Perceived Exercise Benefits and Barriers of a Mixed Student Population in the United Arab Emirates

Sarah Dalibalta[a*], Gareth Davison[b]

[a] Department of Biology, Chemistry & Environmental Sciences, American University of Sharjah, Sharjah, UAE. Email: sdalibalta@aus.edu

[b]Sport and Exercise Science Research Institute, Ulster University, Jordanstown, UK.

Email: gw.davison@ulster.ac.uk

* Corresponding Author

Sarah Dalibalta, Department of Biology, Chemistry & Environmental Sciences, American University of Sharjah, Sharjah, UAE, P.O. Box 26666.

Telephone: +971-65154421. Fax: +971-65152450. E-mail: sdalibalta@aus.edu

Abstract

Physical inactivity is a contributing factor to cardiovascular disease and obesity in theUnited Arab Emirates. This study aims toassess perceptions of a young population to regular exercise. The Exercise Benefits/Barriers Scale was used to determine perceived benefits and barriers to exercise in a sample of 100 students. The main perceived benefit was; "exercising increases my level of physical fitness", whilst the main perceived barrier was; "exercise tires me". The benefits mean value was 3.09, compared to the barriers mean value of 2.16, indicating strong agreement with the benefits of exercise. The Godin questionnaire was also used to determine the frequency of exercise. We conclude that 15% of the cohort is overweight while 5% are obese. 32% of males and 36% of females in our sample population never/rarely exercise. Although this young population acknowledges the benefits of exercise, the perceived barriers play a greater role in determining exercise habits.

Key Words: Physical activity; benefits; barriers; obesity; university students; UAE

The work described in this article was supported by a grant from the College of Arts and Sciences at the American University of Sharjah. The funding source however had no involvement in the study design, data collection and analysis, or in the writing of the report. The authors declare they have no actual or potential competing financial interests.

1. Introduction

The World Health Organization (WHO) has classified physical inactivity as the fourth leading risk factor for global mortality, accounting for 6% of deaths worldwide (WHO, 2010). Physical inactivity is identified as the primary cause for 25% of breast and colon cancers, 27% of diabetes and 30% of ischemic heart disease cases, and is implicated as the leading cause in the growing global epidemic of obesity (Caballero, 2007). On the other hand, physical activity (PA) provides important societal health benefits. For example, thereis a direct dose-response relationship between PA and cardiovascular health(Mark et al, 2008)**,** and PA is known to enhance skeletal muscle mass, bone density, and neuromuscular activation, therefore exhibiting both immediate and long-term benefits for the physical and psychological well-being of an individual (WHO, 2010).

Previous investigative work has shown that cardiovascular disease (CVD) originates in the adolescent years, although CVD does not become evident until full adulthood (McGill et al, 2002; Gallagher et al, 2002). These known risk factors for CVD include physical inactivity, excess body fat, poor cardiorespiratory fitness, and poordiet (Boreham et al, 2004). Studies reflect the need for a reduction or prevention of risk factors at an early age in order to decrease the susceptibility of CVD in later life. The WHO guidelines recommend that adults aged 18-64 years old, should engage in 30 minutes of moderate intensity PA at least 5 days a week to improve their cardiorespiratory fitness and muscular strength to subsequently reduce the risk of all non-communicable diseases (WHO, 2010). The risk of diabetes can also be lowered by as much as 58% by participating in 30 minutes of exercise a day according to the Imperial College London Diabetes Center in Abu Dhabi (ICLDC, 2013). Indeed, the strength of therelationship between PA andpositive health highlights the need for society to become more active from a young age and throughout theirlifespan.

