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## The Impact of a Community based Exercise Program on Somali Immigrants Residing in Subsidized Housing in Minnesota

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THE IMPACT OF A COMMUNITY BASED EXERCISE PROGRAM ON SOMALI  
IMMIGRANTS RESIDING IN SUBSIDIZED HOUSING IN MINNESOTA

by

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February 13, 2017

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**Abstract:**

**Purpose:** The Somali immigrant population is a growing demographic in Minnesota. Although immigrants to the United States tend to be healthier upon arrival than the general population, their health deteriorates the longer they reside in the United States, with changes in diet and physical activity as contributing factors. This study explored the effects of a physical therapy student-led exercise program on Somali immigrants residing in Minnesota.

**Methods:** Qualitative data were gathered using audiotaped focus group interviews. Eight female and five male Somali individuals were recruited from an existing exercise program within a subsidized housing complex in Minneapolis, Minnesota. A Somali interpreter provided translation services. Audiotapes were transcribed and data were coded using an inductive approach, with no predefined coding criteria or hypotheses, to generate categories from the raw interview data.

**Results:** Six major themes were identified from the data. These include: physical effects; emotional effects; integration of cultures; barriers and facilitators of participation; differences in physical activity between Somalia and the United States; and transferability of the exercise program. Emotional effects and cultural integration, rather than physical effects of the exercise program were found to be the primary benefit in participants' responses.

**Conclusion:** The effects of participation in this student-led exercise program are consistent with findings from existing literature of programs designed for immigrant populations. This study adds to the existing literature by demonstrating the importance of connectedness between participants and group facilitators. Results and recommendations from this study can be utilized for future exercise programming initiatives with the immigrant Somali community in the United States.

## Approval

The undersigned certify that they have read, and recommended approval of the research project entitled...

### THE IMPACT OF A COMMUNITY BASED EXERCISE PROGRAM ON SOMALI IMMIGRANTS RESIDING IN SUBSIDIZED HOUSING IN MINNESOTA

submitted by

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in partial fulfillment of the requirements for the Doctor of Physical Therapy Program

Primary Advisor Jennifer Mueller Date 2/15/17

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## INTRODUCTION

The immigrant population is rapidly growing in the United States (US), with immigrants from Africa representing one of the fastest growing groups resettling in America.<sup>1,2</sup> Over the past ten years, Minnesota, specifically the Minneapolis-St. Paul surrounding area, has experienced the fastest growth in East African immigrant population of anywhere in the country.<sup>3</sup> The drastic increase in the number of African immigrants, with the majority from Somalia, to Minnesota is mainly due to the refugee and faith-based resettlement programs established in the state.<sup>3</sup> As this population continues to grow, the health of the immigrant population in the US has a strong impact on the overall health status of the country.<sup>1</sup> National trends in America depict a decline in overall health, with decreased physical activity levels and increased obesity rates.<sup>4</sup> Decreased muscle strength, impaired balance and decreased functional capacity can lead to a loss of independence as a result of low levels of physical activity.<sup>5</sup> It is important to understand the health of the immigrant population before and after immigration to the US, to better understand the status and direction of the country's health.

Immigrants arriving to the US tend to be healthier than the general US population due to various cultural, genetic, and lifestyle factors.<sup>6</sup> However, these health characteristics often change once in the US based on factors such as length of stay, English proficiency, age at immigration, cultural and religious beliefs, educational background, and socioeconomic status.<sup>7</sup> Increased time spent living in the US as an immigrant has a direct negative impact on health, including an increase in hypertension, diabetes, cardiovascular disease, and obesity.<sup>1,6</sup> Immigrants who reported living more

than five years in the US were more likely to be classified as overweight or obese.<sup>7</sup> Immigrants who reported understanding English well were three times more likely to report making a conscious effort to exercise and eat a healthy diet, showing the correlation between English proficiency and health status.<sup>7</sup> Data from the National Health Interview Survey shows an overweight and obese prevalence rate of 58% among African immigrants in the US.<sup>7,8</sup> These changes are mainly attributed to a change in dietary and physical activity levels upon immigration.<sup>1,6</sup> In research conducted by Persson et al,<sup>9</sup> Somali immigrants in the US were found to have lower fitness levels and be less physically active, along with having increased rates of obesity as compared to non-immigrants. With this knowledge, it is vital to understand this population's facilitators, barriers, and views of physical activity in order to reverse the trend of declining immigrant health in America.

Community-based exercise programs tailored to various immigrant populations have emerged in the US as a result of the rising health problem. Many of these programs focus on education regarding the importance of physical activity as well as learning new exercise techniques and activities that can be incorporated into daily life.<sup>5-7</sup> Community-based exercise programs have had a positive impact on many immigrant populations including increased confidence, increased satisfaction with body function and physical fitness, as well as weight loss and decreased blood pressure.<sup>5,6</sup>

## **LITERATURE REVIEW**

### **East African Immigrant Perspective on Physical Activity**



East African immigrants often describe their activities of daily living as their primary means of physical activity.<sup>9, 10</sup> East African immigrants have reported that in their home country of Somalia, household chores such as grocery shopping and cooking are done on a daily basis. This requires them to walk long distances to the store every day, which provides more built-in exercise throughout the day.<sup>9, 10</sup> Leisure-time physical activities are rarely involved in the daily life of individuals in Somalia as it is in the US. This discrepancy in views and experience regarding activity creates a difficult transition from familiar work and chore-based activity in their home country, to a new life in the US where leisure-time activity is a common means of physical activity.<sup>9</sup>

Although the health of Somali immigrants is at risk when moving to the US, many immigrants are aware of the benefits of physical activity and have a general understanding of the relationship between exercise and their overall wellbeing.<sup>10</sup> According to a study by Delvin et al,<sup>11</sup> Somali immigrant women in the US highly value their own health as well as the health of their children and understand that physical inactivity can lead to obesity.

