times 10 \text{ min} \times 2 \text{ days} = 80 \text{ MET-min/wk}$), and walked twice a week for an hour ($3.3 \text{ MET value} \times 60 \text{ min} \times 2 \text{ days} = 396 \text{ MET-min/wk}$) would obtain 636 MET-min/wk by adding up the MET value results for each activity. Three levels of physical activity were defined according to the scoring protocol that was established by the IPAQ executing committee. A person was considered (a) highly active if the accumulated total score was at least 1,500 or higher MET-min/wk, (b) moderately active if the accumulated total score was at least 600 or higher MET-min/wk, and (c) inactive if the accumulated total score was less than 600 MET-min/wk (IPAQ, n.d.).

The Physical Activity Scale for Individuals with Physical Disabilities (PASIPD) (Washburn, Zhu, McAuley, Frogley, & Figoni, 2002) was used for individuals with physical disabilities. The IPAQ was not used for individuals with physical disabilities because it was developed for the general population and it focused on measuring participation in physical activities that require typical walking, jogging, and bicycling. Using a wheelchair to move is common among people with physical disabilities. However, both instruments are self-report physical activity measures that

convert the results to MET values. PASIPD is a self-reported measure of physical activity and is suitable for assessing individuals with physical disabilities (Washburn et al., 2002). PASIPD consisted of 13 items that included 6 items for leisure time, 6 items for household, and 1 item for occupational activity (see Appendix C). PASIPD called for information relating to leisure activities, which included walking and wheeling; household activities (i.e., home repair, lawn job, and outdoor gardening); and occupational activities. Participants were asked to recall the number of days and average hours per day that they participated in these activities for the past week. Computation of the total score for the PASIPD required summation of the intensity: duration (in minutes) and frequency (in days). Data from the PASIPD was then used to estimate total weekly physical activity by multiplying the average hours per day for each item by a MET value related to the intensity of the activity and summing over Items 2 through 13. METs are multiples of the resting metabolic rate, and by using this scoring method, one can possibly obtain a maximum score of 199.5 MET-hrs/day (Washburn et al.). For example, a person who engaged in walking or wheeling 5 to 7 days a week for 2 to 4 hours on a daily basis, engaged in moderate sport or recreational activities 3 to 4 days a week for less than 1 hour, engaged in light household activities 3 to 4 days a week for 1 hour, and did home repairs such as painting 1 to 2 days a week for less than 1 hour daily would obtain a PASIPD score of 10.31 MET-hrs/day. The scoring system of the PASIPD is in Appendix D.

Procedures

Each participant was given a questionnaire. The participants were instructed to read the informed consent before proceeding to the questionnaire. To ensure anonymity, the researcher assigned a number to each participant. Surveys were administered by the researcher and other personnel from the HCA. To examine the reliability of the instruments, a test-retest method was conducted on 40 selected participants. A 7-day retest interval was chosen for the reliability procedures. The intra-class correlations for the IPAQ and PASIPD scales were .84 and .87, respectively.

In order to make a suitable comparison between individuals with and without physical disabilities on the levels of physical activity, the PASIPD total score for individuals with physical disabilities was converted from MET hours per day to MET minutes per week. The total PASIPD score was multiplied by 60 and then by 7 for value conversion.

Statistical Analysis

Descriptive statistics were used on the physical activity MET scores and stages of exercise changes for all participants. In order to answer the first question, 2×2 (group \times gender) ANOVA was employed to examine if there was a significant difference among the four groups on the levels of physical activity. To answer Question 2, which is investigate the association between stages of exercise change and the different groups, was examined by chi-squares using two tables of 2×5 (group \times

stages of exercise change and 2×5 (gender \times stages of exercise change). Alpha level of $P < .05$ was set for all tests of significance. Also, the Pearson product moment correlation was employed between the physical activity scores and the participants' stages of exercise change.

Results

The physical activities mean score was 2,218.64 ($SD = 1,494.46$) MET-min/wk for male participants without physical disabilities, and 1,533.84 ($SD = 1,179.64$) MET-min/wk for female participants without physical disabilities. The physical activity mean was 1,132.03 ($SD = 827.84$) MET-min/wk for male participants with physical disabilities, and 1,316.16 ($SD = 957.63$) MET-min/wk for female participants with physical disabilities (see Table 2.2). Seventy-three percent of the participants reported a total score of at least 600 or higher MET-min/wk, which indicated that the majority of the participants engaged in moderate levels of physical activity.

Table 2.2.
Descriptive Data for Physical Activity MET-min/wk Values

Group ^a	Male		Female	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Without Physical Disability	2,218.64	1,494.46	1,533.84	1,179.64
With Physical Disability	1,132.03	827.84	1,316.16	957.63

^a $n = 25$ for each group.

Results from the 2×2 (group \times gender) ANOVA showed that there was significant difference between the two groups on the levels of physical activity,

$F(1, 96) = 8.13, P < .05, \eta^2 = .078$. See Figure 2.1 for the groups' MET-min/wk means. However, there were no significant differences between male and female participants on the levels of physical activity, $F(1, 96) = 1.19, P > .05, \eta^2 = .036$. For the mean squares and other statistical information for all groups, see Table 2.3.

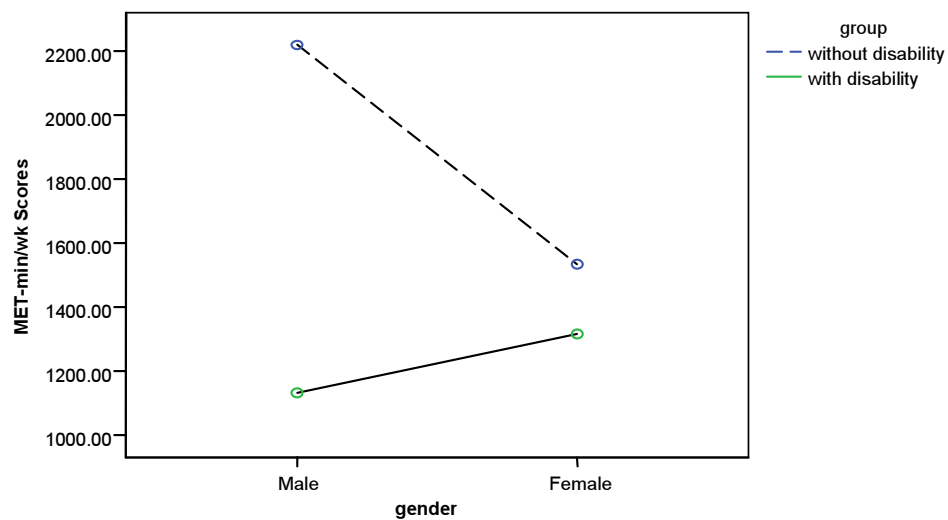


Figure 2.1. Four groups' MET-min/wk means.

Results from the frequency tables for participants' stages of exercise change distribution showed that 35% of all participants were in the preparation stage, 25% in the maintenance stage, 15% in the contemplation stage, 13% in the action stage, and 12% in the precontemplation stage. The distribution of stages for each group can be seen in Table 2.4.

Table 2.3.
Tests of Between-Subject Effects

Source	Type III SS	<i>df</i>	<i>MS</i>	<i>F</i>	Sig.
Group	10,632,294.91	1	10,632,294.91	8.13	.005*
Gender	1,566,702.82	1	1,566,702.82	1.19	.276
Group × Gender	4,718,974.18	1	4,718,974.18	3.61	.060
Error	125,457,469.49	96	1,306,848.64		
Total	382,677,524.24	100			
Corrected Total	142,375,441.41	99			

$p < .05$ indicate significant difference.

Table 2.4.
Distribution of Stages Among Males and Females With and Without Physical Disabilities

Stage	With Disability				Without Disability			
	Male		Female		Male		Female	
	<i>f</i>	<i>P</i>	<i>f</i>	<i>P</i>	<i>f</i>	<i>P</i>	<i>f</i>	<i>P</i>
1. Precontemplation	3	12.00%	5	20.00%	1	4.00%	3	12.00%
2. Contemplation	5	20.00%	4	16.00%	1	4.00%	5	20.00%
3. Preparation	6	24.00%	7	28.00%	10	40.00%	12	48.00%
4. Action	3	12.00%	3	12.00%	4	16.00%	3	12.00%
5. Maintenance	8	32.00%	6	24.00%	9	36.00%	2	8.00%
Total	25	100.00	25	100.00	25	100.00	25	100.00

Results from chi-square tests showed that there was no significant association between the stages of exercise change distribution and the different groups include individuals with and without disabilities, $\chi^2(4, N=100) = 4.68, p > .05$, and male and female, $\chi^2(4, N=100) = 5.50, p > .05$. However, the Pearson correlation coefficient

showed significant relationship ($r = .40, P < 0.01$) between the participants' physical activity MET scores and the stages of exercise change.

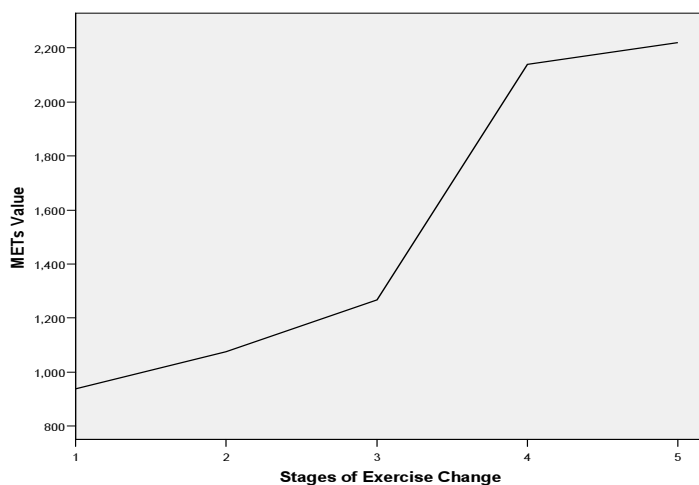


Figure 2.2. Correlation between stages of exercise and MET values.

Discussion

The purpose of this study was to investigate the levels of physical activity and the stages of exercise change among Kuwaiti individual with and without physical disabilities. Seventy-three percent of the sample were physically active and only 27% of the participants were physically inactive based on their reported MET value. Kuwaiti individuals without physical disabilities had the higher levels of physical activity than individuals with physical disabilities. This result was expected and is consistent with data on the participation of physical activity from previous research

(Rimmer et al., 1999; USDHHS, 2000). Several studies linked the inactivity for people with disabilities to a number of perceived barriers which was reported by the participants with disabilities, and those barriers include transportation, cost of exercise, lack of accessible facilities, and not knowing where to exercise (Kinne, Patrick, & Maher, 1999; Rimmer, 2002; Rimmer et al.).

There was no significant difference between males and females on the level of physical activity. This was a surprising finding. For this study, it was expected that Kuwaiti women would have lower levels of physical activity than Kuwaiti men. This finding was not consistent with other studies (Al-Asi, 2003; Eyler et al., 1997; USDHHS, 2000). In a study by Olusi et al. (2003), the results showed that physical activity was lower in Kuwaiti women than in men. Many studies that were conducted in Muslim countries suggested that women tend to have sedentary lifestyle because they are constrained by customs and social attitudes that make it difficult for them to participate in sports (Kahan, 2003; Sfeir, 1985; Zaman, 1997). Researchers in Muslim countries discussed how gender role stereotyping in Islamic countries had affected women participation in sports (Ogu, 1999; Zaman), claiming that Muslim women have not received the same kind of support as their male counterparts to be physically active. Moreover, Abou Khalil (2005) discussed the condition of women with disabilities in Arabic developing countries such as Lebanon, where cultural norms and traditional customs marginalize women with disabilities from full participation in their societies. Results from this study did not support the idea that Muslim women lead a sedentary lifestyle and have little physical activity. Several factors may contribute to

this finding such as the modernization of Kuwait society. Soffan (1980) stated that the rapid modernization of some Arab countries encouraged Arab women to participate in every public field, and he noted that Arab women now became aware that their previous restrictions were made by Arab males and were not religious regulations. Also, Sfeir talked about how some Islamic countries changed and escaped the controlling social customs. She argued that the modernization of Kuwait society will improve the situation for Kuwaiti women in all fields and especially in the sports field.

In this study, the age of the participants was relatively young and that may affect the study's results. Several studies indicated that younger individuals have higher physical activity level than older individuals (Eyler, Brownson, Bacak, & Housemann, 2003; King et al., 1992). Another factor that may contribute to the result of the current study is the time of data collection. The researcher administered the questionnaires in June 2006 at the same time when women finally for the first time in Kuwait's history were able finally to participate in the decision making process and have their voices heard in parliamentary elections. On June 29, women of all ages and backgrounds came out to exercise their newfound right to vote. This historical event might be perceived as social liberalization for most Kuwaiti individuals and possibly may affect the participants' responses.

There was a significant relationship between the reported physical activity MET scores and the stages of exercise change ($r = .40, P < 0.01$), participants in the action and maintenance stages reported higher scores than those in the precontemplation, contemplation, and preparation stages. Past research also has

indicated that the stages of exercise change and the levels of physical activity appear to be related. Generally, physical activity behavior increases from the stages of precontemplation to maintenance (Barke & Nicholas, 1990; Marcus & Simkin, 1993). Individuals who were classified in the action and maintenance stages reported significantly more moderate to vigorous physical activity than those in the precontemplation and contemplation sample of middle-aged adults (Marcus & Simkin). Cardinal (1997) also showed physiological and self-reported validation of the stage of exercise change in adults. Body mass index, cardiorespiratory fitness, exercise behavior, barriers, and self-efficacy all increased from precontemplation to maintenance. Cardinal (1995) further validated the stages of exercise change for American undergraduate students. Leisure-time exercise, frequency of sweating, physical activity rating, and VO₂ max significantly increased with stage.

The chi-square results showed that there was no significant relationship between the stages of exercise change distribution and the different groups. It was expected that individuals with physical disabilities would cluster in the precontemplation, contemplation, and preparation stages, and also women would be in the pre-stages of change more often than men. Moreover, the stages of exercise change results for this study showed that most of the participants were in the preparation stage and that is consistent with Callaghan, Eves, Norman, Chang, and Lung's (2002) results that most of the young Chinese people were in the preparation stage, The authors reported that 3.4% of their sample were in the precontemplation stage, 10.7% in contemplation, 54.7% in preparation, 20.5% in the action stage, and only 8.7% were

in the maintenance stage. Several studies contrasted with our results (Buxton, Wyse, & Mercer, 1996; Costakis et al., 1999). Costakis et al. concluded that most of the participants (53.4%) were in the maintenance stage and only 16.9% of the participants were in the preparation stage. The differences in the distribution of stages of exercise change between the current study and the previous research may be due to the different populations that were studied. Also, the present study had a relatively small number of participants for both groups (individuals with and without disabilities) in the precontemplation and contemplation stages and as Cardinal (1995) noted, that may be due to limitations with the Stages of Exercise Scale, problems with recruiting individuals in the earlier stages of exercise change, the sample's restrictive nature, or social desirability biases related to exercise.

There were several limitations that may affect the generalization of the current study's results. The sample size was relatively small and the participants were not randomly selected. Also, most of the participants were young adults who were willing to participate in this study, which may affect the outcomes of this research.

The other limitation was that our study relied on self-report physical activity measures, the PASIPD for individuals with physical disabilities and IPAQ for individuals without physical activities. Individuals tend to overreport certain behaviors thought to be socially desirable (Montoye, Kemper, Saris, & Washburn, 1996; Warm, 2006). PASIPD is the only survey designed to measure physical activity levels for people with physical disabilities and it uses MET-hrs/day values to estimate the energy expenditure. For this study, PASIPD MET scores were converted from

MET-hrs/day to MET-min/wk for comparison and it may not be an accurate conversion. There are no empirical studies to support the absolute accuracy of the assigned MET values; however, MET units are logical constants that provide a rank order of the physical activity intensity (Washburn et al., 2002). The IPAQ measure was validated to be a suitable tool to assess physical activity levels internationally (Craig et al., 2003), however, there are some concerns with the use of the IPAQ. Several studies have suggested that IPAQ overestimates the total physical activity (Johnson-Kozlow, Sallis, Gilpin, Rock, & Pierce, 2006; Rzewnicki, Auweele, & Bourdeaudhuij, 2002), so the classification of the participants into whether or not they meet current physical activity guidelines may be questionable.