Data emergingfrom the Middle East, and the Gulf states in particular with regards to childhood and adolescent obesity, areespeciallyalarming. The prevalence of overweight and obese adolescents is amongst the highest in

the world and that has manifested in a risein non-communicable diseases, hypertension, cardiovascular diseases and diabetes levels that are some of the highest globally. Overweight can be defined as having a body mass index (BMI) greater than 85th percentile for children or 25-29.9 in adults. Obese can be defined as having a BMI greater than 97thpercentile in children or over 30 in adults. In the United States, 31.7% and 11.9% of 2-19 year olds are considered overweight or obese, respectively (Ogden et al., 2010). In the United Kingdom, 24 and 26% of boys and girls respectively between the ages of 11-15 years old are classified as obese (Reilly, 2006).Comprehensive data on the extent of childhood obesity in the Middle East is lacking, with no accurate uniformity in reporting between countries. Nonetheless, a number of studies have reported rising trends in childhood obesity in the Arabian Gulf states. An estimated 8-9% of Kuwaiti and Saudi preschoolers are obese, with approximately 40-46% of Kuwaiti adolescents considered either overweight or obese (Nget al, 2011).In a 2006 survey amongst 2-18 year olds in Saudi Arabia, 19% of children were found to be overweight and 23.3% were obese (Al-Dossary et al, 2010), while 50% of 14-18 year olds were over the 85th percentile in weight. Furthermore, obese Saudi children and adolescents are known to have an increased risk factor profile for cardiovascular disease and the metabolic syndrome (Taha et al, 2009).

In the United Arab Emirates (UAE), a survey on children and adolescents aged 5-17 years old showed that 21.5% were overweight and 13.7% were obese (Malik et al, 2007). In a recentsimilar study, nearly 34% of children and adolescents in the UAE were reported asoverweight or obese (Aljunaibi et al, 2013). It has also been documented that both UAE males and females have a 2-3 times the rate of obesity compared with the published international standard; similar to frequencies previously published for Saudi Arabia. The WHO reported that 67% of men and 72% of women in the UAE are either overweight or obese. In the UAE, rapid urbanization and socioeconomic development is thought to be a leading cause in the decline of PA amongst both young people and adults (Al-Hazzaa et al, 2010).A survey conducted in 2009 by the Dubai Health Authority andthe Dubai Statistics Centre revealed that only 22% of secondary school graduates and 26.3% of

universitygraduates did sufficient exercise to stay healthy. Overall, only 19% of people living in Dubai getsufficient exercise to remain healthy (Dubai Household Health Survey, 2009). These lifestyle changes areaccompanied by declining health in the population. A recent study by Al-Sarraj et al (2010) showed thatnearly 41% of the UAE population is currently suffering from metabolic syndrome. The UAE has the second highest prevalence ofdiabetes worldwide as 18.7% of the population currently suffers from diabetes. The need for interventions that target this population and particularly its youth is crucial in tackling growing health problems.

Although the evidence supports the need to participate in regulator PA for improved health, little is known regarding the reasons for the lack of exercise participation in the UAE. Perceived barriers are thought to be powerful predictors of health behavior (Janz et al., 1984). Therefore, understanding factors that are perceived barriers to exercise can aid in the design of specific PA interventions suited to this population. Thus, the aim of this study was to establishphysical activity habits in a mixed UAE university population and then to examine the perceived exercise benefits and barriers using the Exercise Benefits/Barriers Scale (EBBS).

2. Methods

2.1 Participants

Following university ethical approval, 100 randomly selected male and female students attending the university were asked to participate in this study. The participants' ages ranged from 17-23 years old.The participants consisted of 81 females and 19 males. There was also a range of nationalities with 12 participants being Emirati, 48 participants were non-EmiratiArabs, and the other 40 participants comprised other nationalities such as Indian, Pakistani, British and American.

2.2 Procedure

All participants were requested to complete the EBBS questionnaire (Sechrist et al, 1987). This instrument has previously been assessed as a reliable measure to evaluate the perceived benefits and barriers to exercise. The EBBS questionnaire is made up of a total of 43 questions, 29 of which comprise the benefits components and 14 of which make up the barrier components. The benefits component are further divided in five subscales: life enhancement (8 questions), physical performance (8 questions), psychological outlook (6 questions), social interaction (4 questions), and preventative health (3 questions). The barriers component is categorized as four subscales: exercise milieu (6 questions), time expenditure (3 questions), physical exertion (3 questions), and family discouragement (2 questions). The Likert 4-point scoring system was used to score all items in the benefits and barriers scale; whereby 4= 'strongly agree'; 3= 'agree'; 2= 'disagree'; and 1= 'strongly disagree'.