### **Physical Activity Facilitators**

Due to concern for the health of East African immigrants and refugees in the US, numerous research studies have explored their experiences regarding physical activity. Many community exercise programs have been developed to specifically target this population and an array of facilitators of physical activity has emerged from the literature. Murray et al<sup>12</sup> found factors facilitating exercise for Somali women residing in

San Diego included access to parks and shopping malls, as well as playgrounds and other community support systems. A safe environment was also regarded as an enhancing factor for physical activity.<sup>9</sup> Furthermore, personal views and beliefs about physical activity are a strong contributor. Physical activity may be viewed as a way to engage in meaningful behaviors with friends and family and is associated with social integration.<sup>13</sup> High self-efficacy may be another facilitator of physical activity, as a study by Devlin et al<sup>11</sup> found that Somali women residing in Maine have high self-efficacy regarding their abilities to participate in an exercise program when cultural norms are addressed. They also understood the potential negative consequences of increased sedentary behavior.

In addition to research with East African women, some research has been conducted with East African men residing in the US. Facilitators of exercise for Somali men living in Minnesota included positive attitudes about the importance of physical activity, hearing success stories about others being physically active, and community efforts to promote physical activity.<sup>14</sup>

### **Physical Activity Barriers**

Major barriers to physical activity have been investigated and identified in the literature for East African immigrants. These barriers include decreased education about exercise, a lack of culturally appropriate programming, the demand of family responsibilities, environmental and financial issues, and harassment and discrimination.

## **Education**

An individual's level of exercise is strongly influenced by their education and knowledge regarding physical activity. Immigrants may be aware that physical activity should be an important part of a healthy life, but many encounter obstacles including a lack of knowledge about safe and effective ways to exercise, inexperience with exercise equipment, and a lack of knowledge of how to progress exercise on an individual basis.<sup>9-11,13</sup> In a study conducted by Wieland et al,<sup>10</sup> many immigrants reported there are more barriers to living an active life upon arrival to the US than in their home country. This finding depicts a need for further exercise education, specifically for immigrants, to help overcome barriers. English proficiency is another educational barrier that many immigrants face upon arrival to the US. East African immigrants who understand English well are more likely to engage in protective health behaviors, such as community health and fitness programs, as compared to those who do not understand English well.<sup>7</sup> Healthy, balanced eating habits can also be difficult to establish and maintain for immigrants who do not speak or understand English, as many food packages and menus are not in their native language.<sup>9</sup> Additionally, Apiyo et al<sup>1</sup> found that African immigrants reported obesity is not seen as negative in their home country. This belief could also be an educational barrier to understanding why physical activity is important.

## **Culture/Religion**

Many East African immigrants living in the US, especially women, report a lack of culturally sensitive exercise programming as a barrier to physical activity.<sup>1, 10-13, 15,16</sup>

Muslim culture strongly discourages exercising with individuals of the opposite sex. Apiyo et al<sup>1</sup> found Muslim Somali individuals living in the US do not feel there are adequate opportunities to exercise in their neighborhoods where their customs are respected. Devlin et al<sup>11</sup> found a major barrier to exercise for Somali women living in Maine was the lack of an accessible exercise facility for women only, as modesty in dress and maintaining gender barriers were of utmost importance when exercising. Modesty is important in Muslim culture and women often feel uncomfortable in “workout clothes” or bathing suits.<sup>12</sup> East African Muslim women often prefer to exercise in a women’s only environment where they can dress appropriately without fear of being seen by men.<sup>13, 17</sup> Although norms encourage Muslim women to dress modestly, many report that wearing religious and culturally appropriate clothing can often act as a barrier to comfortable physical activity.<sup>10</sup> Muslim women who attempt to exercise at fitness facilities wearing traditional clothing report it is uncomfortable and difficult, which may pose a greater risk for injury.<sup>10,12</sup> Somali men also report embarrassment about using unfamiliar clothes and exercise techniques in public.<sup>14</sup> In addition, during the month of Ramadan, it can be especially difficult for both men and women to participate in physical activity due to religious commitments and fatigue that can accompany fasting during this time.<sup>13,17</sup>

### **Family Responsibilities**

Certain gender and family roles among East African immigrants, along with other competing priorities, may be prominent barriers to physical activity for this population.<sup>1,6,9,10,14</sup> Upon resettlement to a new country, there is often less extended

family present to provide assistance, resulting in a smaller network of support. This situation may require more time and energy from new immigrants to meet family responsibilities leaving less time for physical activity.<sup>9</sup> Often, Muslim women report less flexibility in their schedules due to their role as the caregiver of their family and their duty to perform household chores impedes participation in exercise activities that would interfere with family duties.<sup>10,16</sup> Wieland et al<sup>10</sup> proposed that disproportionate household, childcare, and work demands may be the cause for decreased participation of immigrant women in health promotion activities. East African men also report competing priorities, such as working, as a barrier to participation in physical activity.<sup>14</sup> Their typical familial role includes that of provider. Mohamed et al<sup>14</sup> found that upon immigration, the top priority for Somali men was employment in order to support family members in the US and in Africa. Until employment and financial security are achieved, it is very difficult to include time for physical activity.