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CHAPTER 3

BARRIERS TO EXERCISE AMONG KUWAITI INDIVIDUALS WITH AND WITHOUT PHYSICAL DISABILITIES

Maryam Arab

Abstract

The purpose of this study was to examine the barriers to exercise for Kuwaiti individuals with and without physical disabilities. One hundred participants (50 males and 50 females) aged 18 to 55 years participated in this study. Barriers to Physical Activity and Disability Survey (B-PADS) was used to identify the top barriers to exercise. Results from chi-square showed no significant differences between genders and groups on the preferences to begin an exercise program. Chi-squares using 2×2 tables (gender \times barrier) showed significant differences between males and females on the lack of time barrier. There were also significant differences between genders on the lack of energy barrier; females reported lack of energy as a major barrier to exercise. The chi-squares (group \times barriers) showed that lack of transportation was significant for individuals with disabilities. Individuals without disabilities reported higher percentages for lack of time and feeling bored when exercising than individuals with physical disabilities. Findings also indicated that Kuwaiti customs were not barriers to exercise. Hot weather was reported as an environmental barrier to exercise and the need for mass media-based campaigns to promote physical activity was also reported.

Introduction

Engaging in moderate physical activity decreases the risk of developing cardiovascular disease, diabetes, blood pressure, colon cancer, and osteoporosis (Lee, Rexrode, Cook, Manson, & Buring, 2001; U.S. Department of Health and Human Services [USDHHS], 2000). Nevertheless, several studies conducted in Kuwait State suggested that physical activity is low among the Kuwaiti population (Al-Isa, 2003; Olusi, Al-Awadi, & Abraham, 2003). Studies also showed that physical activity level was lower in women than in men, obesity rate is very high in Kuwait state, and chronic diseases are common among inactive individuals (Al-Asi, 2003; Al-Isa, Olusi et al., 2003).

Identifying barriers to exercise is an important goal in health program planning (Cooper et al., 1999; Rimmer, Rubin, & Braddock, 2000). Barriers to exercise refer to the obstacles individuals face when they participate in physical activity (Booth, Bauman, & Owen, 2002). Numerous studies have investigated barriers and other factors influencing physical activity participation (Kinne, Patrick, & Maher, 1999; Rimmer, Riley, Wang, Rauworth, & Jurkowski, 2004). These factors include personal barriers such as (a) lack of time, (b) blue-collar occupation, (c) being overweight, (d) unaware of the benefits of exercise, (e) age, (f) intensity of exercise, (g) feeling too tired, and (h) being lazy (Brownson, Baker, Housemann, Brennan, & Bacak, 2001; Dishman, Sallis, & Orenstein, 1985; Wilcox, Oberrecht, Bopp, Kammermann, & McElmurray, 2005). The external factors include (a) lack of transportation, (b) cost of exercise, and (c) lack of facilities (Henderson & Ainsworth, 2000; Wilcox et al.). Most

existing studies that examine perceived barriers to exercise have focused on the general population with few specifically considering the perceived barriers experienced by those with different demographics. Brownson et al. showed that women more frequently reported “tiredness” and “lack of time” as significant perceived barriers to a healthy lifestyle than do men. Also, individuals with lower socioeconomic status may have poorer access to walking or jogging trails and gym equipment than those of higher socioeconomic status. Wilcox et al. found that the fear of injuries was the most reported barrier to exercise for older women. Furthermore, a study by Rimmer et al. (2000) found that, for women with physical disabilities, the reported barriers to physical activity were different from those of the general population. These women cited cost, transportation, and lack of knowledge of a community or sports facility as the main barriers to participation from a list of barriers constructed by the authors.

In addition to the previous factors, cultural differences play an important role in governing women’s participation in physical activity particularly in Islamic cultures (Ogu, 1999; Sfeir, 1985). Cultural norms and traditional customs in some cultures may negatively affect the women’s participation in physical activity (Kahan, 2003; Sfeir; Zaman, 1997). Ogu noted that there are powerful social factors such as the demands of domestic responsibilities coupled with religion that prevent Nigerian women from participating in physical activity. Zaman conducted a study on young Muslim women which revealed many factors that negatively affect the participation in sports. These

factors included family responsibilities, cultural values, and not respecting or understanding the Muslim women's views.

To develop an appropriate health promotion intervention plan, it is important to identify the barriers to exercise participation (Cooper et al., 1999). There is limited information on barriers to exercise among Kuwaiti individuals with and without physical disabilities. Therefore, the purpose of this study was to investigate these barriers.

Methods

Participants

The study's participants included 100 Kuwaiti individuals with and without physical disabilities, in ages from 18 to 55 years. Table 3.1 shows specific demographic information. Eight participants used walkers, 11 used canes, 27 used wheelchairs, and 4 used no assistive devices. Participants with physical disabilities were a convenience sample recruited from the Handicapped Care Administration (HCA) at the Ministry of Social Affairs and Labor. The participants without physical disabilities were also a convenience sample from the Ministry of Education (ME). The HCA and the ME provided the researcher with the participants' names, types of disabilities, and the telephone numbers. The researcher contacted the subjects by phone to request their participation in this study. Individuals who agreed to participate were instructed to read and sign the informed consent documents before proceeding with the questionnaires.

Table 3.1.
Demographic Data by Age

Group ^a		Age	
		<i>M</i>	<i>SD</i>
With Disability	Male	25.88	7.84
	Female	28.16	7.71
Without Disability	Male	30.96	9.99
	Female	29.16	10.21

^a *n* = 25 for each group.

Instrument

The B-PADS (Rimmer & Riley, 2001) was used to examine the barriers to exercise for this study. B-PADS has been examined for validity evidence and used in previous studies (Rimmer & Riley; Rimmer et al., 2000). The instrument was developed after an extensive review of the research literature on physical activity. The survey questions were reviewed by 12 individuals with disabilities. During its development, unclear and ambiguous questions were reworded or eliminated from the survey. The B-PADS consisted of 29 items and combined both true or false and open-ended questions. Test-retest stability was used for the survey's items and the Cohen's kappa was .76 (Rimmer & Riley). The first part of the B-PADS requested demographic information from the participants such as age, gender, and type of disability (see Appendix B). Moreover, B-PADS included 22 items with two choices: "yes" or "no" and the remaining items included open-ended questions and follow-up questions that asked the respondents to provide more detailed information. One question in the survey asked the participants to check "yes" or "no" from 20

statements as to why they might not be involved in an exercise program. Those statements included specific barriers in rank order (i.e., cost of the exercise program, lack of transportation, lack of time, lack of interest, lack of energy, and lack of motivation). The final two items on the B-PADS were open-ended questions. One additional question was added by the researcher to investigate the cultural barriers, “Do you think that social values and traditional customs of Kuwaiti society prevent or encourage women from participating in physical activity?” (see Appendix B).

For this study, the B-PADS was translated to the Arabic language. The process involved the translation of the English version by a bilingual person, followed by a review performed by a committee of professionals from the Public Authority for Applied Education and Training (research methodology assistant, Arabic language assistant, and English language professional). A translation back into English and a comparison with the original version were executed by another bilingual individual, and the translation then was reviewed and adjusted by the committee (see Appendix B). In order to examine the reliability of the Arabic version of the B-PADS, the test-retest method was conducted on 40 selected participants. A 7-day retest interval was chosen for the reliability process. The Cohen’s kappa range value for all the B-PADS items were from .039 to 1.00 and the average Cohen’s kappa for the B-PADS items was .62.

Procedures

The researcher met the participants in a room that was provided by the HCA. Each participant was given a questionnaire and instructed to read and signed the informed consent before proceeding to the questionnaire. The participants were informed that they could withdraw from the study at any time. To ensure anonymity, the researcher assigned a number to each participant. Surveys were administered by the researcher and other personnel (two males and one female supervisors) provided by the HCA.

Data Analysis

Chi-square statistics were used to investigate the barriers to exercise for the different groups. Also, separate chi-squares for two contingency tables (gender \times barrier) and (groups \times barrier) were employed for each barrier to investigate the differences between genders and between individuals with and without disabilities on the reported barriers to exercise. Responses from open-ended questions were analyzed to explore cultural barriers and the underlying factors that prevent Kuwaiti individuals from participating in exercise. Ten male and 12 female participants did not answer the open-ended social customs question. Thirty-two males and 29 females did not comment on whether there are any additional reasons for not exercising. Based on what the participants reported, the researcher examined the data by carefully reading the responses and coding the answers. Major themes were emerged from the coding process. To examine the credibility of the emerged themes, a peer debriefing approach

was used (Mertens, 2005). This approach involves checking information that has been analyzed with another peer, discussing the coding process and the findings to enhance the credibility of the results. The other researcher was from Kuwait University, who had experience in qualitative research, performed the coding process on the participants' responses. The two researchers coded independently the responses from the open-ended questions. Two meetings were held to discuss the coding consistencies and discrepancies. Initially five themes emerged from the participants' responses but after discussing and examining the coding process with the other researcher, an agreement was reached for the four major themes: (a) the modernization of the Kuwait society, (b) the health benefits from exercise, (c) the climatic conditions, and (d) the media's role.

Results

Responses to a question about the willingness to begin an exercise program showed that 40% of the male participants without disabilities reported they were already in an exercise program, 32% would like to begin to exercise, and 28% would not like to exercise. Among the women without disabilities, 32% reported they were already in an exercise program, 28% would like to begin to exercise, and 40% would not like to exercise (see Figure 3.1).

From the group of male participants with physical disabilities, 40% reported they were already in an exercise program, 44% would like to begin to exercise, and 16% would not like to exercise. Out of the group of female participants with physical

disabilities, 28% reported they were already in an exercise program, 36% would like to begin an exercise program, and 36% would not like to exercise (see Figure 3.1). However, the results of chi-square tests showed neither significant differences between genders, $\chi^2(2, N = 100) = 3.10, p > .05$, nor between individuals with and without physical disabilities, $\chi^2(2, N = 100) = 1.27, p > .05$, on the preference to begin an exercise program.

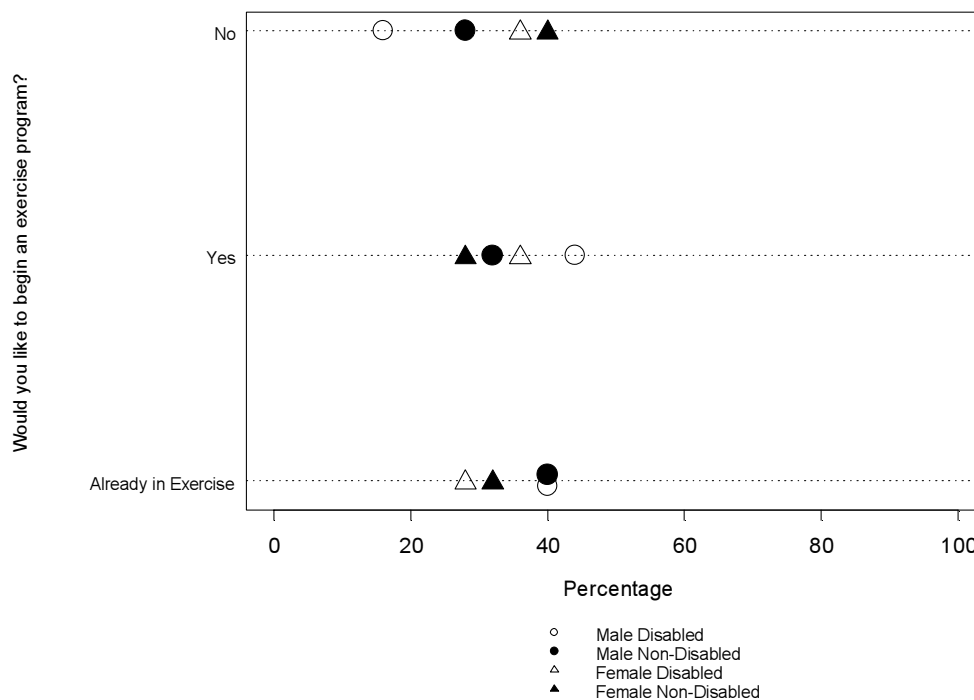


Figure 3.1. The four groups' preference of exercise program.

Participants were asked to report their major barriers to exercise from a list of barriers. The top barriers to exercise for Kuwaiti men without disabilities were (a) lack of time, (b) feeling boredom when exercising, (c) lack of motivation, and (d) pain

factor. Chi-square tests showed no significant differences between the reported barriers for men without disabilities. The top barriers to exercise for Kuwaiti men with physical disabilities were (a) lack of motivation, (b) feeling uncomfortable to exercise in fitness clubs, (c) lack of interest, and (d) health concerns. Chi-square tests showed no significant differences between the reported barriers for men with physical disabilities. See Figure 3.2 for detailed results of barriers to exercise for men with and without disabilities.

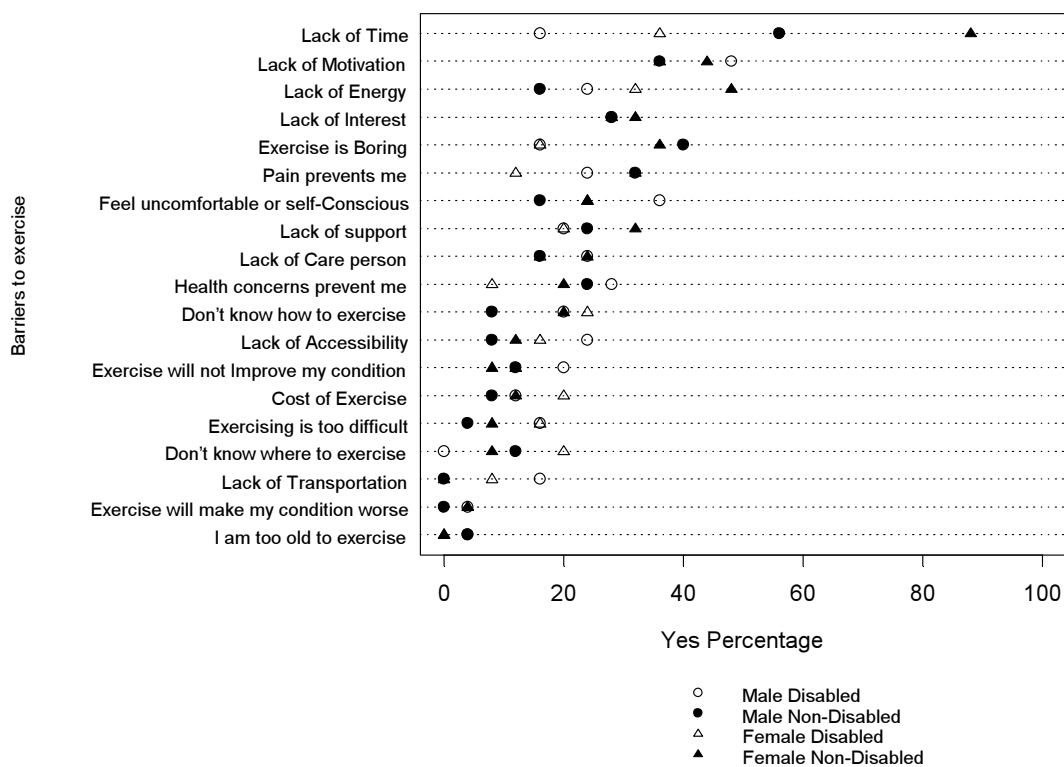


Figure 3.2. Barriers to exercise for the four groups.