The same participants were also asked to complete the Godin leisure-time exercise questionnaire (Godin et al, 1997). This is a brief four item query of usual exercise habits and their frequencies. To maintain the anonymity of the participant, names was not disclosed, however descriptors of the participant such as age, gender, weight, height, and nationality wererecorded.

Perceived Benefits to Exercise (29 items)	**Perceived Barriers to Exercise (14 items)**
Life enhancement (8 items)	Exercise milieu (6 items)
Physical performance (8 items)	Time expenditure (3 items)
Psychological outlook (6 items)	Physical exertion (3 items)
Social interaction (4 items)	Family discouragement (2 items)
Preventative health (3 items)	

Scale: 4= Strongly Agree 3= Agree 2= Disagree 1= Strongly Disagree

2.3 Data Analysis

For each participant, standardized scores were computed for each item in the benefits and barriers subscales using the Likert 4-point scale. The means of the individual EBBS items as well as the mean total of all benefits and barriers items was calculated. This allowed comparisons to be made between subscales as well as

to evaluate the overall perceptions of the participating population. Frequencies were used to describe the characteristics of the student population as well as their responses to questions on exercise habits.

3. Results

3.1 Characteristics of the Participants

Participants in this study were predominantly female, comprising 81% of the population studied. Most participants were aged 17-21 years and 20% had a BMI greater than 25 based on self-reported weight and height data. 16% of males and 3% of females are considered obese. The majority of participants were of Arab non-Emirati descent whilst 12% were Emirati and 40% of non-Arab origin. The characteristics of these participants are summarized in Table 1.

Characteristics	Male	Female	total #
Gender	19	81	100
Age (17-21)	17	76	93
(22-23)	2	5	7
BMI (<25)	12	68	80
(25-29.9)	4	11	15
(>30)	3	2	5
Nationality (UAE)	3	9	12
(Arab)	8	40	48
(other: Indian, American, etc)	8	32	40
Exercise Duration (Often)	7	14	21
(Sometimes)	6	38	44
(Never/Rarely)	6	29	35

Table 1: Characteristics of Participants.

3.2 Perceived Benefits to Exercise

Table 2 outlines the results of the EBBS questionnaire. Percentages are reported for each question disclosing how many participants strongly agreed, agreed, disagreed or strongly disagreed with each of the 43 questions. The questions that depict the perceived benefits to exercise were classified under their appropriate subscales. For each item, the mean and standard deviation was calculated using the Likert 4-point scoring system as shown in Table 3. Accordingly, participants agreed the most with survey question 41 under the life enhancement subscale; with 28% of participants strongly agreeing and 72% of participants agreeing with this statement. Participants agreed the least with question 29 in this category, with 35% of participants disagreeing with this statement. Under the physical performance subscale, 60% of participants strongly agreed and 40% agreed with survey question 15, although they agreed the least with question 23 with 15% of students disagreeing with this statement. Survey question 8 under the psychological outlook subscale had 63% of participants strongly agreeing and 30% agreeing whilst question 10 had the lowest mean score (2.85) with 27% of participants disagreeing with it; and similarly survey question 38under the social interaction subscale had 20% of participants strongly agreeing and 48% agreeing whereas they agreed the least with question 11 with 80% of participants disagreeing with it. Finally, 43% of volunteers strongly agreed and 57% agreed with question 5 under the preventative health subscale although they agreed the least with question 27 as 12% of students disagreed with this statement. Overall under the exercise benefits scale, participants agreed the most with question 15, “exercising increases my level of physical fitness”, with a mean score of 3.57; and agreed the least with question 11, “exercising lets me have contact with friends and persons I enjoy”, with a mean score of 2.43. Hence, the greatest perceived benefit is physical performance.