## **Environment**

Environmental barriers to physical activity are present across many populations and often are not specific to immigrants. These types of barriers may be especially prevalent in low-income groups, which often includes new immigrants. Somali women in San Diego cited decreased safety as a prominent barrier to physical activity in their community.<sup>12</sup> This concern included environmental conditions such as structural and sanitation issues, the presence of gangs involving exposure to drugs and violence, and the presence of dogs.<sup>12</sup> Individuals who do not feel safe outside in their community may be

restricted to the indoors, which can greatly impact their level of physical activity. In addition to safety of the environment, the climate may also have a profound impact on activity levels of new immigrants. East African immigrants who reside in the northern US, including Minnesota where there is a high concentration of Somali immigrants, often cite the climate as a prominent barrier.<sup>1,11,13</sup> Coming from a warmer climate, many East African immigrants find it difficult to adjust to cold weather and this may hinder participation in outdoor activities.<sup>1,13</sup>

### **Finances**

East African immigrants also report financial concerns is a barrier to engaging in physical activity in the US.<sup>11,12,14,16</sup> These financial barriers may include direct costs associated with a gym membership and fitness equipment, as well as taking time away from work and family obligations.<sup>12</sup> Somali men, who were concerned about providing for their families, were found to report the cost of a workout facility membership and transportation as a barrier.<sup>14</sup> However, financial barriers may be more limiting for some than others. Devlin et al<sup>11</sup> found that most Somali women who participated in the study would be willing to pay up to \$15.00 per month for a family membership in a women-only program.

### **Harassment/Discrimination**

Another concern that has emerged from the literature is a fear of harassment. In a study by Mohamed et al<sup>14</sup> elder Somali men spoke extensively about being targeted by

non-Somali individuals when in public because of their appearance. They also reported concerns from women in their community who had been followed and insulted.<sup>14</sup> Besides the mental and emotional stress that threatening behavior like this can cause, it creates another barrier to participating in physical activity outside. In addition, non-East African community members may not be willing to support specialized programming for a specific group of immigrants. Results of a qualitative study by Murray et al<sup>12</sup> were discussed through a radio broadcast feature intended to raise community awareness of the unique challenges to physical activity faced by Muslim women. An unexpected public debate began regarding the appropriateness of creating separate programs and opportunities for diverse communities. With this information, Murray et al<sup>12</sup> proposed that a barrier to creating appropriate programming for this community may be the fellow community members.

### **Benefits of Community Exercise Programming**

The literature illustrates that the implementation of community exercise programs has a positive effect on participants. A study by Werner et al<sup>5</sup> assessed the health related benefits of a peer-led, low-intensity exercise program for older adults. The use of peers to lead the exercise classes allowed these programs to be implemented in health care facilities, affordable housing, fitness rooms, senior centers, and faith based organizations.<sup>5</sup> Additionally, the exercise program was shown to be effective in increasing health status, body function, and physical fitness of participants.<sup>5</sup> After participating in the exercise program, participants' overall perceived satisfaction with

body function, overall confidence to participate in physical activities, and overall functional fitness improved.<sup>5</sup>

Wieland et al<sup>6</sup> using a Community-Based Participatory Research approach, examined the effects of a socioculturally appropriate physical activity and nutrition intervention for immigrant and refugee women in Rochester, MN. The intervention was created in order to address issues of physical fitness and nutrition related to chronic disease prevention. Results found an overall high satisfaction with the program, high ratings of self-efficacy and significant improvements in quality of life. Participants were more likely to report regular physical activity upon completion of the 6-week intervention. Additionally, trends were seen toward improvement in weight, BMI, waist circumference, and blood pressure.<sup>6</sup> A participatory approach may be especially appropriate in the design of fitness programs with immigrant and refugee women.<sup>6</sup>

The growing East African population in the Minneapolis-St. Paul surrounding area as well as the presence of numerous barriers to physical activity in this population described in the literature, led to the development of the community-based exercise program described in this study. The purpose of this study was to investigate the self-reported impacts of participation in a community-based exercise program of Somali immigrants living in a subsidized housing complex in Minneapolis, Minnesota.

## **METHODS**

### **Study Design**



A qualitative research methodology was utilized for this study. Qualitative research is well suited to study the unique perspectives of participants' lived experiences including the meanings ascribed to the phenomena under study.<sup>18</sup> A phenomenologic qualitative approach, using focus group interviews, examined East African immigrants' perceptions of a community exercise program. The intent of phenomenologic study is to try to understand the meaning of someone's "lived experience"<sup>19</sup> and to depict the essence of the experience.<sup>20</sup> Qualitative research elicits data in the form of words, images, and observations, to provide a full rich description of complex behaviors, processes, relationships, settings, and systems.<sup>21</sup>

Among the various methods available to conduct qualitative research, focus groups were determined to be the best approach for this study. Focus groups allow exploration of similarities and differences in perspectives and conversation among participants may bring out information related to group values, norms, and culture.<sup>21</sup> Focus groups intend to bring different opinions together and explore a variety of viewpoints while looking for richness, diversity and breadth throughout.<sup>21</sup>