The most reported barriers to exercise for women without disability were lack of time, lack of energy, lack of motivation, and feeling boredom when exercising. Chi-square tests showed that the most significant reported barrier was lack of time for women without disabilities, $\chi^2(1, N = 25) = 14.44, p < .001$. Furthermore, the top barriers to exercise for Kuwaiti women with physical disabilities were (a) lack of time, (b) lack of motivation, (c) lack of energy, and (d) lack of interest. Chi-square tests showed no significant differences between the reported barriers for women with physical disabilities. See Figure 3.2 for detailed results for women with and without disabilities.

Results from chi-square tests showed that there was a significant difference between male and female participants on the lack of time barrier, $\chi^2(1, N = 100) = 6.76, p < .05$. The percentage of females reporting time as a major barrier was higher than males. There was also significant differences between genders on the lack of energy barrier, $\chi^2(1, N = 100) = 4.76, p < .05$. Females reported a higher percentage for the lack of energy barrier than males. See Table 3.2 for detail chi-square values.

Results from the chi-square tests for barriers by group showed that there were significant differences between participants with and without disabilities on the lack of transportation barrier, $\chi^2(1, N = 100) = 6.38, p < .05$. Participants with physical disabilities reported a higher percentage for the lack of transportation barrier than participants without disabilities. On the other hand, individuals without disabilities reported higher percentages for lack of time, $\chi^2(1, N = 100) = 21.16, p < .001$, and

feeling boredom when exercising, $\chi^2(1, N = 100) = 6.13, p < .05$, than individuals with physical disabilities. See Table 3.3 for detail chi-square values.

Table 3.2.
Chi-Square Values for Gender by Barrier

Barrier	Male		Female		Chi-Square Value
	Yes	No	Yes	No	
Cost of exercise	5	45	8	42	.796
Lack of transportation	4	46	2	48	.709
Lack of time	18	32	31	19	6.763*
Lack of interest	14	36	15	35	.049
Lack of energy	10	40	20	30	4.762*
Lack of motivation	21	29	20	30	.041
Lack of support	11	39	13	37	.219
Lack of personal care	10	40	10	40	.000
Accessibility	8	42	7	43	.078
Exercise is boring	14	36	13	37	.051
Exercise make my health worst	1	49	2	48	.344
Exercise is difficult	5	45	6	44	.102
Don't know how to exercise	7	43	11	39	1.084
Don't know where to exercise	3	47	7	43	1.778
Health concerns	13	37	7	43	2.250
Pain prevent me	14	36	11	39	.480
I am too old to exercise	2	48	0	50	2.041
Feel self-conscious	13	37	12	38	.053

* $p < .05$.

Table 3.3.
Chi-Square Values for Group by Barrier

Barrier	Without Disability		With Disability		Chi-Square Value
	Yes	No	Yes	No	
Cost of exercise	5	45	8	42	.796
Lack of transportation	0	50	6	44	6.383*
Lack of time	36	14	13	37	21.168**
Lack of interest	15	35	14	36	.049
Lack of energy	16	34	14	36	.190
Lack of motivation	20	30	21	29	.041
Lack of support	14	36	10	40	.877
Lack of personal care	10	40	10	40	.000
Accessibility	5	45	10	40	1.961
Exercise is boring	19	31	8	42	6.139*
Exercise make my condition worst	1	49	2	48	.344
Exercise is too difficult	3	47	8	42	2.554
Don't know how to exercise	7	43	11	39	1.084
Don't know where to exercise	5	45	5	45	.000
Health concerns	11	39	9	41	.250
Pain prevent me	16	34	9	41	2.613
I am too old to exercise	1	49	1	49	.000
Feel self-conscious	10	40	15	35	1.333

* $p < .05$. ** $p < .001$.

The analysis of participants' responses from the two open-ended questions (Do social and traditional customs of Kuwaiti society prevent or encourage women to exercise? and Is there any reason for a person not to exercise) initially generated five major themes but after discussing and examining the coding process with the other researcher, an agreement was reached for the following four major themes: (a) the

modernization of the Kuwait society, (b) the health benefits from exercise, (c) climatic conditions, and (d) the media's role.

The Modernization of the Kuwaiti Society

The majority of the participants (31 males and 29 females) stated that Kuwaiti society has changed and become more liberal. Both individuals with and without physical disabilities indicated that the modernization of the last few decades has led to greater (a) flexibility in gender roles, (b) achievement of women's political rights, and (c) women's involvement in every field with men (including sport and physical activities). The following are some of the participants' responses:

I think social customs of Kuwait encourage both male and female to involve in any physical activity, it is 2006 and Kuwaiti society is changed a lot and become more liberal.

I don't think our traditional customs prevent us from participation in exercise, actually it encourages us and that includes women and we can see many health clubs for both male and female.

No it's not preventing us from exercising, because our government provided walking trail in every Kuwaiti suburbs and we can see both men and women walking all together.

I think our social values encourage us to engage in physical activity, especially nowadays, Kuwaiti woman had achieved her political rights and no one can dictate her action and we can see her now shared the fitness club with men.

Other participants (10 males and 16 females) commented on how the modern life of Kuwaiti society led them to follow the trend of having a slim and fit body, and really care about their external appearance. However, some participants stated that although the body image is important for Kuwaiti individuals, many find it difficult to

engage in exercise. They indicated that the social life of Kuwait encourages bad habits of eating and inactivity. The following are some of the participants' responses:

Our society is encouraging us to participate in exercise, because the modern life of Kuwait motivates Kuwaiti individuals to have perfect body.

Yes the social customs of Kuwait encourage people to be physically active, because our society now focuses on physical appearance.

It's not preventing, because Kuwaiti young adult are now motivating to go to the gym, because it's a trend nowadays to stay fit and healthy.

I think it is important to be physically active, but it is so hard to be fit, because our social life encourages us to eat a lot and to exercise less.

I believe that our social life prevent us to participate in physical activity, because most of the time we hang out in the café to socialize.

The perception of the modernization of Kuwait society was widely expressed by the majority of the participants. It was very common for the respondents to report that the social custom was not a barrier to exercise for Kuwaiti women. They also believed that the political rights achievement for Kuwaiti women would encourage women to participate equally with men in every field.

The Health Benefits from Exercise

Most of the participants (19 males and 14 females) realized the effects of the exercise on their health. They stated that Kuwaiti individuals acknowledge the health benefits of being physically active and that Kuwaiti customs is not a factor for the sedentary life for some Kuwaiti people. In addition, most of the individuals with

physical disabilities recognized the importance of exercise to improve their health condition. The following are some of the participants' responses:

Our social customs encourage us to exercise, because it is really important for our health.

No it's not preventing us from exercise, because the Kuwaiti society is civilized and care about the human's health.

Yes it's encouraging us to participate in exercise, because everyone knows the health benefits of exercise especially for people with physical disability.

I like to engage in physical activity because it keeps my body healthy and it relieves stress.

It appeared that many respondents recognize the importance of physical activity in preventing the risk of many serious diseases. It was concluded that the Kuwaiti social customs encourage Kuwaiti individuals to participate in physical activity, because the Kuwaiti society is well educated and aware of the physical activity benefits.

Climatic Conditions

The majority of the participants (12 males and 17 females) commented about the Kuwait's climate. Kuwait consists mostly of desert, and the summers (April to October) are extremely hot and dry with temperatures reaching above 124°F. The hot weather of Kuwait makes it difficult for Kuwaiti individuals to engage in outdoor physical activities such as walking. The following are some participants' comments:

The heat waves in the summer make it so hard to engage in any physical activity.

The weather is so hot which makes it difficult for me to exercise.

Because of the heat, I can't walk or do any thing physically during the summer.

The extreme hot and dryness of the weather prevent me from exercising and make me staying at home all day long.

The hot weather in Kuwait is believed to be an environmental barrier to exercise for many participants with and without disabilities. Despite the health benefits of physical activity, many respondents expressed a profound dislike of going outside to exercise in extreme hot weather.

Media Role

Many participants (8 males and 10 females) in this study stated the need for mass media-based campaigns to promote physical activity and to motivate Kuwaiti individuals to embrace a healthy lifestyle. Participants with and without physical disabilities stressed the important role of the media to spread the awareness of living healthy through participating in physical activity. The following are some of the participants' comments:

There are no awareness campaigns to promote the importance of physical activity.

I think Ministry of Information must launch physical activity campaign to promote healthy life style.

We really need to increase our awareness of the important of physical activity through media channels.

The need for a media campaign to motivate Kuwaiti individuals was brought up by some respondents and they believed that Kuwaiti society needs to be more educated about the health benefits of exercise participation and this includes children, younger adults, and older adults.

Discussion

This study investigated the barriers to exercise for Kuwaiti individuals with and without physical disabilities. Results showed that 40% of males without disabilities and 40% of male with physical disabilities were already in an exercise program. The majority of the participants for both groups were nonexercisers but thinking of beginning an exercise program or not interested to begin exercising. Also, findings showed that 32% of females without disabilities, and 28% of female with physical disabilities were already in an exercise program. A high percentage of females with and without disabilities were nonexercisers, but thinking of beginning an exercise program or were not interested to participate in an exercise program. There was no significant difference among the four groups on the preference to begin an exercise program. The main barriers to exercise for the four groups (men with and without physical disabilities, women with and without physical disabilities) were identified. Lack of time was the most commonly reported barrier for the groups. This barrier was also commonly cited by other previous studies (Booth, Bauman, Owen, & Gore, 1997; Henderson & Ainsworth, 2000). This finding suggests that these participants must find ways to integrate exercise into their daily routines to overcome

time constraints. Chi-square analysis for barriers by gender revealed that lack of time and lack of energy were the top reported barriers to exercise for females with and without disabilities. This finding supports past studies that found lack of energy to be a barrier for almost half of their sample of women (Heesch, Brown, & Blanton, 2000; Rimmer et al., 2000). The researcher assumed that lack of energy for Kuwaiti women may stem from taking care of the family and working outside the home. Findings from the chi-square analysis for barriers by group also showed that individuals with physical disabilities reported lack of transportation as a major barrier to exercise, and this finding supports previous studies that found lack of transportation to be a barrier for most of the individuals with physical disabilities (Heller, Ying, Rimmer, & Marks, 2002; Rimmer et al.). Feeling boredom when exercising was a major barrier for individuals without disabilities for both men and women. This finding is consistent with an Australian study conducted on individuals without disabilities (Booth et al., 2002), which showed some participants reported feeling boredom when engaging in physical activity. In contrast, feeling boredom when exercising was not reported in people without disabilities in previous studies (Thomas, 2003; Voorhees & Young, 2003). On the other hand, results from this study showed that feeling uncomfortable or self-conscious in a fitness center was not a barrier to exercise for all groups. This finding is consistent with previous studies conducted on individuals with physical disabilities (Heller et al.; Kinne et al., 1999). The authors did not report feeling uncomfortable in a fitness center as a barrier to exercise for their sample.

All groups reported lack of motivation as a barrier to exercise and this finding is consistent with previous studies (Booth et al., 2002; Brownson et al., 2001; Rimmer et al., 2000). Getting people to engage in exercise is not a simple task. The transtheoretical model holds that different factors motivate people at different stages of change. For example, to progress from precontemplation (no intention to engage in exercise) to contemplation (intention to engage in exercise), the model indicates that the perceived benefits of a behavior must be increased and the perceived barriers must be decreased. (Jaffee, Lutter, Rex, Hawkes, & Bucaccio, 1999; Prochaska & DiClemente, 1983) Therefore, in order to motivate people to begin an exercise program, individuals must become aware of a problem and realize the benefits of exercise such as feeling better, gaining more energy, and sleeping better.

This study did not find the cost of exercise or lack of accessibility to be major barriers to exercise. Many studies conducted on people with and without disabilities indicated that these three barriers were most reported as major factors that prevented individuals from exercising (Booth et al., 2002; Henderson & Ainsworth, 2000; Kinne et al., 1999; Rimmer et al., 2000; Wilcox et al., 2005). This finding confirms that different demographic groups have different barriers, and in this study, Kuwaiti individuals have known to enjoy high socioeconomic status and therefore can afford the cost of physical activity program. In view of the fact that environmental barriers were not reported as major barriers to exercise, health professionals in Kuwait should create a well designed program and teach strategies to overcome the personal barriers to exercise for Kuwaiti individuals.

In this study, the role of Kuwaiti social customs in limiting the participation of physical activity was investigated through open-ended questions. The majority of the participants stated that their social customs were not a barrier to exercise. This finding was not expected. Several studies conducted in Muslim cultures suggested that Islamic societies have been restrictive in controlling women in all aspects of their lives (Kahan, 2003; Sfeir, 1985). The social attitudes limiting women's freedom make it difficult for them to engage in physical activity (Lawton, Ahmad, Hanna, Douglas, & Hallowell, 2006; Zaman, 1997). However, Sfeir reported that some Islamic countries are changing and escaping the restrictive social customs especially for Kuwait state. She stated that the modernization of Kuwait society was due to oil discoveries, which in return resulted in high socioeconomic status, this change brought the Kuwaiti women out of their veils and into the public arenas. Sfeir also wondered if the wealth of Kuwaiti society will significantly improve the situation for Kuwaiti women in the sport field. The current study finding is consistent with Sfeir's study. Many participants reported that Kuwaiti society has been changed and moved from a traditional to a liberal society and more well educated than before. The majority of the participants recognized the health benefits associated with physical activity and they rejected the notion of considering the social customs a barrier to exercise. This finding supports the Islamic ideology regarding the "rights of the body" in the context of physical health and well-being (Zaman). Several studies suggested that the social customs of Islamic countries are governed by Islamic laws. Nevertheless, one of the

Islamic principles is based upon the respect of the body and soul together and that includes the enhancement of the health and well-being (Sfeir).

Subtle, yet fundamental, issues were raised from open-ended questions regarding barriers to exercise. The respondents expressed a profound dislike of going outside to exercise in a hot dry weather and most of them make it clear that, despite the health benefits from exercise, they would not consider engaging in any physical activity during the summer season. In previous studies, the role of the climate was also reported to be an environmental factor in limiting physical activity (Belza et al., 2004; Lawton et al., 2006; Renger, Steinfelt, & Lazarus, 2002). Further, the respondents also brought up their perception of the media role to promote physical activity. The need of establishing an effective media campaign targeting the benefits of physical activity was reported by the participants. A study by Renger et al., conducted on adult residents in Yuma County, Arizona, showed that using media campaign to promote physical activity was effective in changing behavior, perceived self-efficacy to participate in an exercise program, and increased the participants' knowledge about the benefits of exercise.

Health professionals in Kuwait should implement health intervention plans to eliminate the identified barriers to exercise. Physical activity programs should be designed to meet the needs of working Kuwaiti individuals. In addition, health programs must be flexible, at convenient times, easily incorporated into the individuals' busy schedules, safe, and comfortable for individuals with disabilities.

This study has several limitations. First, the sample of this study was small and not randomly selected; therefore the generalization of the results should be limited only to the study's sample. Second, a self-reported survey was used to investigate barriers to exercise, and it is subject to recall bias. It is possible that the participants may not be honest when answering the survey questions and that may affect the outcomes of this study. Also, the test-retest reliability for the Arabic version of the B-PADS showed a low kappa value of .62, therefore, this survey may not be culturally appropriate for the Kuwaiti population. Due to these limitations, future research is needed to examine barriers to exercise using a different instrument that is appropriate to Kuwaiti culture in a large sample of individuals with and without disabilities.

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CHAPTER 4: GENERAL CONCLUSION

To summarize the general conclusions of this study, each research question that was presented in the Introduction will be discussed. Also, directions for future research will be provided in this chapter.

Research Questions

1. Is there a significant difference among the four groups (men with and without physical disabilities and women with and without physical disabilities) on the levels of physical activity?

When investigating the differences among the groups on the physical activity levels, no significant difference was found between males and females. However, there was a significant difference between individuals with and without physical disabilities on the levels of physical activity.

2. Is there a relationship between the different groups (men with and without physical disabilities and women with and without physical disabilities) and the reported stages of exercise change?