The mean scores of most of the questions in the life enhancement, physical performance, psychological outlook, and preventative health subscales were greater than 3, demonstrating that the majority of these statements were viewed as benefits. The mean scores for each subscale were also calculated (Table 3).

Following physical performance as the greatest perceived benefit, preventative health preceded psychological outlookin the perceived benefit scale. The physical performance subscale had the greatest mean score of 3.39, followed by the preventative health subscale with a mean score of 3.26 then the psychological health subscale with a mean score of 3.17. The calculated mean scores of these three benefits subscales represent a clear agreement with these factors as being benefits. On the other hand, all the questions in the social interaction subscale were calculated between 2 and 3 (between 'agree' and 'disagree') on the EBBS scale and can be interpreted as neutral scores.The mean score of the life enhancement subscale was calculated as 3.04 and that of the social interaction subscale was 2.59. For these two subscales, having a mean value between 2 and 3 indicated neutrality with regards to the general benefits perceived under these two categories.

Question #	Strongly Agree	Agree	Disagree	Strongly Disagree
Q1	28 %	48 %	22 %	2 %
Q2	39 %	41 %	18 %	2 %
Q3	25 %	63 %	12 %	0 %
Q4	10 %	52 %	38 %	0 %
Q5	43 %	57 %	0 %	0 %
Q6	25 %	50 %	25 %	0 %
Q7	45 %	53 %	2 %	0 %
Q8	63 %	30 %	5 %	2 %
Q9	10 %	17 %	35 %	38 %
Q10	8 %	65 %	25 %	2 %
Q11	10 %	10 %	60 %	20 %
Q12	0 %	8 %	33 %	59 %
Q13	50 %	45 %	5 %	0 %
Q14	0 %	10 %	42 %	48 %
Q15	60 %	40 %	0 %	0 %
Q16	2 %	33 %	40 %	25 %
Q17	43%	57 %	0 %	0 %
Q18	45 %	53 %	2 %	0 %
Q19	13 %	35 %	52 %	0 %
Q20	22 %	68 %	10 %	0 %
Q21	3 %	21 %	46 %	30 %
Q22	34 %	61 %	5 %	0 %
Q23	38 %	47 %	15 %	0 %
Q24	0 %	15 %	62 %	23 %
Q25	8 %	71 %	21 %	0 %
Q26	26 %	53 %	18 %	3 %
Q27	35 %	53 %	12 %	0 %
Q28	2 %	0 %	35 %	63 %
Q29	15 %	50 %	25 %	10 %
Q30	10 %	36 %	36 %	18 %
Q31	35 %	63 %	2 %	0 %
Q32	33 %	50 %	15 %	2 %
Q33	7 %	23 %	20 %	50 %
Q34	25 %	65 %	10 %	0 %
Q35	23 %	57 %	20 %	0 %
Q36	16 %	56 %	28 %	0 %
Q37	0 %	18 %	67 %	15 %

Q38	20 %	48 %	22 %	10 %
Q39	8 %	31 %	48 %	13 %
Q40	10 %	50 %	40 %	0 %
Q41	28 %	72 %	0 %	0 %
Q42	13 %	17 %	40 %	30 %
Q43	65 %	33 %	2 %	0 %

Table 2: EBBS survey results.