This study utilized semi-structured interviews, which allowed researchers to follow up questions with probes and flexibility to exchange words within the questions with simpler, easier to understand words without changing the meaning of the question.<sup>22</sup> This approach is beneficial, particularly with a non-English speaking population, as it has been found to aid in comprehension of the participants as well as avoid embarrassment of participants who may not have understood a question.<sup>22</sup>

## **Participants**

This study used purposive sampling of thirteen volunteer residents of a subsidized housing complex in Minneapolis, MN. The participants were recruited on a voluntary basis through promotion of the study during sessions of a pre-existing exercise program and through the use of personal contact among the residents. The housing complex was composed of 87% Somali residents, with 75% of total residents over the age of 60. The exercise program was started by faculty at St. Catherine University in the summer of 2013, and then transitioned to leadership by students in the fall of 2013. All residents were welcomed to the twice a month exercise program, with each session lasting approximately one hour and including a variety of exercises such as walking, resistance exercise using body weight or resistance bands, as well as aerobic exercise and stretching. The men and women were separated in order to provide a safe, culturally appropriate exercise session for the residents.

Participation in this study was limited to residents living in the subsidized housing complex, who had attended at least one exercise class session, and were 18 years of age or older. In the men's focus group, the participants had lived in the US from 10 to 15 years, lived at the subsidized housing complex for a range of 8 to 12 years, and attended 2 to 20+ exercise sessions. The women's group consisted of participants who had lived in the US from 8 to 21 years, lived in the subsidized housing complex for a range of 5 to 21 years and attended 1 to 13+ exercise sessions. St. Catherine University Institutional Review Board approved this study.

## **Data Collection Procedures**

Two focus groups were held over 4 weeks. The focus groups were separated by gender in order to promote a culturally safe and open environment. Eight women participated in the female focus group and five men participated in the male focus group. The focus groups were held in the apartment building in a closed meeting room. Prior to beginning the focus group informed consent, including permission to audiotape, was obtained (Appendix A). A Somali interpreter was present to interpret the consent form as well as all questions and responses.

An introductory warm-up question was followed by a series of semi-structured open-ended questions and probes designed to gather data on participants' views of the positive and negative impacts of the exercise program (Appendix B). The interview questions were informed by the literature on immigrant health promotion. Additional questions informed exercise programming for the Somali culture. The researchers summarized responses back to the participants as needed to ensure accurate understanding. Each of the sessions lasted 60 to 90 minutes.

Four researchers participated in the focus group interviews with two taking the lead on questioning and two taking notes and participating in the probes. The researchers debriefed and made field notes immediately following each focus group. All focus group interviews were audiotaped for later verbatim transcription by three of the researchers. Audiotapes and signed consent forms were kept in a secure site to ensure confidentiality.

## **Data Analysis**

Taped interviews were transcribed verbatim and field notes were reviewed on an ongoing basis. Initial raw data was read and independently coded and categorized by all researchers. Where there were discrepancies, parts of the transcripts were re-read and discussed, and labeling of the categories and subcategories were then collaboratively decided. Thus, constant comparisons were made between the transcribed data and the researchers' separate interpretations of the data.

Triangulation, the process of using multiple methods of data collection, multiple sources of data, or multiple investigators was used to increase credibility and dependability of this qualitative research study. Conducting the focus groups with multiple male and female participants provided a source of triangulation for the interview data. In addition, all interview data were read and independently coded by the five researchers. Comparison of the coding results of this study found a high degree of consistency between the researchers. Saturation of data, where no new insights were occurring from the focus group interviews, was reached relative to the impact of participation in this community-based exercise program. Due to the language barrier, participant review and validation of the analysis was not possible.

## **RESULTS**

Analysis of the data revealed seven main themes between the men's focus group (MFG) and the women's focus group (WFG). Themes identified from the data include physical effects, emotional effects, meaningful relationships, cultural integration,

differences between physical activity in Somalia versus the US, participation in the exercise program and transferability of the implemented exercise program. Overall, findings were similar between the MFG and WFG, especially when discussing meaningful relationships with program facilitators. However, responses from the WFG had greater emphasis on emotional effects of the exercise program while the MFG focused more on cultural integration and transferability of the exercise program. Review of the participants' responses provided a rich perspective of the group's challenges, motivation, and views regarding health and physical activity and impacts of the exercise program.

### **Physical Effects**

There were many reasons individuals decided to be active in the exercise program. One of these reasons included the physical benefits of exercise, such as weight loss, better sleep, flexibility, and overall increased health. While weight loss did not appear to be the only reason for participation or a primary result of the exercise program among the residents, one woman described her weight loss and subsequent health benefits from participating in exercise:

*“I lost 29 pounds...every morning I exercised....I have asthma and [exercise] is good for that. Before I lost 29 pounds I was having asthma attacks.” (WFG)*

Other residents did not state that they had lost weight, but that they wanted to lose weight and benefit their bodies through participating in the program:

*“...I think I need to exercise because of my weight...” (MFG)*

Both focus groups included participants who described muscle soreness as an impact from the exercise program. When the men were asked if they felt a bit sore after exercising, they unanimously said, “Yes!” Although both groups of participants agreed that muscle soreness was present, they felt that over time, it was worth it and they got used to it as described in the following quotes:

*“... if you keep exercising you get used to it. The first few days, yes you will feel sore but afterwards you will get over that.” (MFG)*

*“The first few days I am sore, but then you get used to it.” (WFG)*

*“First few days when you start exercising you feel bad, but if you keep exercising it feels good. First few days were really hard for me.” (WFG)*

The men participating in the study agreed there were benefits from exercising, including better sleep and overall flexibility and they focused heavily on the benefits of sweating while exercising. The benefits of and desire to sweat were not discussed among the women.