Results from chi-square showed no significant relationship between the reported stages of exercise change and the four different groups (men with and without physical disabilities and women with and without physical disabilities).

3. What are the top perceived personal and environmental barriers that prevent Kuwaiti individuals with and without physical disabilities from participating in physical activity?

When investigating the top personal and environmental barriers to exercise for the four groups separately, lack of time was the most significant reported personal barrier for women without disabilities and the hot weather was reported by all four groups as a major environmental barrier to exercise. The most significant personal barriers for women with and without disabilities were lack of time and lack of energy. Furthermore, individuals with physical disabilities reported lack of transportation as a major environmental barrier to exercise, and individuals without disabilities reported lack of time and feeling boredom when exercising as major personal barriers to exercise.

4. Are social values and traditional customs preventing Kuwaiti women with and without physical disabilities from participating in physical activity?

Results from open-ended questions indicated that the social values and traditional customs are not barriers to exercise. The majority of the Kuwaiti participants (males and females) indicated that the modernization of the last few decades has led to greater flexibility in gender roles, an achievement of women's political rights, and increased women's involvement alongside with men in every field, including sports and physical activities. They also stated that the Kuwait society acknowledges the health benefits of being physically active and that Kuwaiti customs are not factors for the sedentary life for some Kuwaiti people.

Directions for Future Research

Investigating the physical activity levels and barriers to exercise is important to assist in increasing exercise adoption (Cooper et al., 1999). Accordingly, there is a need for future research targeting Kuwaiti individuals with and without disabilities, investigating the physical activity level with over sampling to increase the chances of achieving reliable results. Further investigation needs to address physical activity within genders in the Kuwait population.

In this study, questionnaires were used to estimate the physical activity levels and to identify barriers to exercise. These instruments are self-reported measures and many subjects do not necessarily recall their activities accurately, or they may tend to overestimate time or intensity (Montoye et al., 1996). Therefore, future research should use a different type of measurement tool (i.e., pedometer and accelerometer) to evaluate the physical activity levels of Kuwaiti individuals.

There is a need for future research to investigate the stages of exercise change in the Kuwait population. Also, physical activity intervention plans need to be implemented to determine if persons will maintain their participation in physical activity programs and to evaluate the effectiveness of interventions individualized to specific stages. In other words, will these exercise programs maintain individuals and further help them advance in the exercise stages of change?

Since the number of the participants reported in the precontemplation stage was small in this study, an increased effort is needed to survey individuals that are

completely sedentary. Likewise, a more diverse group such as older adults needs to be surveyed to avoid any bias and to determine their preferences to exercise programs.

Further studies are needed to explain the role of the social customs in Kuwait society in limiting physical activity for women. Also, research is needed to investigate the role that religious institutions play in influencing health through the development and reinforcement of social norms, and the mechanism of social control in Kuwait society.

There is a need to develop a media campaign to promote physical activity in Kuwait state. Future research needs to be conducted to determine if the use of media channels will help individuals increase their physical activity levels and, thus, help them progress in their stage of exercise change. This should include research on the usefulness of print materials such brochures, newsletters, and TV advertisement messages.

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APPENDICES

APPENDIX A: LITERATURE REVIEW

Regular physical activity throughout an individual's life is important for maintaining health status, enhancing psychological well-being, and preventing premature death (Fletcher et al., 1992). According to the U.S. Department of Health and Human Services (USDHHS, 2000), active lifestyle can decrease mortality and morbidity of major high-risk diseases such as cardiovascular disease, type 2 diabetes, and obesity. Also, this document stated that people with disabilities are less likely to engage in regular moderate physical activity than people without disabilities, yet they have a similar and sometimes greater need for health promotion and disease prevention opportunities.

This Appendix is divided into the follow sections, (a) physical activity, (b) importance of physical activity, (c) current level of physical activity for individuals with and without disabilities, (e) barriers to participate in physical activities, (f) cultural differences, (g) transtheoretical model (TTM), and (h) measuring physical activity and perceived barriers to exercise.

Physical Activity

The lack of physical activity is a major underlying cause of death, disease, and disability. According to the World Health Organization (WHO, 2002), a sedentary lifestyle is one of the ten leading global causes of death and disability. More than two million deaths each year are attributable to physical inactivity (WHO). Physical activity has been defined as “bodily movement produced by skeletal muscles that

result in energy expenditure” (Pate et al., 1995). Physical activity encompasses many concepts but is basically the state of not being sedentary or asleep, it can be the activity of day-to-day living (incidental or lifestyle) or planned, which includes more formal sporting activities. Apparently, promoting any type or amount of physical activity can help to provide health benefits, compared to inactive lifestyle (Pate et al.). Therefore, researchers have endeavored to determine quantities and types of physical activity that can result in health outcomes (Jakicic, Marcus, Gallagher, Napolitano, & Lang, 2003; Pate et al.). In this regard, physical activity can be explained according to (a) type (major physiological systems that are stimulated during activity such as cardiorespiratory systems and musculoskeletal apparatus), (b) frequency (number of times the individual is involved in activities), (c) duration (quantified in minutes of elevated energy expenditure), and (d) intensity (degree of overload on selected physiological systems). The latest established guidelines for physical activity advise that all adults engage in at least 30 minutes of moderate-intensity level of physical activity (in a single session or accumulated in multiple bouts) on most days of the week in order to gain health benefits (Pate et al.).

Stofan, DiPietro, Davis, Kohl, and Blair (1998) used a cross-sectional study to investigate the physical activity patterns associated with low, moderate, and high levels of cardiorespiratory fitness. Subjects of this study included 13,444 men and 3,972 women, aged 20 to 87 years old. The researchers found that the average estimated leisure time energy expenditures of 525 to 1,650 Kcal wk⁻¹ for men and 420 to 1,260 Kcal wk⁻¹ for women related to moderate to high levels of fitness, and most

people can achieve these levels of energy expenditure by a brisk walk of 30 minutes 4 days/week.

In contrast with physical activity, which is related to movements that individuals carry out; physical fitness is a set of attributes that persons achieve (USDHHS, 1996), it is the capability of the heart, lungs, blood vessels, and muscles to function at optimal efficiency. A fit person should be able to carry out any daily activities without undue fatigue, to enjoy life, and still to have ample reserve energy to respond to unforeseen emergency or crisis situations (American College of Sports Medicine [ACSM], 2000; USDHHS, 2000). The health-related components of physical fitness are (a) cardiovascular endurance, (b) body composition, (c) muscular endurance, (d) flexibility, and (e) muscular strength. The enhancement of physical fitness, particularly cardiovascular endurance is associated with the enhancement of health status and disease preclusion, therefore, a high level of physical fitness is related to good health (Branch, Pate, & Bourque, 2000). For instance, a person with a disorder such as emphysema or schizophrenia can significantly enhance his/her physical fitness through physical activity and become more fit and well (Haskell, Montoye, & Orenstein, 1985). Also, Hicks et al. (2003) found that independence and overall quality of life are improved through physical activity in people with spinal cord injury (SCI) and it can also reduce the risk for coronary artery disease (CAD).

Importance of Physical Activity

Physical activity is one of the cornerstones of a healthy lifestyle. Regular physical activity benefits many aspects of health—whether it is through participation in sport, play, physical education, walking, and cycling. Physical inactivity has become a serious health problem in the United States. More than half of U.S. adults do not meet recommended levels of moderate physical activity, and one fourth engage in no leisure-time physical activity (LTPA) at all (USDHHS, 1996). Inactivity is more prevalent among those with lower income and education, and, beginning in adolescence, affects females more than males (NIH, 1995).

The USDHHS (1996) presented a rigorous review of the scientific literature on the relationship between physical activity and health. This report was a watershed document that irrefutably established physical activity as a key factor in reducing overall mortality rates, in reducing the incidence and premature mortality related to the leading chronic diseases and in the overall enhancement of physical and mental health for people of all ages.

Lee, Rexrode, Cook, Manson, and Buring (2001) examined the association between physical activity, particularly walking, and coronary heart disease (CHD) among women with high risk of CHD. The participants were 39,372 females selected from the women's health study, aged 45 years and older. The results showed that light to moderate exercise is related to lower CHD rates in women. Also, the researchers observed that vigorous activities were not necessary for lower CHD rates. Therefore,

walking 1 hour per week predicted lower risk, and time spent walking was more significant than walking pace.

Branch et al. (2000) investigated the cardiorespiratory effects of regular participation in moderate intensity and vigorous intensity physical activity. Participants were 20-40 year old women. The researchers randomly assigned participants to either moderate intensity or vigorous intensity training groups for a 12-week exercise training program. The results showed no significant differences between moderate and vigorous intensity groups. The findings suggested that moderate intensity exercise training improved cardiorespiratory fitness in women and provided long-term health benefits.

Lee and Paffenbarger (2000) investigated the relationship between total energy expenditure and mortality showed that physical inactivity and being overweight negatively affected longevity. In addition, people who are only moderately physically active on a regular basis have lower mortality rates than those who are the least active. There is no question about the value of physical exertion. Regular physical activity has significant health benefits, and even modest increases in energy expenditure can have health-enhancing effects. Participating in daily physical activity can help prevent heart disease and stroke by (a) strengthening the heart muscle, (b) lowering blood pressure, (c) raising high-density lipoprotein (HDL) levels (good cholesterol) and lowering low-density lipoprotein (LDL) levels (bad cholesterol), (d) improving blood flow, and (e) increasing the heart's working capacity (Fonong et al., 1996; Williams, 1998). It also can reduce blood pressure, diabetes, obesity, and osteoporosis. Regular weight-

bearing exercise promotes bone formation and may prevent many forms of bone loss associated with aging.

Pescatello, Murphy, and Costanzo (2000) examined the influence of low intensity physical activity on the blood lipid-lipoprotein in older adults ($n = 155$). The participants were mostly White females and were on medication for cardiometabolic-related disorders. The researchers assessed the relationship between accumulated daily physical activity and some cardiovascular health indices and they hypothesized that older adults who accounted for a greater amount of time moving would have better cardiovascular health. The results showed that individuals with greater amounts of movement were related to positive blood lipid-lipoprotein profiles. Therefore, engaging older adults in light physical activity such as walking was recommended for improving cardiovascular health profile.

Osün Narin, Pinar, Erbas, Ozturk, and Idiman (2003) investigated the effects of aerobic exercise on migraine severity and the causes of migraine attacks in a controlled clinical trial. They included 40 women with migraines. Subjects were assigned in two groups: (a) the control group received only the medication and (b) the exercise group was involved in a 1-hour aerobic work out 3 days/week for 8 weeks. Participants were assessed before and after intervention and the results showed significant reduction in the frequency and intensity of pain for the exercise group. Also the exercise group showed significantly more pain relief than the control group.

Kolden et al. (2002) conducted a pilot study to observe the feasibility, safety, and benefits of group exercise intervention for women with breast cancer. Subjects

were 40 inactive women, ranging from 45 to 76 years old. The exercise intervention included a 3 days a week work out for 16 weeks. Multiple dimensions of fitness were measured (aerobic, capacity, strength, and flexibility) and the quality of life (QOL) instrument was used before, during, and ahead of the program completion. Findings showed that exercise intervention was possible and safe for women with primary breast cancer. Furthermore, subjects experienced significant health advantages in their aerobic capacity, strength, flexibility, decreased distress, and improved functioning.

Besides the physiological benefits, there are psychological benefits from participation in regular physical activity such as improved moods, decreased anxiety and depression, and helped to better manage stress (Schomer & Drake, 2001). Da Costa, Dobkin, Dritsa, and Fitzcharles (2001) investigated the association between participation in regular weekly exercise and depressed women with fibromyalgia (chronic musculoskeletal pain disorder). Seventy women were included in this study and were evaluated at baseline and at 3 years follow up. The researchers used the Fibromyalgia Impact Questionnaire to evaluate the health status of the participants. The results showed that depressed moods for the participants were significantly lower at follow-up than at baseline. It was obvious that involvement in weekly leisure physical activity can improve mental health for women with fibromyalgia. Findings from this study support the CDC's claims that regular physical activity improves one's mood; helps relieve depression, and enhances feelings of well-being.

Bartholomew, Morrison, and Ciccolo (2005) investigated the effect of a single bout of exercise on mood and well-being in persons with major depressive disorder

(MDD). Forty individuals who were receiving treatment (15 males and 25 females) participated in this study. Researchers randomly assigned the participants to (a) 30 minutes of exercise or (b) 30 minutes of quiet rest. Results showed that the exercise group reported a significant improvement in mood and well-being.

Furthermore, individuals with disabilities can also gain health benefits through participating in regular physical activities. Physical activities can lessen the negative effects of some conditions or slowing the development of other secondary conditions (Rimmer, 2002; Rimmer & Braddock, 2002). Santiago and Coyle (2004) investigated the association between self-reported levels of LTPA and secondary conditions of women with physical disabilities (ages 21-65 years). Participants were assessed by the Third National Health and Nutrition Examination Survey (NHANES-III). Women with physical disabilities reported secondary conditions of physical deconditioning and isolation that is inversely associated with LTPA engagement ($r = -0.164$, $p = 0.036$; $r = -0.156$, $p = 0.045$). The results from this study suggest that physical inactivity is as much of a health risk for women with physical disabilities.

Ditor et al. (2003) examined exercise participation for persons with SCI and the effects on quality of life, stress, and pain. The researchers conducted a 9-month randomized control trial (RCT) of exercise training on 7 participants with SCI (5 males and 2 females). Participants were evaluated by surveys that included the Perceived Quality of Life Scale, the Short Form 36-Item Health Survey, and the Perceived Stress Scale. Results from this study showed that pain may be a factor

influencing exercise adherence for individual with SCI. Moreover, exercise helps to increase the psychological well-being for persons with SCI.

Current Level of Physical Activity

Despite the benefits of being physically active, the U.S. Surgeon General (USDHHS, 1996) reported that more than 60% of American adults do not engage in levels of physical activity necessary to provide health benefits and more than one fourth are not active at all in their leisure time. It is well documented that people's exercise behavior varies as a function of race and age. The percentage of minority women engaging in physical activity is even lower than for Caucasian women (Heesch, Brown, & Blanton, 2000; Rimmer, Rubin, Braddock, & Hedman, 1999). Also, physical activity is less common among women than men and among those with lower income and less education (Eyler et al., 1997; USDHHS). For example, Sanderson et al. (2003) investigated the physical activity patterns including leisure and nonleisure activities among African American and White women (585 subjects, 40 years and older), living in rural communities in Alabama. Levels of physical activity were assessed by the Behavioral Risk Factor Surveillance System (BRFSS) and the results showed that White women were significantly more likely to report being active than the African American women.

Brownson et al.'s (2000) cross-sectional study that used a modified version of the BRFSS was conducted on a large sample of U.S. women (2,912 participants, 40 years and older) to examine the physical activity patterns among minority

multiethnic/racial groups that included African American, American Indian/Alaskan Native, Hispanic, and White. The findings indicated low levels of physical activity among African Americans and American Indians/Alaskan Natives, 72% of the participants were physically active, and women who lived in rural areas were completely inactive during leisure time. It appears that minority women are the least active group in this study.

Wilbur, Chandler, Dancy, and Lee (2003) described the physical activity of 399 urban African American women residing in the Chicago area. Physical activity level was assessed by questions from the BRFSS survey. Results showed that 42% of the participants met the current recommendations for moderate and vigorous exercise, 48% were not sufficiently active, and 9% of the subjects were inactive. Moreover, the majority of the sample reported a household income less than \$35,000. The researchers suggested intervention planning to increase the intensity, frequency, and duration of physical activities for African American women with insufficient levels of physical activity.

Young, Miller, Wilder, Yanek, and Becker (1998) examined the patterns of physical activity in a large sample of urban African Americans attending a church-based health fair in East Baltimore. Participants were asked open-ended questions and the format of the questions was comparable to the one used in the National Health Interview Survey. There were 743 subjects, 251 women and 114 men mostly middle age, assessed in this study. The results showed that 54% of men and

69% of women were involved in at least one leisure-time sport activity, and the most popular activity, brisk walking, was reported by 26% of the participants.