Perceived Benefit Items	**M (SD)**
Life Enhancement Sub-scale	
25: My disposition is improved by exercise	3.01 (0.16)
26: Exercising helps me sleep better at night	3.03 (0.18)
29: Exercise helps me decrease fatigue	2.76 (0.18)
32: Exercising improves my self-concept	3.08 (0.13)
34: Exercising increases my mental alertness	3.11 (0.15)
35: Exercise allows me to carry out normal activities without becoming tired	3.13 (0.17)
36: Exercise improves the quality of my work	2.91 (0.21)
41: Exercise improves overall body functioning for me	3.32 (0.2)
Mean	**3.04 (0.16)**
Physical Performance Sub-scale	
7: exercise increases my muscle strength	3.40 (0.1)
15: exercising increases my level of physical fitness	3.57 (0.11)
17: my muscle tone is improved with exercise	3.35 (0.14)
18: exercising improves functioning of my cardiovascular system	3.39 (0.16)
22: exercise increases my stamina	3.33 (0.17)
23: exercise improves my flexibility	3.23 (0.2)
31: my physical endurance is improved by exercising	3.38 (0.23)
43: exercise improves the way my body looks	3.49 (0.32)
Mean	**3.39 (0.1)**
Psychological Outlook Sub-scale	
1: I enjoy exercise	3.05 (0.22)
2: exercise decreases the feelings of stress and tension for me	3.23 (0.24)
3: exercise improves my mental health	3.19 (0.25)
8: exercise gives me a sense of personal accomplishment	3.52 (0.28)
10: exercising makes me feel relaxed	2.85 (0.16)
20: I have improved feelings of well-being from exercise	3.17 (0.09)
Mean	**3.17 (0.22)**

Social Interaction Sub-scale	
11: exercising lets me have contact with friends and persons I enjoy	2.43 (0.2)
30: exercising is a good way for me to meet new people	2.63 (0.21)
38: exercise is good entertainment for me	2.86 (0.3)
39: exercising increases my acceptance by others	2.45 (0.42)
Mean	**2.59 (0.2)**
Preventive Health Sub-scale	
5: I will prevent heart attacks by exercising	3.35 (0.11)
13: exercising will keep me from having high blood pressure	3.29 (0.11)
27: I will live longer if I exercise	3.13 (0.06)
Mean	**3.26 (0.11)**
Mean of all benefit items of all subscales	**3.09 (0.3)**

Table 3: The exercise benefits scale: mean (M) and standard deviation (SD) for each questionnaire item.

3.3 Perceived Barriers to Exercise

Table 4 depicts the mean and standard deviation value for each item in the barriers subscales. Participants agreed the most with question 16 under the exercise milieu subscale with 35% agreeing and strongly agreeing with this statement, and they agreed the least with question 12 with 92% of volunteers disagreeing with this statement. Question 4 had 10% of participants strongly agreeing and 52% agreeingwith it under the time expenditure subscale, whereas they agreed the least with question 24 with 85% disagreeing with this statement. 75% of volunteers agreed or strongly agreed with question 6in the physical exertion subscale; and they agreed the least with question 19 with 52% of participants disagreeing with this statement. Finally 24% agreed or strongly agreed with question 21 in the family discouragement subscale, as well as 70% of participants disagreeing with question 33. Overall, most participants agreed with the question 6, “exercise tires me”, as being the greatest perceived barrier, with a mean score of 2.86. They also agreed the least with question 12, “I am too embarrassed to exercise”, as a perceived barrier, with its mean score of 1.44. Hence the greatest perceived barrier is physical exertion.

The mean scores of the four barriers subscales were also calculated (Table 4).The greatest perceived barrier is physical exertion with a mean score of 2.67, followed by time expenditure with a mean score of 2.22, then exercise milieu with a mean score of 1.88 and family discouragement with a mean score of 1.87. With the barriers, the time expenditure and physical exertion subscales have mean scores between 2 and 3 suggesting neutrality. On the other hand, the exercise milieu and family discouragement subscales have mean scores less than 2 indicating that participants clearly disagree with these factors as being viewed as barriers.

Moreover, the mean total of all perceived barrier items was calculated as 2.16, compared to the mean total of all perceived benefits items calculated as 3.09. This indicates that our sample of university students recognized higher levels of benefits from exercise than barriers to exercise with a perceived benefit to barrier ratio of 1.43.