*“If I sweat during the exercises I sleep better at night. So I feel better. That’s why I wish for this program to be continued.” (MFG)*

*“Before I started the exercise program, I was sort of stiff and my muscles were very tight. So when I start exercising I feel my muscles were getting loose. And the day I exercise, like when I sweat I feel better. And I was like oh I feel really loose and I wish I could do more.” (MFG)*

The men specifically noted that they feel they do not sweat as much in the US as they did in Somalia doing daily tasks. It is more difficult to perspire in a cooler climate, leading them to believe the benefits from activity were decreased if they weren’t sweating. They enjoyed the exercise program because they felt it was a good opportunity to sweat as illustrated in these quotes:

*“I used to sweat a lot so that was something different [in Somalia]. You don’t sweat here in America.” (MFG)*

*“We would walk [in Somalia] and usually sweat” (MFG)*

### **Emotional Effects**

Positive emotional effects of the exercise program seemed to have a greater impact on all participants than the physical benefits, especially for the women. One woman stated:

*“Just a few times I come to exercise [program] with them, I didn't lose pounds but emotionally I feel easier.” (WFG)*

Another woman stated, with all women nodding in agreement:

*“... happy, I feel lighter, I can go anywhere I want so there is a lot changed since the exercise program.” (WFG)*

In contrast to the women, the men rarely discussed the emotional effects of exercise while involved in the program, however one man briefly stated and the others agreed:

*“I feel happy when I exercise.” (MFG)*

The emotional impact of the aging process was found to be a topic among the women, who stated that it can be emotionally and physically challenging to endure the changes that come with aging:

*“...try our best to embrace the culture and everything in America. But you have body aches and pains.” (WFG)*

*“When we were in Somalia we were much younger than in this place; that makes us sometimes feel depressed.” (WFG)*



However, when asked if the exercise program gives them confidence, all of the women responded positively.

### **Meaningful Relationships**

Related to emotional effects, it is clear from the data that one of the greatest draws to participating in the exercise program was the connection the participants experience with those individuals facilitating the program. When asked, “What about it [exercise program] makes you feel happier?” The responses included:

*“The girls are very nice to work with, they encourage us, makes you feel better.*

*They are the same age as my daughters.” (WFG)*

*“Another benefit [is] because we integrated with the different cultures, especially the younger people. It was because of the program.” (MFG)*

*“...you are like my daughters and I am like your dad so if you want to ask us any questions don't feel shy or anything like that. Ask us anything.” (MFG)*

The participants proceeded to show pictures of the students they work with on their phones and retrieved pictures from their rooms and stated:

*“They are like my daughters!” (WFG)*

## **Cultural Integration**

The importance of integration into the American culture for the participants was demonstrated through the responses to questions regarding their level of integration into the culture since their participation in the exercise program. The majority of women and men agreed that the exercise program had helped them feel more integrated into the American culture as reflected in these quotes:

*“We learn about cultural differences, we talked about faith and religion. We talk a lot about what is going on in the media and they listen in the media so they don’t know what person or what we are so we try to tell them what we are. We are brothers and sisters.” (MFG)*

*“We learn a lot from them. And we break a lot of barriers.” (MFG)*

*“The most important thing we learned is the language here. We also learned from some American culture and we taught them something too about the Somali culture.” (MFG)*

It is also clear that the inviting and warm American culture demonstrated by the community and the leaders of the exercise program has impacted them positively, as described by the following quotes:

*“American people are very nice people, they are very kind, very respectful, very sweet, so we like that, and that's what we learn from those girls.” (WFG)*

*“When we came to America, we didn't have anything. They welcome us, they give us houses, they give us food stamps, places to live, they welcome us with open arms so we appreciate it.” (WFG)*

## **Differences Between Somalia and US**

### **Physical Activity**

There were differences described in participants' physical activity levels between their lives in their home country of Somalia and their current lives in the US. Overall, there was agreement between both focus groups that when they lived in Somalia, they were much more physically active than they are now living in the US. The women's physical activity in Somalia mainly consisted of caring for their homes, children, and walking to markets for grocery shopping. The men portrayed their physical activity in Somalia as mainly consisting of walking, playing sports, and participating in a variety of activities. For instance, when asked about physical activity levels in Somalia, one male participant stated:

*“We used to swim a lot and play sports like soccer. Somalia has a lot of oceans. Indian Ocean and Red Sea.” (MFG)*

Further probing included asking if people of all ages swim and play soccer. One participant responded:

*“Yes. Mostly the younger people but sometimes the elderly too.”* (MFG)

Other responses included:

*“When we were in Somalia we used to do different activities and when we came to America, the way they exercise is completely different.”* (MFG)

*“When we were in Somalia we used to go to a lot of different places...”* (MFG)

The women’s focus group participants also described being much more physically active when they lived in Somalia as illustrated in these quotes:

*“There was a lot of physical activity in Somalia, we had children, I would cook the breakfast, go to market, do the grocery.”* (WFG)

*“I used to have cows, sheep so we used to move with them and live the nomadic life. We had farms, I used to carry my baby too.”* (WFG)

*“We did a lot of walking”* (WFG)