Adams, Der Ananian, DuBose, Kirtland, and Ainsworth (2003) examined the physical activity levels of South Carolina adults. This study used the 2000 South Carolina BRFSS. Participants consisted of 1,309 male and 1,866 female and they were classified according to their body mass index (BMI). The findings showed that physical activity levels declined when BMI increased. Furthermore, women who were considered overweight and obese were less active than men in the same BMI category. Participants with normal weight were the most active and the most popular activities for both genders were walking and running.

Kerms, Luhrmann, and Neuhauser-Berthold (2004) performed a study to investigate and compare the physical activity levels of young and elderly participants. The elderly sample consisted of 178 females (age mean 67.8) and 107 males (age mean 66.9). The young sample consisted of 154 females (age mean 24.8) and 68 males (age mean 26.8). A questionnaire was administered to identify the patterns of physical activity for both groups. Results showed that young participants engaged in more occupational work and participated in more sports than elderly participants; however, elder women engaged more in housework than young women, and older men walked more than young men. Furthermore, the physical activity level of elder women was higher than young women, and there was no difference for the physical activity level between elder and young men.

The prevalence of physical activity among individuals with disabilities is very low compared to the general population. For people with a physical disability, a physically active lifestyle could improve everyday functioning, reduce disability, and reduce the risk of secondary health problems (Ditor et al., 2003; Santiago & Coyle, 2004). Some studies showed that African American women with disabilities have very low rates of participation in exercise. Women of color were the least likely to become involved in a healthy lifestyle (Rimmer et al., 1999; Sundquist, Winkleby, & Pudarc, 2001).

Rimmer et al. (1999) conducted a study to investigate physical activity patterns of African American women with severe physical disability. Researchers used a convenience sample of 50 subjects for this study. The Physical Activity and Disability Survey (PADS) was used. The PADS contained two subscales, exercise and activity, and two sections on respondents information and screening items. Findings showed very low levels of physical activity for African American women with physical disabilities, simply just 8.2% of the subjects were involved in LTPA, and just 10% involved in aerobic exercise for 15 minutes and three or more days per week.

Sundquist et al. (2001) explained cardiovascular risk factors among Mexican American, African American, and Caucasian women. Accounting for socioeconomic status, both African American and Mexican American women had a higher prevalence of type 2 diabetes, abdominal obesity, and hypertension than Caucasian women. Mexican Americans and African Americans were more likely to be inactive, especially Spanish-speaking Mexican Americans. The study also showed higher

prevalence of risk factors among older ethnic minorities compared with older White people.

Watkinson and Calzonetti (1989) conducted a study to explore physical activity patterns of Canadian women with physical disabilities. Three hundred sixty-four participants were recruited from generic disability associations and sport organizations. The majority of the subjects were between age 20 and 40 years old. The Canada Fitness survey was used in this study and it consisted of 35 close-ended questions and one open-ended question. Results showed that 50% of the subjects were active and most of them rated exercise as very important.

Thomas, Alder, and Leese (2004) investigated the physical activity levels of patients with diabetes attending clinics. Researchers surveyed 406 participants and the sample consisted of 224 men and 182 women, the age ranging from 20 to 84 years. Results showed that 33% of the participants reported being physically active in the last two weeks and 67% of them reported being inactive. There were no significant differences between genders. Walking, gardening, and swimming were the most popular activities among respondents.

Physical activity prevalence is very low among the Kuwaiti population. Very limited studies showed that women were more sedentary than men (Al-Asi, 2003; Olusi, Al-Awadi, & Abraham, 2003). Also, the obesity rate is very high in Kuwait state and chronic diseases are common among inactive individuals (Al-Isa, 2003). Al-Asi conducted a cross-sectional study to investigate the prevalence of overweight and obesity among Kuwaiti workers ($n = 3282$) in Kuwait Oil Company, 85% of the

participants were male and 15% were female. The researcher used questionnaires that included (a) demographic details, (b) health information, (c) frequency of physical exercise (< 3 days/week or > 3 days/week), and (d) duration of physical exercise (< 30 min/day or > 30 min/day). Results showed that 61% of the participants were inactive, 34% were moderately active, and 5% were vigorously active. The investigator concluded that overweight and obesity are associated to health problems and are more common among inactive individuals.

Olusi et al. (2003) investigated the incidence of risk factors for CAD among Kuwaitis aged 15 years and older. The participants consisted of 7,609 healthy Kuwaiti citizens. The findings showed that physical activity was lower in women (71.4%) than in men (50.6%). Also, Kuwaiti women, similar to men, have high risk factors for CAD.

According to the Al-Isa (2003) study, obesity rate in Kuwait is 70%. Kuwaiti women with obesity tend to suffer from chronic ailments such as vein hardening, high blood pressure, and diabetes. There were contributing factors other than simply diet such as (a) spending a great deal of time indoors, (b) socializing frequently where eating is the main activity, (c) repeated pregnancies, and (d) having the housemaids do all the chores.

Barriers to Participation in Physical Activity and Exercise

Barriers to exercise refer to the obstacles individuals face when participating in physical activity (Booth, Bauman, & Owen, 2002). Much of the existing empirical

work examining barriers and other factors influencing physical activity participation consists of quantitative studies of the correlates and predictors of physical activity (Kinne, Patrick, & Maher, 1999; Rimmer, Riley, Wang, Rauworth, & Jurkowski, 2004). These factors included personal barriers such as (a) lack of time, (b) blue-collar occupation, (c) being overweight, (d) unaware of the benefits of exercise, (e) age, (f) intensity of exercise, (g) feeling too tired, and (h) being lazy (Brownson, Baker, Housemann, Brennan, & Bacak, 2001; Dishman, Sallis, & Orenstein, 1985; Wilcox, Oberrecht, Bopp, Kammermann, & McElmurray, 2005). The external factors included (a) lack of transportation, (b) cost of exercise, and (c) lack of facilities (Henderson & Ainsworth, 2000; Wilcox et al.).

Brownson et al. (2001) investigated the patterns in perceived environmental and policy determinants of physical activity and the relationship between these determinants and behaviors. The participants included 1,220 female and 598 male U.S. adults, and subjects with low income were over sampled. The researchers developed a survey through a combination of items obtained from the BRFSS and the National Health Interview Surveys. The finding showed that the availability of places for exercise was in general higher among men than among women. Participants reported four main personal barriers: (a) lack of time, (b) feeling too tired, (c) obtaining enough exercise at one's job, and (d) no motivation to exercise. In addition to the personal barriers, the study reported external barriers related to neighborhood attributes such as (a) comprising presence of sidewalks, (b) enjoyable scenery, (c) heavy traffic, and (d) hills, were positively related to physical activity.

Wilcox et al. (2005) examined factors that prevent older rural women in South Carolina to participate in exercise and explored ethnic differences in these factors through studying African American and White women. Researchers used convenience sample that included 16 African American women and 23 White women (age 50 years and older). Results indicated that both African American and White women were concerned with overdoing exercise which may lead to injuries such as (a) falling, (b) muscle strains, and (c) breaking bones. Furthermore, White women reported several personal barriers to exercise such as (a) feeling tired, (b) lacking confidence, and (c) being lazy. The barriers were the same for African American women and also included being too old to exercise. In both groups, participants complained about (a) lack of facilities to engage in physical activity, (b) lack of age-appropriate classes, and (c) costs of exercise.

Henderson and Ainsworth (2000) investigated enablers and constraints to walking for older African American and American Indian women. They concluded that enabling dimensions and constraints to physical activity must be viewed from a social ecological perspective, acknowledging that behavioral choices are influenced by a combination of personal, cultural, and environmental factors. The researchers call for further qualitative research to investigate how and why physical activity is perceived by women.

Dergance et al. (2003) conducted a study to investigate barriers to LTPA in sedentary elderly Mexican and European American individuals, 68% of the participants were female and 32% were male. Researchers used two questionnaires in

this study, the San Diego Health and Exercise Questionnaire (SDHEQ) and a modified version of the Minnesota LTPA. Results showed that the majority of the participants remained sedentary, and barriers to LTPA included (a) lack of self-discipline, (b) self-consciousness, (c) company, (d) enjoyment, (e) interest, and (f) knowledge existed in both groups.

Moreover, individuals with disabilities face many personal and environmental barriers to engage in physical activity programs. Several studies reported numerous personal barriers to exercise for people with disabilities such as (a) poor health status, (b) cost of the exercise, (c) lack of energy, (d) lack of knowledge, and (e) lack of motivation (Heller, Ying, Rimmer, & Marks, 2002; Kinne et al., 1999). Other environmental barriers include (a) lack of transportation, (b) lack of accessible facilities, and (c) not knowing where to exercise, (Kinne et al.; Rimmer et al., 2004; Rimmer, Rubin, & Braddock, 2000).

Cardinal, Kosma, and McCubbin (2004) conducted a cross-sectional study to investigate stages of change for exercise behavior among individuals with physical disabilities using the TTM and barriers to exercise. Participants were 322 individuals with physical disabilities living in the United States, 62.1% were female and 91.99% were Caucasian (mean age 52.5 years). Researchers used self-report questionnaires to assess stages of change for exercise behavior among adults with physical disabilities. The findings showed that all constructs (behavioral and cognitive processes of change, decisional balance, and self-efficacy) were significantly related to the stages of change

for exercise behavior, except the dramatic relief ($p > 0.005$). The results of this study were consistent with existing data on the general population.

Rimmer et al. (2000) investigated barriers to exercise in African American women with physical disabilities. They used a convenience sample of 50 participants with a severe disability from a database in the Assistive Technology Unit of the Department of Disability and Human Development at the University of Illinois in Chicago. The age of the participants ranged from 18 to 64 years. The Barriers to Exercise and Disability (B-PED) survey was used in this study. Results showed four main barriers to exercise including (a) cost of the exercise, (b) lack of energy, (c) transportation, and (d) not knowing where to exercise. The researchers noted that barriers always reported by the general population were not mentioned in their sample. Moreover, most of the participants showed their interest to engage in exercise programs but they were hindered by the previous factors.

Rimmer et al.'s (2004) investigation on barriers and facilitators related to physical activity participation for individuals with disabilities was conducted in 10 regions across the United States. The participants were 32 males and 19 females. Results showed that exercise participation was affected by a multifactorial set of barriers and facilitators such as: (a) economic issues; (b) emotional and psychological barriers; (c) equipment barriers; (d) barriers associated to interpretation of guidelines, codes, and rules; (e) information-related barriers; (f) professional knowledge, (g) policies; and (h) availability of resources.

Kinne et al. (1999) conducted a study to examine factors that promote and prevent exercise for individuals with mobility impairments. The researchers administered questionnaires to 113 participants recruited from (a) disability support groups, (b) newspaper ads, and (c) from a city recreation program. The findings indicated that individuals with higher exercise self-efficacy and little motivational barriers had a very high chance to continue exercising. Also, the findings indicated that environmental barriers were not associated with exercise maintenance.

Cultural Differences

Kuwait is an Islamic country. Its laws and social institutions are governed by Islamic laws. Women in Islamic countries face traditional obstacles that are rooted in these social restrictions and taboos which isolate them from the world and from the public in their own societies (Ogu, 1999; Sfeir, 1985). Unlike the Western culture, Islamic culture has been controlling women in all phases of their lives. Women are constrained by customs and social attitudes that make it difficult for them to participate in sports (Kahan, 2003; Sfeir; Zaman, 1997). Moreover, due to the fact that gender role stereotyping in Islamic countries had affected women participation in sports, women have not received the same kind of support as their male counterparts to be physically active (Ogu; Zaman).

About Khalil (2005) discussed the situation of women with disabilities in Arabic developing countries such as Lebanon, where cultural norms and traditional customs marginalize women with disabilities from full participation in their societies.

She gave an example of cultural norms in which Lebanese families prefer to send their sons (instead of their daughters) with disabilities to schools for deaf and blind students. She also talked about how Lebanese women with disabilities are often deprived from (a) education, (b) proper health care, and (c) family support. Moreover, Lebanese families do not provide health services for their females with disabilities, simply because they prefer to save their limited resources for other needs.

Ogu (1999) aimed to investigate problems faced by Nigerian women who wish to engage in physical activities. A sample of 164 working class women were selected for the study. The researcher designed a questionnaire that was used for data collection. Findings showed that there are powerful social factors such as the demands of domestic responsibilities, coupled with religion, that prevent women from participating in physical activities. Ogu also encouraged the understanding of the social and cultural barriers women confront in their societies to achieve women's full participation in sports.

Zaman (1997) conducted a research about the Muslim young women and their perceptions of well-being and physical activity. She interviewed seventeen Muslim women at a school in the East End of London. The results from this study showed that Muslim young women perceived sport as Western and masculine. The interview also revealed many factors that negatively affected their participation in sports and these included (a) family responsibilities, (b) cultural values, and (c) not respecting or misunderstanding Muslim women's views.

Guerin, Diiriye, Corrigan, and Guerin (2003) performed a study on Somali women to determine the barriers to participation in physical activity sessions in New Zealand. The researchers used interviews and observations over a 1-year period on 100 Somali women. The results showed that cultural factors influenced the participation in physical activity. The interview indicated that it was important to all women that they had a culturally safe environment to exercise. They needed a place to exercise where they could wear proper cloths without fear of men seeing them.

Transtheoretical Model

The TTM is commonly recognized as the stages of change model and it has been successfully applied to tailoring interventions (Dunn et al., 1998). This model has been effectively used in tailoring treatment to individuals not interested in participating in physical activities and has been useful in guiding and developing successful physical activity interventions (Dunn et al.; Marcus & Simkin, 1993). Researchers are increasingly using the TTM of behavior change as a theoretical framework to investigate the exercise adoption and maintenance practices (Cardinal & Sachs, 1996). The stages of change model was proposed by Prochaska and DiClemente (1983) and it has been used to understand the stages through which an individual progresses, and the related constructs (stage of change, exercise self-efficacy, and decision making) are used to design strategies for changing health behaviors. These researchers suggested that individuals involved in new behaviors move in systematic progression through five different stages: (a) precontemplation (no intention to change

behavior), (b) contemplation (intention to change behavior), (c) preparation (plan to make change), (d) action (engage in behavior change), and (e) maintenance (persist behavior change).

Barke and Nicholas (1990) conducted a study to assess the stages of change in an elderly sample and compared the stages between active and inactive groups. Findings indicated that action and maintenance scores were significantly higher than contemplation scores, showing that the stages of change could distinguish groups of older adults who differ in levels of physical activity.

Marcus and Simkin (1993) investigated the concurrent validity of the stages of exercise change instrument by comparing it with the Seven-Day Physical Activity Recall Questionnaire. They used these scales to measure the stages of exercise behavior change and an individual's level of activity at each stage. A sample of 235 employees participated in this study. The results showed that 51% did not engage in physical activity and were categorized in the precontemplation and contemplation stage, and 49% of the participants were in the preparation, action, and maintenance stage. Moreover, scores on physical activity behavior items significantly distinguish employees among the specific stages of change ($p < .001$). These findings showed that the stage of change instrument has concurrent validity for assessing exercise adoption.

Jaffee, Lutter, Rexx, Hawkes, and Bucaccio (1999) conducted another study to examine incentives and barriers that working women exhibit when attempting to incorporate physical activities in their lives. Measures for incentives, barriers, and a stages of change questionnaire were used to evaluate physical activity among 393

employed women. Results showed 4% of the participants were in precontemplation, 21% in contemplation, 30% in preparation, 12% in action, and 34% in the maintenance stage. Significant differences existed in incentives and barriers for physical activity. The results suggested that precontemplators expect few positive benefits from physical activity and, in general, the perceived benefits increase as participants move toward the action and maintenance stages. These researchers proposed that employed women in different stages of change encounter different incentives and barriers to physical activity.