Perceived Barriers Items	**M (SD)**
Exercise Milieu Sub-scale	
9: places for me to exercise are too far away	1.97 (0.32)
12: I am too embarrassed to exercise	1.44 (0.35)
14: it costs too much money to exercise	2.09 (0.55)
16: exercise facilities do not have convenient schedules for me	2.14 (0.63)
28: I think people in exercise cloths look funny	1.51 (0.77)
42: there are too few places for me to exercise	2.13 (0.64)
Mean	**1.88 (0.32)**
Time Expenditure Sub-scale	
4: exercising takes too much of my time	2.65 (0.38)
24: exercise takes too much time from family relationships	1.95 (0.08)
37: exercise takes too much time from my family responsibilities	2.06 (0.69)
Mean	**2.22 (0.38)**
Physical Exertion Sub-scale	
6: exercise tires me	2.86 (0.17)
19: I am fatigued by exercise	2.54 (0.06)
40: exercise is hard work for me	2.62 (0.3)
Mean	**2.67 (0.17)**

Family Discouragement Sub-scale	
21: my spouse (or significant other) does not encourage exercising	1.88 (0.01)
33: my family members do not encourage me to exercise	1.86 (0.01)
Mean	**1.87 (0.01)**
Mean of all barriers items of all subscales	**2.16 (0.38)**

Table 4: The exercise barriers scale: mean (M) and standard deviation (SD) for each questionnaire item.

3.4 Godin leisure time exercise questionnaire

According to results from the EBBS questionnaire, participants seemed to appreciate the benefits of exercise and agree with their important health benefits. The Godin leisure time questionnaire was then used to assess exercise habits in this student population.35% of participants never/rarely exercised whilst 44% exercised only sometimes (Table 1). This suggests that the benefit/barrier ratio of 1.43 may not be sufficient to motivate these students to exercise. The trends in exercise habits also appeared to be similar in both males and females and across nationalities, suggesting that no differences in behaviors in this student sample exist by gender or country of origin.

4. Discussion

The primary aim of this study was to assess the exercise perceptions and habits of a mixed university student population and to determine their perceived benefits and barriers to exercise. A secondary aim was to investigate if there were any differences between gender, age, or nationality. The survey population used within the study was young and the majoritywas female.15% of the cohort had a BMI in the overweight category while 5% were classified as obese.Amongst females, 14% were overweight and 3% obese; whilst within males 21% were overweight and 16% obese. This is consistent with previous reports as the percentage of overweight and obesity is found to be generally higher in adolescent boys than in girls within the UAE

(Musaiger et al, 2012). The similarity in the incidence of overweight and obesity to our data indicates that the trend in male and female overweight and obesity continues from adolescence through to young adulthood. Moreover, 32% of males and 36% of females in our university population sample stated that they never/rarely exercised. This data demonstrates a deficiency in a physicallyactive lifestyle among both young males and females at university,and this is reflected in the growing tendencies of overweight and obesity in this population. The implications for the UAE population are severe as obesity caseswill continue to rise inline with risk factors such as diabetes, cardiovascular disease, metabolic syndrome and other chronic diseases unless interventions can change PA habits at a younger age.

A university setting is paramount in promoting health enhancing behaviors. This age group is thought to be malleable and can be readily influenced to make positive changes. This is also a time whereby individuals can establishset habits,which could then persist into adult life (Wallaceet al, 2000). Therefore, the university environment presents a key opportunity to promote good PA behavior. However, a lack of sufficient data regarding the perceptions and attitudes of university students towards exercise restricts the design foreffective PA interventions.

Perceived Benefits to Exercise

The value of regular exercise at decreasing susceptibility to disease has been well documented. Although a few previous studiesin Arab countries and the UAE investigated barriers to exercise, none seem to have reported on the perceptions ofindividuals to exercise benefits. To this end, this study demonstrates that university students perceive higher levels of benefits than barriers to exercise with a total benefits mean value of 3.09, comparedto a total barriers mean value of 2.16; with a ratio of benefits/barriers of 1.43. It is indeed encouraging that data expressed a strong agreement with the positive benefits of regular exercise. They have clearly agreed with the perceptions that exercise can provide preventative health benefits, and that exercise can

improve mental and psychological wellbeing. The strongest perceived benefit was physical performance with a subscale mean value of 3.39. This findinghighlights and emphasizes the importance of exercise atimproving physical fitness, muscle strength, cardiovascular functioning, stamina, flexibility and physical appearance.