There was consensus among participants of both focus groups that in the US, they do less activity each day than they did when they lived in Somalia as described by these quotes:

*“We are older now, we just wake up and stay home, cook and clean. There’s not as much that we can do here.” (WFG)*

*“We don’t do much here” (MFG)*

### **Weather**

Another big difference between Somalia and Minnesota that was described by participants in both focus groups was the weather. The weather was reported to be a major barrier to the participants’ physical activity levels in Minnesota. Somalia does not experience winter while cold weather and snowfall are typical of Minnesota winters. Exercise can be difficult for people unaccustomed to this type of cold weather as explained by a participant from the women’s focus group:

*“We had good weather in Somalia, we did not have snow. You can go any place you want anytime you want. Time doesn’t change like it does here. Sun goes down 9 or sometimes 6, we don’t have that type of thing in Somalia.” (WFG)*

The men’s group participants agreed that the weather is completely different and it was inferred that winter in Minnesota hindered their activity levels, especially walking.

*“We used to walk a lot, we used to run, the weather was different like we mentioned before but in America it is completely different....” (MFG)*

*“Back home, the weather was completely different so we used to walk a lot even if you're driving your car, we would walk and usually sweat so we used to do a lot of that. It was completely different than America.” (MFG)*

## **Participation**

Questions regarding participation in the exercise program in both focus groups centered on reasons why individuals decided to participate, factors that contributed to their continued involvement, as well as factors that hindered their participation. One prominent reason for participation in the program was having prior knowledge that exercise was beneficial to overall health status. Several participants expressed this knowledge:

*“...the parameters the doctors told us was we had to exercise at least 30 minutes during the day to be active.” (MFG)*

*“Good for your heart, good for your legs, good for cardio.” (WFG)*

*“You know to exercise is good for your health and personally, I think I need to exercise because of my weight and I feel like if I don't exercise I will be more tight, body aches and pains so I need to participate.” (MFG)*

Participants in the women’s focus group were asked if they understood that exercise was good for them and all replied affirmatively as illustrated in this quote:

*“Yes, we knew that but we didn’t know where to go [to exercise].”* (WFG)

One woman stated that although they didn’t know exactly what to do for exercise, she wanted it to be known that they would like to be active:

*“...We [Somalis] like to be more active, like to walk...”* (WFG)

One respondent in the men’s focus group stated that the desire for integration was a motivating factor to join the exercise group, and all fellow participants agreed:

*“Yeah, we would like to integrate....”* (MFG)

Another contributing factor for continued involvement in the program included satisfaction with the current activities offered in the program.

*“We like what we do.”* (WFG)

*“...We do like them [exercises].”* (MFG)

It appeared that many of the men and women enjoyed the stretching aspect of the exercises, as when asked to describe an ideal exercise program that would encourage you to be physically active, the resounding answer was, “*Stretching.*”

The men noted that the exercise group was beneficial due to the group dynamics and efficiency of exercising together.

*“We also have our home to exercise. But in that exercise home, we have to exercise like one at a time. With the machines, we have to wait until someone is done with the machine. But with this exercise group, we can all do it at once.”*

(MFG)

Motivation and encouragement from leaders of the program was also found to support participation. A majority of women respondents described this factor:

*“I appreciated the teacher and two other girls, they are the ones who encouraged me to do the exercise.”* (WFG)

*“The girls are very nice to work with, they encourage us, makes you feel better.”*

(WFG)



*“...we don't know where to go or what to do until they come to us. And they tell us the idea and we like it. So they are the ones who motivated and encouraged us to participate. It's a good thing for us.” (WFG)*

Factors that hindered participation mainly focused on forgetting the dates the exercise sessions would take place and scheduling issues. Participants in both focus groups mentioned that having someone reach out to residents to remind them of the planned exercise sessions would be helpful.

*“Yes, sometimes we forget. Sometimes we are not here and cannot come. We would like someone to remind us to come.” (WFG)*

*“There are a lot of residents in this building and they probably don't know that this program is taking place so we have to let them know. If we do that, we think there is a lot of people that will attend.” (MFG)*

Both groups expressed interest in altering the schedule of exercise sessions to increase participation. The women's group placed an emphasis on increasing the frequency of the sessions while the men's group focused on certain times during the day that would work best.

*“We do once a week, we would like to do more than that. Twice a week would be good.” (WFG)*

In response to ways participation could be increased, one respondent stated:

*“I think it is all about timing. To change the time maybe.”* (MFG)

Additionally, in response to a question about the most appropriate time, one participant said:

*“Afternoons. Because in the mornings a lot of people go to work and have other things to do.”* (MFG)

### **Transferability of Exercise Program**

Another theme that emerged from the data was that the majority of the women’s group participants did not have an increase in physical activity level outside of the exercise program. When asked if participation aided in further exercise outside the program, the women indicated, “No” except for one woman who stated:

*“Every morning I exercised.”* (WFG)

The men, on the other hand, carried over doing some of the exercises they learned. When asked if the exercises were utilized in their everyday life outside of the program, participants explained:

*“Yes actually because we have the community room to exercise so we keep continuously exercising.” (MFG)*

*“There is a treadmill in the community center and a stationary bike and we use those. We do the stretches that they taught us and push-ups. We learn a lot from them and we try to keep moving.” (MFG)*