Measuring Physical Activity and Perceived Barriers to Exercise

There are several common methods used to measure physical activity:

(a) direct observation, (b) self report surveys, (c) interviews, (d) heart rate monitors, (e) motion sensors, and (d) calorimetry. Among the most commonly employed techniques are self-report surveys and interviews. These techniques have several advantages to use in research, and they are: (a) relatively economical; (b) able to collect data from large numbers of individuals; (c) noninvasive; and (d) capable to quantify activity choices, frequencies, and durations. Yet, there are also disadvantages related to their use: (a) poor recall of activities; (b) social desirability bias; (c) over- or underestimation of physical activity frequency, time, or duration; (d) potential failure of subjects to follow instructions; and (e) demands a lot of time to complete comprehensive surveys (Montoye, Kemper, Saris, & Washburn, 1996; Sallis & Saelens, 2000).

One of the existing self-report measures is the Seven-Day Physical Activity Recall (PAR; Sallis et al., 1985). The PAR (a) obtains information on moderate and vigorous activity in work and leisure activities, (b) usually takes less than 15 minutes to complete, (c) estimates total energy expenditure in kilocalories, and (d) can be applied to a wide range of adults (Dubbert, 2002; Montoye et al., 1996). When completing this measure, participants are prompted with typical types of activities in moderate, vigorous, and very vigorous physical activity categories on weekdays and weekend days. In addition, they are asked about their time spent sleeping. Light activities are estimated from the time not filled by sleep or moderate-very vigorous physical activity. This measure has shown strong correlations with other assessment methods such as the 7-day diary ($r = .81$; Taylor et al., 1984), which indicated good concurrent validity.

The Harvard Alumni Questionnaire (Paffenbarger, Hyde, & Wing, 1987) has been employed with considerable frequency as a self-administered index of physical activity participation. This questionnaire asks the participant to list the number of times he or she has engaged in any sports, recreation, or physical activities over the past year. Also, the participant is asked to record the average duration of involvement in these activities, and about blocks walked or flights of stairs climbed in a typical day. Kilocalories expended per week are estimated from these responses.

The International Physical Activity Questionnaire (IPAQ; Craig et al., 2003) has been developed to measure an individual's physical activity level. There are two versions for this questionnaire (short and long form). The IPAQ executive

recommended the use of the short form for the international prevalence studies. Moreover, the items in the short IPAQ form were structured to provide separate scores on walking, moderate-intensity, and vigorous-intensity activity. Data from the IPAQ are used to estimate total weekly physical activity by weighting the reported minutes per week within each activity category by a MET energy expenditure estimate assigned to each category of activity.

Washburn, Zhu, McAuley, Frogley, and Figoni (2002) developed the Physical Activity Scale for Individuals with Physical Disabilities (PASIPD), which consisted of a 13-item paper-based questionnaire. PASIPD called for information relating to leisure activities, which included walking and wheeling; household activities (i.e., home repair, lawn job, and outdoor gardening); and occupational activities over the past 7 days. It was evaluated in a sample of 227 men and 145 women with a wide range of disabilities and data from the PASIPD was then used to estimate total weekly physical activity by multiplying the average hours per day for each item by a MET value related to the intensity of the activity and summing over Items 2 through 13.

Researchers also have started to employ some interesting methods in attempts to measure physical activity such as using (a) accelerometers, (b) heart rate monitors, or (c) pedometers. Accelerometers are motion detectors that can sense magnitude of acceleration produced by bodily movement. The advantages of these instruments are that they: (a) are small, (b) more objective than self-report measures, (c) can record continuous data over a long time period, and (d) do not interfere with normal movement (Hendelman, Miller, Baggett, Debold, & Freedson, 2000).

Heart rate monitors are methods used to measure physical activity. These devices are relatively low cost and easy to use, and are able to record continuous or near-continuous data over time periods up to several weeks (Montoye, 2000; Sirard & Pate, 2001).

Another type of assessment for measuring physical activity participation is the pedometer. It is typically much cheaper and smaller than accelerometers and unobtrusive, but it may not measure energy expenditure as accurately because it cannot accurately measure speed of movement, and cannot segment activity by time (Welk et al., 2000). Moreover, pedometers may be more accurate for measuring physical activity of moderate intensity than of higher intensities, and would be likely to miscalculate energy expenditure when the participant is engaged in multiple fitness activities such as stair climbing and bicycling (Sirard & Pate, 2001; Welk et al.).

Several studies have looked into why individuals do or do not start an exercise program and they may become more important to investigate factors that affect physical activity participation (Messent, Cooke, & Long, 1999; Rimmer et al., 2000; Wilcox et al., 2005). Researchers have used qualitative and quantitative methods to examine important barriers to exercise experienced by people with and without disabilities (Brown, 2005; Odette et al., 2003).

Rimmer and Riley (2001) constructed the Barriers to Physical Activity and Disability (B-PADS) questionnaire following a comprehensive review of physical activity surveys and exercise methodology. The survey questions were reviewed by 12 individuals with disabilities. Unclear and ambiguous questions were reworded or

eliminated from the survey. The B-PADS questionnaire contained 29 items and combined both true or false and open-ended questions. The researchers employed correlational analyses and the Rasch model to evaluate psychometric properties of the B-PADS. Results showed general support for the reliability and validity of the B-PADS. Test-retest stability was used for the survey's items and the Cohen's Kappa was .76. Also, the interrater reliability was examined employing two independent raters and resulted in a Cohen's kappa of .86.

Stuifbergen, Becker, and Sands (1990) developed the Barriers to Health Promoting Activities for Disabled Persons Scale survey to measure perceived barriers to health promotion. Sixteen items on a 4-point scale were included in the questionnaire and it was used on 135 participants. The results showed good internal consistency reliability for the 16-item scale ($\alpha = .82$).

Brown (2005) conducted a study to assess the psychometric properties of the Exercise Benefits/Barriers Scale (EBBS). The researcher employed the survey on 398 college students. Results showed that EBBS exhibited good reliability and convergent validity. Also, the EBBS items and barriers items showed good internal consistency ($\alpha = .80$).

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APPENDIX B:
BARRIERS TO PHYSICAL ACTIVITY AND DISABILITY SURVEY

DEMOGRAPHICS

NAME: _____ **DATE:** _____

AGE: _____ **years** **GENDER:** Male Female

TYPE OF DISABILITY: _____

ASSISTIVE DEVICES (circle all that apply)

Walker
Braces
Cane
Wheelchair

USE OF ARMS (Circle one)

Full
Partial
No Use

USE OF LEGS

Full
Partial
No Use

Have you been regularly participating in physical activities of moderate intensity such as walking (with crutches, canes, braces, or prostheses), off-road pushing, ball games (e.g., double tennis, softball, golf), recreational swimming, cycling, arm cranking, dancing and other similar activities? Activities that are primarily sedentary, such as bowling, playing golf with a cart, and passive stretching, would not be considered physical activity. **REGULAR PHYSICAL ACTIVITY = 5 DAYS OR MORE PER WEEK FOR 30 MINUTES OR MORE DAILY.**

Note: the accumulation of 30 minutes of daily activity can be obtained *consecutively* or in an *additive* manner of two separate 15-minute activity sessions.

- Yes, I have been for more than 6 months.
- Yes, I have been, but for less than 6 months.
- Not regularly, but I engage in such activities occasionally and plan to start on a regular basis within the next month.
- No, but I'm thinking of starting in the next 6 months.
- No, and I am not thinking of starting in the next 6 months.

Barriers to Physical Activity and Disability Survey

1. Would you like to begin an exercise program?

Already in an exercise program

Yes

No

2. Have you ever exercised?

Yes

No

2a. IF "Yes" Did you ever have any health problems that caused you to stop exercising?

Yes

No

3. Have you ever been injured from exercising?

Yes

No

4. I have gone to a fitness center, but it was not a positive experience.

Yes

No

4a. IF "Yes" Why?

--

5. Have you ever exercised regularly?

Yes

No

6. Do you know of a fitness center that you could get to?

Yes

No

6a. IF "Yes", would you like to go there to exercise?

Yes

No

6b. IF "Yes" Would you have a means of transportation to get there?

Yes

No

6c. IF "Yes" Would you have to pay to be transported to the exercise facility?

Yes

No

6d. IF "Yes" Could you afford to spend this amount of money?

Yes

No

7. Would you be willing to spend this money?

Yes

No

8. Would you have any concerns about exercising in a facility like a YMCA?

Yes

No

8a. IF "Yes", what are your concerns?

--

9. Do you feel that an exercise instructor in a fitness center like a YMCA would know how to set up an exercise program to meet your needs?

Yes

No

10. Do you feel that an exercise program could help you?

Yes

No

11. Are you ever afraid to leave your home?

Yes

No

12. Has your doctor ever told you to exercise?

Yes

No

12a. IF "Yes" Did your doctor tell you to do anything specific?

Yes

No

12b. IF "No" Has your doctor told you not to exercise?

Yes

No

13. I am satisfied with my physical appearance, so I do not need to exercise

Yes

No

14. Family responsibilities prevent me from exercising as much as I would like

Yes

No

15. My job prevents me from exercising as much as I would like

Yes

No

16. Are any of the following statements, concerns why you might not be involved in an exercise program or not exercising as much as you would like?

Cost of the exercise program	Yes	No
Lack of transportation	Yes	No
Lack of time	Yes	No
Lack of interest	Yes	No
Lack of energy	Yes	No
Lack of motivation	Yes	No
Lack of support from friends or family to exercise	Yes	No

Lack of a personal care attendant who will help me exercise	Yes	No
Lack of accessible facility	Yes	No
Exercise is boring or monotonous	Yes	No
Exercise will not improve my condition	Yes	No
Exercise will make my condition worse	Yes	No
Exercising is too difficult	Yes	No
Don't know how to exercise	Yes	No
Don't know where to exercise	Yes	No
Health concerns prevent me from exercising	Yes	No
Pain prevents me from exercising	Yes	No
I am too old to exercise	Yes	No
Feel uncomfortable or self-conscious in a fitness center	Yes	No
None of the above		

17. Do you think that social values and traditional customs of Kuwaiti society hinder or encourage you from participating in physical activity? And why?

18. Can you think of any other reasons why you might not be involved in an exercise program or not exercising as much as you would like? If so, please list:

BARRIERS TO PHYSICAL ACTIVITY AND DISABILITY SURVEY
(Arabic Version)

مسح معوقات النشاط البدني والإعاقة

البيانات الديموغرافية:

العمر: _____ عام

الاسم: _____

التاريخ: _____

النوع: _____

ذكر

أنثى

نوع الإعاقة: _____

الأجهزة المساعدة (اختر ما ينطبق منها)

حذاء خاص بالمشي

سنادات

عكاز

كرسي متحرك

استخدام الأتزرع (اختر واحد)

كامل

جزئي

غير موجود

استخدام الأرجل

كامل

جزئي

غير موجود

مسح معوقات النشاط البدني والإعاقة

(1) هل تحب أن تبدأ برنامج تدريبات رياضية؟
هل أنت بالفعل مشترك في برنامج تدريبات رياضية؟

نعم
لا

(2) هل قمت بممارسة التدريبات الرياضية من قبل؟

نعم
لا

(أ-2) إذا كانت الإجابة بـ "نعم" هل عانيت من أي مشكلات صحية تسببت في توقعك عن التدريبات؟

نعم
لا

(3) هل سبق أن تعرضت للإصابة أثناء التمرين؟

نعم
لا

(4) لقد ذهبت إلى مركز للياقة، ولكنه لم يكن تمرين إيجابي.

نعم
لا

(أ-4) إذا كانت الإجابة بـ "نعم"، أذكر السبب.

(5) هل مارست التدريبات الرياضية بانتظام من قبل؟

نعم
لا

(6) هل تعرف مركز لياقة بدنية يمكنك الالتحاق به؟

نعم
لا

(أ-6) إذا كانت الإجابة بـ "نعم"، هل تحب أن تذهب إليه لممارسة التدريبات الرياضية؟

نعم
لا

6-ب) إذا كانت الإجابة بـ "نعم" هل تتوافر لك وسيلة المواصلات المناسبة للذهاب إليه؟

نعم

لا

6-ج) إذا كانت الإجابة بـ "نعم" هل عليك أن تدفع مقابل الذهاب إليه؟

نعم

لا

6-د) إذا كانت الإجابة بـ "نعم" هل تستطيع دفع هذا المبلغ؟

نعم

لا

7) هل ترغب في إنفاق هذا المبلغ في هذا النشاط؟

نعم

لا

8) هل هناك مشكلات تتعلق بممارستك للتدريبات الرياضية في مركز معين؟

نعم

لا

8-أ) إذا كانت الإجابة بـ "نعم" ما هي هذه المشكلات؟

9) هل إعداد البرنامج الرياضي الذي يفى باحتياجاتك؟

نعم

لا

10) هل تشعر أن البرنامج الرياضية يمكن أن يساعدك؟

نعم

لا

11) هل تشعر بالخوف من مغادرة المنزل؟

نعم

لا

(12) هل طلب منك طبيبك من قبل أن تمارس التدريبات الرياضية؟

نعم
لا

12-أ) إذا كانت الإجابة بـ "نعم" هل طلب منك طبيبك إجراء تدريبات معينة على وجه التحديد؟

نعم
لا

12-ب) إذا كانت الإجابة بـ "لا" هل طلب منك طبيبك الامتناع عن ممارسة التدريبات الرياضية؟

نعم
لا

(13) أنا راض عن مظهر جسمي، وبالتالي فإنني لا أحتاج إلى التدريبات.

نعم
لا

(14) المسؤوليات العائلية تمنعني من ممارسة التدريبات الرياضية بالرغم من رغبتني في ذلك.

نعم
لا

(15) وظيفتي تمنعني من ممارسة التدريبات الرياضية على الرغم من رغبتني في ذلك.

نعم
لا

(16) أي من العبارات الآتية تعتبر السبب في عزوفك عن ممارسة البرنامج الرياضي أو الابتعاد عن ممارسة التدريبات الرياضية بالرغم من رغبتك في ذلك.

	نعم	لا
تكاليف البرنامج التدريبي.	<input type="checkbox"/>	<input type="checkbox"/>
عدم توافر وسيلة المواصلات.	<input type="checkbox"/>	<input type="checkbox"/>
عدم توافر الوقت.	<input type="checkbox"/>	<input type="checkbox"/>

- عدم توافر الاهتمام.
- عدم توافر الطاقة.
- عدم توافر الدافعية.
- عدم توافر الدعم من الأصدقاء والأسرة للقيام بالتدريبات.
- عدم توافر مسئول الرعاية الشخصية الذي سوف يساعدني أثناء التدريبات.
- عدم قدرتي على الانضمام لمركز رياضي.
- التدريبات الرياضية مملة أو رتيبة.
- التدريبات الرياضية لن تحسن حالتي.
- التدريبات الرياضية سوف تؤدي إلى تدهور حالتي.
- التدريبات الرياضية شديدة الصعوبة بالنسبة لي.
- لا أعرف كيف أتدرب.
- لا أعرف أين أتدرب.
- هناك مشكلات صحية تمنعني من ممارسة التدريبات الرياضية.
- الألم يمنعني من ممارسة التدريبات الرياضية.
- أنا كبير السن بدرجة لا تسمح بممارسة التدريبات الرياضية.
- أشعر بعدم الارتياح أو الخجل داخل المركز الرياضي.
- لا شئ مما سبق.

(17) هل تعتقد إن العادات الاجتماعية للمجتمع الكويتي تمنع أو تقلل من الاشتراك في البرامج الرياضية؟ إذا كانت الإجابة بنعم، الرجاء ذكر الأسباب:

(18) هل يمكنك التفكير في أسباب أخرى يمكن أن تؤثر على الاشتراك أو عدم الاشتراك في برامج التدريبات الرياضية؟ إذا كانت الإجابة بنعم، رجاء ذكرها:



نشكركم على إكمال المسح!