On the other hand, our student sample perceived fewer benefits from exercise associated with life enhancement and social interaction, with mean subscale values of 3.04 and 2.59 respectively. Interestingly, previous research on non-exercising female university students in the United Kingdom (UK) also perceived fewer benefits from exercise associated with these factors (Lovell et al, 2010). This was previouslyexplained as being due to the university setting that the sample represented. University and college students in general have ample opportunities to socialize and interact making the perceived social and life enhancing benefits from exercise not as important as other benefits. This explanation is also conceivable for our university sample.

The UAE ranks amongst the highest in the world for non-communicable disease such as heart disease, hypertension, diabetes, and obesity. The EBBS survey questioned the participants' perceptions on the value of exercise in reducing or preventing heart attacks and high blood pressure. 5% of individuals disagreed with question 13 "exercising will keep me from having high blood pressure", indicating that the majority of our university student sample had good basic knowledge of the importance of PA in reducing or preventing cardiovascular disorders. Moreover, 12% of participants disagreed with the perception that exercise prolongs life expectancy. There is a strong body of research showing that life expectancy can be enhanced by as much as 4.5 years by engaging in more physical activity (Moore et al, 2012). Due to mostly lifestyle choices, UAE residents appear to have the lowest life expectancy compared to other Gulf countries, with heart disease being the most frequent cause of death (Institute for Health Metrics and Evaluation, 2010).The EBBS survey did not question the participants' perceptions with regards the link between exercise and other prominent diseases in

the region like diabetes and cancer.The data indicates that although there does seem to be some awareness of the importance of PA for health, future UAE governmental policies and education programs should focus further on informing young adults of the health benefits obtained from regular exercise, in addition to it contributing to prolonging life expectancy.

The Godin exercise questionnaire as used within this study demonstrates that a significant proportion of this population never/rarely exercise, and this is consistent with prior reports of data previously observed within the UAE (Dubai Household Health Survey, 2009).Our interpretation would suggest that even though there is an awareness of perceived benefits from exercise, this does not particularly translate into participation in regular physical activity. Hence, perceived barriers to exercise do seem to be more influential on behavior in our sample population than perceived benefits, and this is in agreement to other work conducted in adolescents and young adults(Nahas et al, 2003).

Perceived Barriers to Exercise

An important finding from our study reveals that participants classifyphysical exertion as the strongest barrier to exercise whilstfamily discouragement was the least barrier to exercise.It is reassuring that these students do not observeparental discouragement to exercise, and this finding is consistent with previous data in the UAE which indicated that 44% of females and 60% of males disagree with “no parents’ support to be physically active” as being an important barrier (Musaiger et al, 2013). Interestingly, in the 2013 study by Musaiger et al., not having time to exercise was the greatest perceived barrier for both males and females aged 15-18 years old in the UAE. Similarly a recent study on Kuwaiti students, “not having time to be physically active”, was one of the main barriers reported (Musaiger et al, 2014). Furthermore, a survey on Saudi adolescents showed that lack of time was the primary reason for inactivity for both males and females (Al-Hazzaa et al, 2014). Although this also appears to be a viewpoint shared by our sample of students, it is the second highest

perceived barrier after physical exertion. Using the EBBS scale, 62% of participants agreed and 38% disagreed with question 4 “exercising takes too much of my time”.On the other hand, 75% of participants agreed with the statement “exercise tires me”. This finding does seem to be in agreement with other research on university students, such as that of female university students in the UK, whereby physical exertion was also viewed as the most significant barrier (Lovell et al, 2010).Although both physical fatigue and time expenditure were classed as important barriers to exercise, their scores on the EBBS scale of 2.86 and 2.65 respectively indicateperceived “neutrality”. This signifies that although PA is viewed as physically exhausting and time consuming, participants may still be able to positively overcome the physical exertion that exercise demands and to manage their time effectively in order to exercise.