## **DISCUSSION**

Many themes identified in this study were consistent with the existing literature and included the positive physical and emotional effects of exercise, differences between physical activity in Somalia and the US, and factors affecting participation in an exercise program. Commonly discussed physical effects included weight loss, sweating, improved flexibility, increased initial soreness following exercise, and better sleep. These findings support much of the current literature regarding physical effects of exercise in an immigrant population. Studies by Persson et al<sup>9</sup> and Apiyo et al<sup>1</sup> found participants of an exercise program agreed weight gain was common upon immigration to a new country and weight management was a desirable goal. Additionally, participants of these studies frequently experienced fewer opportunities to sweat in their new country.<sup>1,9,11</sup> In the current study, many participants stated sweating qualified activity as “exercise” and also that it facilitated better sleep.<sup>9,11,17</sup>

The overall consensus between both the men and women’s focus groups was that they are less physically active in the US than when they were in Somalia. This is consistent with current literature by Wieland et al<sup>10</sup> who found that many immigrants

reported there are more barriers to living an active life upon arrival to the US than in their home country. Participants reported physical activity is well integrated into activities of daily life in Somalia, while in the US it is often achieved as a leisure-time activity.<sup>9,10</sup> Also, the weather in Minnesota was seen as a prominent barrier to physical activity as noted in several previous studies.<sup>1,11,13</sup>

The physical effects from the program were discussed more frequently in the men's focus group while the women's focus group placed more emphasis on emotional effects. Women stated exercise helped improve their mood and confidence. This finding supports existing literature stating that exercise increases emotional well-being.<sup>9,11</sup>

Participants discussed many factors that either encouraged or hindered participation in the exercise program. Factors found to contribute to sustained participation once involved in the program included satisfaction with the current activities offered, the group setting, and encouragement from group leaders. Consistent with existing literature, a prevalent reason to join the program was pre-existing knowledge that exercise is beneficial to overall health.<sup>14</sup> Many participants understood the benefits of exercise but did not know where or how to do it and this program provided this information. Another reason to participate described by the men included a desire to integrate into American society.

Scheduling issues and forgetting the dates of exercise sessions were reported as factors that hindered participation. Participants in both focus groups mentioned that having someone within their community reach out to engage other residents within the housing complex would be beneficial for program enrollment.

Key findings reported from focus group participants included the importance of connection with leaders of the program, increased cultural integration, and transferability of the program. Several women described a sense of closeness with the program leaders describing them like their “daughters.” Especially for the Somali women, developing a good relationship with the facilitators of the program was a source of motivation and encouragement for continuing to exercise. Integration into American society appears to be another valuable benefit of participation in the exercise program. Participants discussed the idea of being able to exchange information with program leaders regarding language and culture. Some women participants even suggested adding an English language-learning component to the existing program. Additionally, Somali men reported enjoying the opportunity to discuss faith and religion and teach the American exercise class leaders about Muslim culture. The opportunity to exchange cultural information appears very worthwhile to participants.

Transferability of the exercise program into everyday life was variable for participants. A majority of the participants in the women’s focus group did not perform physical activity outside the exercise program. There appeared to be greater transferability of the program for the men. Reasons for the discrepancy in transferability of the program between men and women are unknown, but they may be related to patriarchal Somali cultural norms. Somali women may feel less comfortable exercising in community spaces where men can enter.

## **Recommendations from Literature Review**

It is important to consider what can be done to make a difference for East African immigrants by enhancing the facilitators to physical activity and overcoming the barriers. Before designing community exercise programs for this group of immigrants, it is important to review recommendations in the literature, specifically regarding Muslim culture. Facilitating exercise by arranging activities in a socio-culturally appropriate way may be effective in creating a successful exercise program.<sup>6</sup> A study by Rogerson et al<sup>16</sup> provides insight about creating an exercise program specifically for the Muslim population. For example, when working with this population, it is a sign of respect to ask them questions about their culture.<sup>16</sup> By encompassing a caring attitude that suggests an absence of racism, stereotyping, and ageism, participation in an exercise program is encouraged.<sup>16</sup> Values of the Muslim culture that should be respected include modesty and religion. Gender segregation is important and therefore, same sex exercise groups should be implemented.<sup>16</sup> Additionally, an exercise program must be adjusted accordingly during Ramadan due to the lack of nutritional intake and to respect times for prayer throughout the day.<sup>16</sup>

## **Recommendations for Future Programming**

Based on findings from this study, modifications could be made to the current exercise program. Recommendations include improved consistency of program facilitators, revision of the schedule of exercise sessions, additional training for apartment residents who are willing to lead others in exercise activities, and maintaining

consideration for cultural norms. Program facilitators who can make a long-term commitment to leading the exercise classes will help to establish trust with participants, which may lead to greater enrollment in the program. Increasing the frequency of exercise sessions from every other week to one or two times per week in the afternoon may foster greater participation by residents, as well as contribute to increased overall physical activity rates. Additionally, as long as there is interest and adequate training, allowing a resident to lead their peers in an exercise session may provide a valuable opportunity for physical as well as psychosocial benefits, such as increased self-efficacy. It is also important to maintain consideration for cultural norms, and the current program has made modifications in order to adapt to Muslim culture. These adjustments have included shifting the time of exercise sessions around prayer times, decreasing the frequency of sessions during Ramadan, and maintaining exercise groups separated by gender. These modifications should continue.