APPENDIX C: PHYSICAL ACTIVITY SCALE FOR PERSONS
WITH PHYSICAL DISABILITIES

DEMOGRAPHICS

AGE: _____ years

GENDER: Male Female

Instructions: This questionnaire is about your current level of physical activity and exercise. Please remember there are no right or wrong answers. We simply need to assess your current level of activity.

Leisure Time Activity

1. During the past 7 days how often did you engage in stationary activities such as reading, watching TV, computer games, or doing handcrafts?

1. Never (Go to question #2)
2. Seldom (1–2d)
3. Sometimes (3–4d)
4. Often (5–7d)

What were these activities?

On average, how many hours per day did you spend in these stationary activities?

1. Less than 1hr
2. 1 but less than 2hr
3. 2–4hr
4. More than 4hr

2. During the past 7 days, how often did you walk, wheel, push outside your home other than specifically for exercise. For example, getting to work or class, walking the dog shopping, or other errands?

1. Never (Go to question #3)
2. Seldom (1–2d)
3. Sometimes (3–4d)
4. Often (5–7d)

On average, how many hours per day did you spend wheeling or pushing outside your home?

1. Less than 1hr
2. 1 but less than 2hr
3. 2–4hr
4. More than 4hr

3. During the past 7 days, how often did you engage in light sport or recreational activities such as bowling, golf with a cart, hunting or fishing, darts, billiards or pool, therapeutic exercise (physical or occupational therapy, stretching, use of a standing frame) or other similar activities?

1. Never (Go to question #4)
2. Seldom (1–2d)
3. Sometimes (3–4d)
4. Often (5–7d)

What were these activities? On average, how many hour per day did you spend in these light sport or recreational activities?

1. Less than 1hr
2. 1 but less than 2hr
3. 2–4hr
4. More than 4hr

4. During the past 7 days, how often did you engage in moderate sport and recreational activities such as doubles tennis, softball, golf without a cart, ballroom dancing, wheeling or pushing for pleasure or other similar activities?

1. Never (Go to question #5)
2. Seldom (1–2d)
3. Sometimes (3–4d)
4. Often (5–7d)

What were these activities? On average, how many hours per day did you spend in these moderate sport and recreational activities?

1. Less than 1hr
2. 1 but less than 2hr
3. 2–4hr
4. More than 4hr

5. During the past 7 days, how often did you engage in strenuous sport and recreational activities such as jogging, wheelchair racing (training), off-road pushing, swimming, aerobic dance, arm cranking, cycling (hand or leg), singles tennis, rugby, basketball, walking with crutches and braces, or other similar activities

1. Never (Go to question #6)
2. Seldom (1–2d)
3. Sometimes (3–4d)
4. Often (5–7d)

What were these activities? On average, how many hours per day did you spend in these strenuous sport or recreational activities?

1. Less than 1hr
2. 1 but less than 2hr
3. 2–4hr
4. More than 4hr

6. During the past 7 days, how often did you do any exercise specifically to increase muscle strength and endurance such as lifting weights, push-ups, pull-ups, dips, or wheelchair push-ups, etc?

1. Never (Go to question #7)
2. Seldom (1–2d)
3. Sometimes (3–4d)
4. Often (5–7d)

What were these activities? On average, how many hours per day did you spend in these exercises to increase muscle strength and endurance?

1. Less than 1hr
2. 1 but less than 2hr
3. 2–4hr
4. More than 4hr

Household Activity

7. During the past 7 days, how often have you done any light housework, such as dusting, sweeping floors or washing dishes?

1. Never (Go to question #8)
2. Seldom (1–2d)
3. Sometimes (3–4d)
4. Often (5–7d)

On average, how many hours per day did you spend doing light housework?

1. Less than 1hr
2. 1 but less than 2hr
3. 2–4hr
4. More than 4hr

8. During the past 7 days, how often have you done any heavy housework or chores such as vacuuming, scrubbing floors, washing windows, or walls, etc?

1. Never (Go to question #9)
2. Seldom (1–2d)
3. Sometimes (3–4d)
4. Often (5–7d)

On average, how many hours per day did you spend doing heavy housework or chores?

1. Less than 1hr
2. 1 but less than 2hr
3. 2–4hr
4. More than 4hr

9. During the past 7 days, how often you done home repairs like carpentry, painting, furniture refinishing, electrical work, etc?

1. Never (Go to question #10)
2. Seldom (1–2d)
3. Sometimes (3–4d)
4. Often (5–7d)

On average, how many hours per day did you spend doing home repairs?

1. Less than 1hr
2. 1 but less than 2hr
3. 2–4hr
4. More than 4hr

10. During the past 7 days how often have you done lawn work or yard care including mowing, leaf or snow removal, tree or bush trimming, or wood chopping, etc?

1. Never (Go to question #11)
2. Seldom (1–2d)
3. Sometimes (3–4d)
4. Often (5–7d)

On average, how many hours per day did you spend doing lawn work?

1. Less than 1hr
2. 1 but less than 2hr
3. 2–4hr
4. More than 4hr

11. During the past 7 days, how often have you done outdoor gardening?

1. Never (Go to question #12)
2. Seldom (1–2d)
3. Sometimes (3–4d)
4. Often (5–7d)

On average, how many hours per day did you spend doing outdoor gardening?

1. Less than 1hr
2. 1 but less than 2 hr
3. 2–4hr
4. More than 4hr

12. During the past 7 days, how often did you care for another person, such as children, a dependent spouse, or another adult?

1. Never (Go to question #13)
2. Seldom (1–2d)
3. Sometimes (3–4d)
4. Often (5–7d)

On average, how many hours per day did you spend caring for another person?

1. Less than 1hr
2. 1 but less than 2hr
3. 2–4hr
4. More than 4hr

Work-Related Activity

13. During the past 7 days, how often did you work for pay or as a volunteer? (Exclude work that mainly involved sitting with slight arm movement such as light office work, computer work, light assembly line work, driving bus or van, etc.)

1. Never (Go to END)
2. Seldom (1–2d)
3. Sometimes (3–4d)
4. Often (5–7d)

On average, how many hours per day did you spend working for pay or as a volunteer?

1. Less than 1hr
2. 1 but less than 4hr
3. 5 but less than 8hr
4. 8hr or more

Scoring: PASIPD

Item multipliers

1. Not scored
2. 2.5
3. 3.0
4. 4.0
5. 8.0
6. 5.5
7. 1.5
8. 4.0
9. 4.0
10. 4.0
11. 4.0
12. 1.5
13. 2.5

Average Hours per Day Calculation for Items 2–12

Category	Reported (hr/d)	Average (hr/d)
Seldom (1-2d)	< 1	.11
	1-2	.32
	2-4	.64
	> 4	1.07
Sometimes (3-4d)	< 1	.25
	1-2	.75
	2-4	1.50
	> 4	2.50
Often (5-7d)	< 1	.43
	1-2	1.29
	2-4	2.57
	> 4	4.29

Average Hours per Day Calculation for Item 13

Category	Reported (hr/d)	Average (hr/d)
<hr/>		
Seldom (1–2d)	< 1	.12
	1–4	.64
	5–8	1.39
	> 8	1.93
Sometimes (3–4d)	< 1	.28
	1–4	1.5
	5–8	3.11
	> 8	4.5
Often (5–7d)	< 1	.49
	1–4	2.57
	5–8	5.57
	> 8	7.71

Note. PASIPD score = sum of item multiplier × average hours per day over items 2–13.

مستوى النشاط البدني للأفراد ذوي الإعاقات الجسدية

التعليمات: هذا الاستفتاء يمثل مستواك الحالي من النشاط و التمرين الرياضي. من فضلك تذكر أنه ليس هناك إجابات صحيحة أو خاطئة. نحن ببساطة نحتاج لتقييم مستوى نشاطك البدني الحالي.

نشاط وقت الفراغ

1. أثناء الأيام السبعة الماضية، كم مرة شاركت في الأنشطة الساكنة مثل، القراءة، مشاهدة التلفاز، ألعاب الكمبيوتر، أو ممارسة الأعمال اليدوية ؟

- أ. إطلاقاً (إذا كان هذا اختيارك، اذهب إلى السؤال رقم 2 مباشرة)
- ب. نادراً (1-2 يوم في الأسبوع)
- ج. أحياناً (3-4 يوم في الأسبوع)
- د. غالباً (5-7 يوم في الأسبوع)

كم متوسط عدد الساعات التي قد قضيتها في اليوم الواحد بممارسة هذه الأنشطة الساكنة ؟

- أ. أقل من ساعة واحدة
- ب. أكثر من ساعة، وأقل من ساعتين
- ج. من 2-4 ساعات
- د. أكثر من 4 ساعات

2. أثناء الأيام السبعة الماضية، كم مرة مشيت (على قدميك أو بكرسي متحرك) خارج المنزل لغرض آخر غير الرياضة.

على سبيل المثال، الذهاب إلى العمل أو الدراسة، التنزه، التسوق، أو المهام الأخرى؟

- أ. إطلاقاً (إذا كان هذا اختيارك، اذهب إلى السؤال رقم 3 مباشرة)
- ب. نادراً (1-2 يوم في الأسبوع)
- ج. أحياناً (3-4 يوم في الأسبوع)
- د. غالباً (5-7 يوم في الأسبوع)

كم متوسط عدد الساعات التي قد قضيتها في اليوم الواحد خارج المنزل على الكرسي المتحرك سواء كان دفع الكرسي من قبلك أو بمساعدة أشخاص آخرين؟

- أ. أقل من ساعة واحدة
- ب. أكثر من ساعة، وأقل من ساعتين
- ج. من 2-4 ساعات
- د. أكثر من 4 ساعات

3. أثناء الأيام السبعة الماضية، كم مرة شاركت في رياضة بسيطة المجهود و أنشطة ترويحية مثل، البولينغ، الغولف باستخدام عربة الغولف، الرماية، صيد السمك، رمي السهام، البلياردو، التمرين العلاجي (العلاج المهني أو الجسدي كالتمدد)، أو أي أنشطة أخرى مشابهة؟

- أ. إطلاقاً (إذا كان هذا اختيارك، اذهب إلى السؤال رقم 4 مباشرة)
- ب. نادراً (1-2 يوم في الأسبوع)
- ج. أحياناً (3-4 يوم في الأسبوع)
- د. غالباً (5-7 يوم في الأسبوع)

كم متوسط عدد الساعات التي قد قضيتها في اليوم الواحد بممارسة هذه الأنشطة الرياضية الترويحية البسيطة المجهود ؟

- أ. أقل من ساعة واحدة
- ب. أكثر من ساعة، وأقل من ساعتين
- ج. من 2-4 ساعات
- د. أكثر من 4 ساعات

4. أثناء الأيام السبعة الماضية، كم مرّة شاركت في أنشطة ترويحية رياضية معتدلة المجهود مثل التنس، الرقص، دفع الكرسي من قبلك أو بمساعدة أشخاص آخرين للمتعة والتسلية، أو أي أنشطة أخرى مشابهة ؟

- أ. إطلاقاً (إذا كان هذا اختيارك، انتقل إلى السؤال رقم 5 مباشرة)
- ب. نادراً (1-2 يوم في الأسبوع)
- ج. أحياناً (3-4 يوم في الأسبوع)
- د. غالباً (5-7 يوم في الأسبوع)

كم متوسط عدد الساعات التي قضيتها في اليوم الواحد بممارسة هذه الأنشطة الترويحية الرياضية المعتدلة المجهود ؟

- أ. أقل من ساعة واحدة
- ب. أكثر من ساعة، وأقل من ساعتين
- ج. من 2-4 ساعات
- د. أكثر من 4 ساعات

5. أثناء الأيام السبعة الماضية، كم مرّة شاركت في رياضة شتّاقة وأنشطة ترويحيّة مثل الجري، السباق بالكرسي المتحرك (تدريب)، الإيروبيكس، السباحة، العجلة (سواء باليد أو الرجل)، المشي بالعكاز والحّمالات، لعب كرة السلة، أو أي أنشطة أخرى مشابهة؟

- أ. إطلاقاً (إذا كان هذا اختيارك، انتقل إلى السؤال رقم 6 مباشرة)
- ب. نادراً (1-2 يوم في الأسبوع)
- ج. أحياناً (3-4 يوم في الأسبوع)
- د. غالباً (5-7 يوم في الأسبوع)

كم متوسط عدد الساعات التي قضيتها في اليوم الواحد بممارسة هذه الأنشطة الترويحيّة الرياضية الشتّاقة؟

- أ. أقل من ساعة واحدة
- ب. أكثر من ساعة، وأقل من ساعتين
- ج. من 2-4 ساعات
- د. أكثر من 4 ساعات

6. أثناء الأيام السبعة الماضية، كم مرّة مارست أي نوع من أنواع الرياضة الخاصة لزيادة قوّة العضلات والتحمّل مثل رفع الأثقال، تمارين الضغط؟

- أ. إطلاقاً (إذا كان هذا اختيارك، اذهب إلى السؤال رقم 7 مباشرة)
- ب. نادراً (1-2 يوم في الأسبوع)
- ج. أحياناً (3-4 يوم في الأسبوع)
- د. غالباً (5-7 يوم في الأسبوع)

كم متوسط عدد الساعات التي قضيتها في اليوم الواحد بممارسة هذه الرياضة الخاصة لزيادة قوّة العضلات والتحمّل ؟

- أ. أقل من ساعة واحدة
- ب. أكثر من ساعة، وأقل من ساعتين
- ج. من 2-4 ساعات
- د. أكثر من 4 ساعات

النشاط المنزليّ

7. أثناء الأيام السبعة الماضية، كم مرّة قد قمت بممارسة أعمال منزلية خفيفة مثل نفض الغبار، مسح الأرضيات، أو غسل الأطباق ؟

- أ. إطلاقاً (إذا كان هذا اختيارك، اذهب إلى السؤال رقم 8 مباشرة)
- ب. نادراً (1-2 يوم في الأسبوع)
- ج. أحياناً (3-4 يوم في الأسبوع)
- د. غالباً (5-7 يوم في الأسبوع)

كم متوسط عدد الساعات التي قضيتها في اليوم الواحد بممارسة هذه الأعمال المنزلية الخفيفة ؟

- أ. أقل من ساعة واحدة
- ب. أكثر من ساعة، وأقل من ساعتين
- ج. من 2-4 ساعات
- د. أكثر من 4 ساعات

8. أثناء الأيام السبعة الماضية، كم مرّة قد قمت بممارسة أعمال منزلية روتينية شاقة مثل التنظيف بالمكنسة الكهربائية، فرك الأرضيات، غسل النوافذ، أو الجدران، إلخ ؟

- أ. إطلاقاً (إذا كان هذا اختيارك، اذهب إلى السؤال رقم 9 مباشرة)
- ب. نادراً (1-2 يوم في الأسبوع)
- ج. أحياناً (3-4 يوم في الأسبوع)
- د. غالباً (5-7 يوم في الأسبوع)

كم متوسط عدد الساعات التي قضيتها في اليوم الواحد بممارسة هذه الأعمال المنزلية الروتينية الشاقة؟

- أ. أقل من ساعة واحدة
- ب. أكثر من ساعة، وأقل من ساعتين
- ج. من 2-4 ساعات
- د. أكثر من 4 ساعات

9. أثناء الأيام السبعة الماضية، كم مرة قد قمت بأعمال الإصلاحات المنزلية مثل النجارة، الطلي، تأثيث، إصلاحات كهربائية، إلخ؟

- أ. إطلاقاً (إذا كان هذا اختيارك، اذهب إلى السؤال رقم 10 مباشرة)
- ب. نادراً (1-2 يوم في الأسبوع)
- ج. أحياناً (3-4 يوم في الأسبوع)
- د. غالباً (5-7 يوم في الأسبوع)

كم متوسط عدد الساعات التي قضيتها في اليوم الواحد بالقيام بهذه الإصلاحات المنزلية؟