Certainly social and cultural beliefs can influence lifestyle choices and the attitudes and perceptions of individuals to physical activity. Engaging in PA does not seem to be a discerning part of the Middle Eastern culture. Barriers to exercise may be classified as social, cultural, economic, psychological or even environmental barriers. In the UAE, the urbanized lifestyle, the increased dominance of available transport, technology, and other amenities have all clearly contributed to sedentary lifestyles, obesity and a decrease in PA (Al-Hazzaa et al, 2010).Although in the UAE, economic barriers to exercise such as the lack of facilities or training environments may not be a major concern, perhaps more women’s clubs may be required to encouragefemales to exercise. Social barriers particularly to females would probably be more of a concern with barriers such as women’s commitments to work and the household, in addition to cultural barriers that include the need to dress conservatively and practice exercise either indoors or in separate facilities to men.The EBBS scale however does not take into consideration cultural and socio-economic burdens. Moreover, psychological barriers such as the lack of encouragement or motivation to exercise and environmental barriers especially the climate can contribute to the lack of physical activity in this population.Using the EBBS scale, 24% of students agreed that their significant other does not encourage

exercise participation and 30% of students agreed that family members do not encourage exercise. Although our survey does not question environmental barriers, the unsuitability of the climatein the UAE for exercising has been raised as a barrier in numerous other surveys (Musaiger et al, 2013). Social beliefs that affect attitudes may be large contributors to the lack of exercise in the UAE population and the negative perspective of physical exertion in the university sample population; hence more studies are warranted to investigate these factors further.

This study demonstrates that there are multiple perceived barriers as well as benefits to exercise. The role of exercise in improving physical fitness and enhancing body shape were the highest perceived benefits whilst exercise is physically tiring and takes too much time were the greatest perceived barriers. Although the perceptions of exercise benefits outweigh theperceived barriers, the attitudes of the students to PA appear unsurprisingly to be dictated to more by the perceptions to barriers than the benefits. There are however some limitations to this study. Our sample comprised 100 students, mostly females, which is a relatively small number of students. Although our findings are intriguing,a greater number of students are required to make more generalizedconclusions of perceptions ofaUAE student population. The inclusion of a greater number of males in addition to examining trends across a range of university settings is required in order to get a greater understanding of the current position within the UAE. Certainly this is the first study to use the EBBS scale to examine the perceived benefits and barriers in a UAE population and this scale seems to be effective at providing an insight into the factors that influence PA habits and behaviors. It does not however take into account certain factors such as climate and cultural issues that are specific to the population under study.In stating that, the EBBS does highlight perceived benefits to exercise, which other surveys fail to do, and it also provides a scale that allows uniformity with other international studies enabling comparisons to be made between the UAE and other countries.

5. Conclusions

The current study demonstrates that university students within the UAE seem to acknowledge that there are substantial health benefits to exercise accompanied by fewer barriers. The perceptions of the males and females to exercise appear to be comparable and this is reflected in their exercise habits. There is much to be improved in the exercise attitudes and habits of this young population in order to alleviate some of the risk factors predisposing them to disease, andour data suggests that interventions should focus on promoting the benefits of engaging in regular PA and encouraging students to establish a physically active lifestyle. Since the greatest hindrance was the perceived negativity to physical exertion during exercise, interventions need to be tailored to motivate students to overcome physical fatigue, by providing education on the need to set positive goals and focus on the potential benefits amassed from exercise. By utilizing the EBBS scale, this study has highlighted barriers to exercise as well as ascertaining the perceived benefits to exercise. Whilst the greatest majority of our sample acknowledgedthe multitude of benefits to exercise, however, interventions need to be designed to educate this young population on the need to establish good PA habits early in life with the aim of decreasing their future risk of chronic disease.

Acknowledgments

The authors would like to express their appreciation to the American University of Sharjah for funding this work. We would like to acknowledge Ms. Fatemeh Langari for her contributions to the data analysis.

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