### **Limitations**

There were several limitations to this study. It was a cross-language study with an English-Somali language barrier, which increased the risk for misinterpretation of qualitative data. Limitations inherent in focus groups can include the potential for discussion to be dominated by outspoken individuals, group think, and overriding of others' opinions, all of which may inhibit capturing a broad scope of information.<sup>23</sup> Additionally, many participants in the study did not consistently attend the bi-monthly exercise sessions, with some attending only one session since the program began. This

lack of attendance hinders understanding of the overall effects of the program. Finally, the sample size in this study was one community exercise program in Minnesota, which decreases generalizability of the findings.

### **Recommendations For Future Research**

Future research may include individual interviews with participants in order to gain a deeper understanding of the individual's experience with the exercise program. Other studies could investigate the impact of the relationships between participants and program facilitators as well as the amount of cultural integration occurring within Somali or other cross-cultural exercise programs. Lastly, it would be of interest to explore the impact of leading the exercise class on the program facilitators.

### **CONCLUSION**

This study explored the effects of a student-led exercise program on Somali immigrants living in a subsidized housing complex in Minnesota. Results indicate that effects from the program were overwhelmingly positive. A unique finding from this study was the importance and meaning of the relationships between participants and program facilitators, and the opportunity for cultural exchange and integration.



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## Appendix A

### Participant Consent Form

#### **The Impact of a Community Based Exercise Program on East African Immigrants Residing in Subsidized Housing in Minnesota**

#### **INFORMATION AND CONSENT FORM**

**Introduction:** You are invited to participate in a research study investigating how exercise groups affect health and health behaviors in older adults who live in a subsidized apartment building. This study is being conducted by Kimberly Berggren, Laura Mueller and Meghan McCann, Doctor of Physical Therapy students at St. Catherine University, under the supervision of Assistant Professor Jennifer Biggs Miller and Professor Debra Sellheim. You were selected as a potential participant in this research because you live in the Pentagon Apartment Building and have participated in the exercise program lead by students at St. Catherine University. Please read this form and ask questions before you agree to participate in the study.

**Background Information:** The purpose of this study is to examine the impact of the exercise program on residents of Pentagon Apartments. Approximately 10 people are expected to participate in this research study.

**Procedures:** If you decide to participate you will be asked to do the following:

- 1) Attend one session with other residents. A researcher will ask questions about the exercise program here at Pentagon Apartments. If you choose to participate, these sessions will be audio-recorded.
- 2) Men and women will be interviewed in separate sessions
- 3) The session will last approximately one hour.

#### **Risks and Benefits of Being in the Study:**

There are no physical risks associated with this study. Participation in a focus group may elicit a variety of emotions from participants.

There are no monetary or physical benefits to participating in this research. Each focus group session will include light snacks and beverages.

**Confidentiality:** Any information obtained in connection with this research study that can be identified with you will be disclosed only with your permission; your results will be kept confidential outside of the group interview setting. In order to maintain confidentiality, please do not discuss with anyone else what was shared in the group session. In any presentations, written reports or publications, no one will be identifiable.

When transcripts are made from the audio taped groups, the transcriber will sign a confidentiality agreement.

**Voluntary Nature of the Study:** Participation in this research study is voluntary. Your decision about whether or not to participate will not affect your current or future relationships with Minneapolis Public Housing Authority (MPHA), Pentagon Apartment building, or St. Catherine University in any way. If you decide to participate, you are free to withdraw at any time without affecting these relationships.

**Contacts and Questions:** If you have any questions, please feel free to contact Assistant Professor Jennifer Biggs Miller at 651-690-7875. I will be happy to answer questions now or at any time during the study. If you have other questions or concerns regarding the study and would like to talk to someone other than the researchers, you may also contact John Schmitt, IRB Chair, at St. Catherine University at 651-690-7739.

You may keep a copy of this form for your records.

**Statement of Consent:** You are making a decision whether or not to participate. Your signature indicates that you have read this information and your questions have been answered. Even after signing this form, please know that you may withdraw from the study at any time.

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I consent to participate in the study.

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Signature of Participant

Date

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Signature of Researcher

Date

## Appendix B

### Focus Group Questions

1. Warm-Up Question - What country did you come here from and what has been the biggest adjustment while living here?
2. Describe any positive effects you have experienced, if any, from participating in the Pentagon exercise program.  
PROBES: 1) physical and/or emotional health; 2) daily activity level; 3) social interactions; 4) adjustment to MN; 5) other?
3. Describe any negative effects you have experienced, if any, from participating in the Pentagon exercise program.  
PROBES: 1) physical and/or emotional health; 2) daily activity level; 3) social interactions; 4) adjustment to MN; 5) other?
4. What motivated you to participate in the Pentagon Apartment exercise group?
5. What would increase your participation in this program specifically? What has hindered your participation?
6. Describe an ideal exercise program that would encourage you to be physically active.  
PROBES: A program that you would do on your own or in a group setting? Outside or inside a building or both? Number of days a week? Duration of the class? Characteristics of the instructor? Cost? Proximity to home?
7. Describe your typical daily activity level in your home country. How has your activity level changed since arriving in the US?
8. What do you feel community programs here should know about Somali culture in regards to physical activity? PROBES: In regards to overall health?
9. Describe the impact, if any, of working with students and faculty from the physical therapy program from St. Catherine University?  
PROBE: How has it affected your integration into American culture? How does having a student leader impact the exercise program?
10. Of all the things we discussed today, what to you is the most important? Is there anything else you'd like to say about the exercise program?