- أ. أقل من ساعة واحدة

- ب. أكثر من ساعة، وأقل من ساعتين
 ج. من 2-4 ساعات
 د. أكثر من 4 ساعات

10. أثناء الأيام السبعة الماضية، كم مرّة قد قمت بأعمال الإهتمام بالزرع متضمناً قص الزرع، إزالة أوراق الشجر، قص الشجر والخشب، الخ ؟

- أ. إطلاقاً (إذا كان هذا اختيارك، اذهب إلى السؤال رقم 11 مباشرة)
 ب. نادراً (1-2 يوم في الأسبوع)
 ج. أحياناً (3-4 يوم في الأسبوع)
 د. غالباً (5-7 يوم في الأسبوع)

كم متوسط عدد الساعات التي قضيتها في اليوم الواحد بالقيام بأعمال الإهتمام بالزرع ؟

- أ. أقل من ساعة واحدة
 ب. أكثر من ساعة، وأقل من ساعتين
 ج. من 2-4 ساعات
 د. أكثر من 4 ساعات

11. أثناء الأيام السبعة الماضية، كم مرّة قد قمت بأعمال العناية بالحديقة الخارجية؟

- أ. إطلاقاً (إذا كان هذا اختيارك، اذهب إلى السؤال رقم 12 مباشرة)
 ب. نادراً (1-2 يوم في الأسبوع)
 ج. أحياناً (3-4 يوم في الأسبوع)
 د. غالباً (5-7 يوم في الأسبوع)

كم متوسط عدد الساعات التي قضيتها في اليوم الواحد بالقيام بأعمال العناية بالحديقة الخارجية؟

- أ. أقل من ساعة واحدة
- ب. أكثر من ساعة، وأقل من ساعتين
- ج. من 2-4 ساعات
- د. أكثر من 4 ساعات

12. أثناء الأيام السبعة الماضية، كم مرّة قد قمت برعاية شخص آخر مثل الأطفال، زوج أو زوجة، أو شخص بالغ آخر؟

- أ. إطلاقاً (إذا كان هذا اختيارك، اذهب إلى السؤال رقم 13 مباشرة)
- ب. نادراً (1-2 يوم في الأسبوع)
- ج. أحياناً (3-4 يوم في الأسبوع)
- د. غالباً (5-7 يوم في الأسبوع)

كم متوسط عدد الساعات التي قضيتها في اليوم الواحد برعاية شخص آخر؟

- أ. أقل من ساعة واحدة
- ب. أكثر من ساعة، وأقل من ساعتين
- ج. من 2-4 ساعات
- د. أكثر من 4 ساعات

نشاط متعلق بالعمل

13. أثناء الأيام السبعة الماضية، كم مرّة قد قمت بالعمل لكسب الأجر أو كمتطوع (إستبعد الأعمال التي تتضمن الجلوس مع حركة طفيفة للذراع مثل أعمال المكتب البسيطة، أعمال الكمبيوتر، أعمال التجميع، قيادة حافلة أو شاحنة، الخ.)؟

أ. إطلاقاً

ب. نادراً (1-2 يوم في الأسبوع)

ج. أحياناً (3-4 يوم في الأسبوع)

د. غالباً (5-7 يوم في الأسبوع)

كم متوسط عدد الساعات التي قضيتها في اليوم الواحد بالعمل لكسب الأجر أو كمتطوع؟

أ. أقل من ساعة واحدة

ب. أكثر من ساعة، وأقل من 4 ساعات

ج. أكثر من 5 ساعات، وأقل من 8 ساعات

د. أكثر من 8 ساعات

APPENDIX D: INTERNATIONAL PHYSICAL ACTIVITY QUESTIONNAIRE

Please answer each question even if you do not consider yourself to be an active person. Think about the activities you do at work, as part of your house and yard work, to get from place to place, and in your spare time for recreation, exercise or sport.

Now, think about all the *vigorous* activities which take hard physical effort that you did in the last 7 days. Vigorous activities make you breathe much harder than normal and may include heavy lifting, digging, aerobics, or fast bicycling. Think only about those physical activities that you did for at least 10 minutes at a time.

1. During the last 7 days, on how many days did you do vigorous physical activities?

_____ Days per week [VDAY; Range 0-7, 8, 9]

8. Don't Know/Not Sure

9. Refused

2. How much time did you usually spend doing vigorous physical activities on one of those days?

___ Hours per day [VDHRS; Range: 0-16]

_____ Minutes per day [VDMIN; Range: 0-960, 998, 999]

998. Don't Know/Not Sure

999. Refused

How much time in total would you spend **over the last 7 days** doing vigorous physical activities?

___ Hours per week [VWHRS; Range: 0-112]

_____ Minutes per week [VWMIN; Range: 0-6720, 9998, 9999]

9998. Don't Know/Not Sure

9999. Refused

Now think about activities which take *moderate physical effort* that you did in the last 7 days. Moderate physical activities make you breathe somewhat harder than normal and may include carrying light loads, bicycling at a regular pace, or doubles tennis. Do not include walking. Again, think about only those physical activities that you did for at least 10 minutes at a time.

3. During the **last 7 days**, on how many days did you do **moderate** physical activities?

_____ Days per week [MDAY; Range: 0-7, 8, 9]

8. Don't Know/Not Sure

9. Refused

4. How much time did you usually spend doing **moderate** physical activities on one of those days?

__ __ Hours per day [MDHRS; Range: 0-16]

__ __ __ Minutes per day [MDMIN; Range: 0-960, 998, 999]

998. Don't Know/Not Sure

999. Refused

What is the total amount of time you spent over the **last 7 days** doing moderate physical activities?"

__ __ __ Hours per week [MWHRS; Range: 0-112]

__ __ __ __ Minutes per week [MWMIN; Range: 0-6720, 9998, 9999]

9998. Don't Know/Not Sure

9999. Refused

Now think about the time you spent walking in the last 7 days. This includes at work and at home, walking to travel from place to place, and any other walking that you might do solely for recreation, sport, exercise, or leisure.

5. During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time?

__ Days per week [WDAY; Range: 0-7, 8, 9]

8. Don't Know/Not Sure

9. Refused

6. How much time did you usually spend **walking** on one of those days?

__ __ Hours per day [WDHRS; Range: 0-16]

__ __ __ Minutes per day [WDMIN; Range: 0-960, 998, 999]

998. Don't Know/Not Sure

999. Refused

What is the total amount of time you spent walking over **the last 7 days**?

__ __ __ Hours per week [WWHRS; Range: 0-112]

__ __ __ __ Minutes per week [WWMIN; Range: 0-6720, 9998, 9999]

9998. Don't Know/Not Sure

9999. Refused

Now think about the time you spent sitting on week days during the last 7 days. Include time spent at work, at home, while doing course work, and during leisure time. This may include time spent sitting at a desk, visiting friends, reading or sitting or lying down to watch television.

7. During the last 7 days, how much time did you usually spend *sitting* on a **week day**?

__ __ Hours per weekday [SDHRS; 0-16]

__ __ __ Minutes per weekday [SDMIN; Range: 0-960, 998, 999]

998. Don't Know/Not Sure

999. Refused

What is the total amount of time you spent *sitting* last **Wednesday**?"

__ __ Hours on Wednesday [SWHRS; Range 0-16]

__ __ __ Minutes on Wednesday [SWMIN; Range: 0-960, 998, 999]

998. Don't Know/Not Sure

999. Refused

ARABIC VERSION

لقياس مستوى النشاط البدني في الأيام السبعة الماضية

فكر الآن في الأنشطة البدنية التي تتطلب جهداً بدنياً مرتفع الشدة والتي قمت بممارستها خلال الأيام السبعة الماضية. الأنشطة البدنية مرتفعة الشدة هي تلك الأنشطة التي تجعل تنفسك أعلى بكثير من المعتاد، مثل الجري، ركوب دراجة بسرعة عالية، رفع أشياء ثقيلة، أو ممارسة كرة قدم، أو كرة سلة، أو السباحة، أو نط الحبل، لمدة 10 دقائق على الأقل في كل مرة.

1- خلال الأيام السبعة الماضية، كم يوماً مارست فيه نشاطاً بدنياً مرتفع الشدة؟

..... يوم في الأسبوع

8. لا أدري / أو غير متأكد

9. أرفض الإجابة

** فكر فقط في الأنشطة البدنية مرتفعة الشدة التي قمت بممارستها لمدة 10 دقائق على الأقل في كل مرة.

2- في المعتاد، كم من الوقت قضيته في كل يوم مارست فيه نشاطاً بدنياً مرتفع الشدة؟

----- ساعة في اليوم

----- دقيقة في اليوم
لا أدري / أو غير متأكد

999. أرفض الإجابة

** فكر فقط في الأنشطة البدنية مرتفعة الشدة التي قمت بممارستها لمدة 10 دقائق على الأقل في كل مرة.

ما هو متوسط الوقت لأحد الأيام التي مارست فيها نشاطاً بدنياً مرتفع الشدة، إذا لا تعرف الإجابة عن هذا السؤال، لأن وقت الممارسة تفاوت كثيراً من يوم لآخر، جاوب على هذا السؤال: كم مجموع الوقت الذي قضيته خلال الأيام السبعة الماضية في ممارسة نشاط بدني مرتفع الشدة؟

----- ساعة في اليوم

----- دقيقة في اليوم

لا أدري / أو غير متأكد

9998.

9999. أرفض الإجابة

فكر الآن في الأنشطة البدنية التي تتطلب جهداً بدنياً معتدلة الشدة والتي قمت بممارستها خلال الأيام السبعة الماضية. الأنشطة البدنية المعتدلة الشدة هي تلك الأنشطة التي تجعل تنفسك أعلى من المعتاد إلى حد ما، مثل رفع أشياء خفيفة، ركوب دراجة بسرعة عادية، أو ممارسة كرة قدم، أو كرة سلة، أو كنس المنزل، أو غسل الملابس يدوياً، أو غسل السيارة. لا تحسب المشي ضمن هذه الأنشطة. مرة أخرى، فكر فقط في الأنشطة البدنية المعتدلة الشدة التي قمت بممارستها لمدة 10 دقائق على الأقل في كل مرة.

3- خلال الأيام السبعة الماضية، كم يوماً مارست فيه نشاطاً بدنياً معتدلاً الشدة؟

..... يوم في الأسبوع

8. لا أدري / أو غير متأكد

9. أرفض الإجابة

فكر فقط في الأنشطة البدنية معتدلة الشدة التي قمت بممارستها لمدة ** 10 دقائق على الأقل في كل مرة.

4- في المعتاد، كم من الوقت قضيته في كل يوم مارست فيه نشاطاً بدنياً معتدلاً الشدة؟

----- ساعة في اليوم

----- دقيقة في اليوم

.998

لا أدري / أو غير متأكد

.999 أرفض الإجابة

** فكر فقط في الأنشطة البدنية معتدلة الشدة التي قمت بممارستها لمدة 10 دقائق على الأقل في كل مرة.

ما هو متوسط الوقت لأحد الأيام التي مارست فيها نشاطاً بدنياً معتدلاً الشدة، إذا لا تعرف الإجابة عن هذا السؤال، لأن وقت الممارسة تفاوت كثيراً

من يوم لآخر، جاوب على هذا السؤال: كم مجموع الوقت الذي قضيته خلال الأيام السبعة الماضية في ممارسة نشاط بدني معتدل الشدة؟

----- ساعة في اليوم

----- دقيقة في اليوم

لا أدري / أو غير متأكد .9998

.9999 أرفض الإجابة

الآن فكر في الوقت الذي قضيته في المشي خلال الأيام السبع الماضية، ويتضمن ذلك المشي إلى العمل، والمشي أثناء العمل، وفي البيت، وخلال انتقالك من مكان إلى لآخر، أو أي نوع من أنواع المشي بغرض الترويح أو الرياضة.

5- خلال الأيام السبعة الماضية، كم يوماً مارست فيه المشي لمدة 10 دقائق على الأقل في كل مرة؟

..... يوم في الأسبوع

8. لا أدري / أو غير متأكد

9. أرفض الإجابة

** فكر فقط في المشي الذي قمت به لمدة 10 دقائق على الأقل في كل مرة.

6- في المعتاد، كم من الوقت قضيته في كل يوم مارست فيه المشي؟

----- ساعة في اليوم

----- دقيقة في اليوم

لا أدري / أو غير متأكد .998

.999 أرفض الإجابة

ما هو متوسط الوقت لأحد الأيام التي مارست المشي، إذا لا تعرف الإجابة عن هذا السؤال، لأن وقت الممارسة تفاوت كثيراً من يوم لآخر، جاوب على هذا السؤال: كم مجموع الوقت الذي قضيته في المشي خلال الأيام السبعة الماضية؟

----- ساعة في اليوم

----- دقيقة في اليوم

لا أدري / أو غير متأكد .9998

.9999 أرفض الإجابة

الآن فكر في الوقت الذي قضيته جالساً خلال الأيام السبع الماضية، احسب وقت الجلوس في العمل، وفي المنزل، وفي الدراسة، وفي الترفيه، من الممكن أن يتضمن ذلك وقت الجلوس على المكتب، على الكمبيوتر، وأثناء زيارتك لصديق، وأثناء القراءة، والجلوس والاستلقاء لمشاهدة التلفزيون.

7- خلال الأيام السبعة الماضية، كم من الوقت قضيته جالساً في أحد هذه الأيام من غير أيام الإجازة الأسبوعية؟

----- ساعة في اليوم

----- دقيقة في اليوم

.998

لا أدري / أو غير متأكد

.999. أرفض الإجابة

ما هو متوسط الوقت اليوم الواحد الذي قضيته جالساً، إذا لا تعرف الإجابة عن هذا السؤال، لأن وقت الجلوس يتفاوت كثيراً من يوم لآخر، جاوب على هذا السؤال: كم مجموع الوقت الذي قضيته جالساً في يوم الاثنين الماضي؟

----- ساعة في اليوم

----- دقيقة في اليوم

لا أدري / أو غير متأكد

.999. أرفض الإجابة

APPENDIX E: IRB APPROVAL



Institutional Review Board • Office of Sponsored Programs and Research Compliance
 Oregon State University, 312 Kerr Administration Building, Corvallis, Oregon 97331-2140
 Tel 541-737-8008 | Fax 541-737-3093 | <http://oregonstate.edu/research/ospr/rc/humansubjects.htm>
 IRB@oregonstate.edu

TO: Joonkoo Yun,
 Nutrition and Exercise Sciences

RE: Barriers to Exercise: Kuwaiti Individuals with and without Physical Disabilities
 (Student Researcher: Maryam Arab)

IRB Application No. 3263

Level of Review: Exempt from Full Board

Expiration Date: 6/2/2007

Approved Number of Participants: 100


The referenced project was reviewed under the guidelines of Oregon State University's Institutional Review Board (IRB). The IRB has **approved** the **new application**. A copy of this information will be provided to the full IRB committee.

Enclosed is the informed consent information for this project, which has received the IRB stamp. All participants must receive the IRB-stamped informed consent document.

- **PROJECT REVISION REQUEST:** Any proposed changes to the approved protocol (e.g. protocol, informed consent form(s), testing instrument(s), research staff, recruitment material, or increase in the number of participants) must be submitted for approval before implementation.
- **ADVERSE EVENT:** Adverse Events must be reported within three days of occurrence. This includes any outcome that is not expected and routine and that results in bodily injury and/or psychological, emotional, or physical harm or stress.
- **CONTINUING REVIEW:** Before the expiration date noted above, a notice will be sent to remind researchers to complete the continuing review form to renew this project. It is imperative that the Continuing Review is completed and submitted by the due date in the notice or approval will lapse, resulting in a suspension of all activity.

Forms and additional information can be found at the IRB web site at:
<http://oregonstate.edu/research/ospr/rc/humansubjects.htm>.

If you have any questions, please contact the IRB Human Protections Administrator at IRB@oregonstate.edu or by phone at (541) 737-8008.


 Elisa Espinoza Fallows
 IRB Human Protections Administrator

Date: 10/3/06

pc: 3263 file