

## Attitudes of a Multiethnic Group of Immigrants towards Online Social Networking and Physical Activity: Results from Focus Group Discussions

Cynthia M. Ferrara, Leland K. Ackerson, and Deirdra A. Murphy

*University of Massachusetts Lowell*

### Abstract

**Background and Purpose:** Sedentary behavior contributes to the risk of obesity and cardiovascular disease. Increasing physical activity is particularly important for new immigrants to the U.S., since the risk of obesity and cardiovascular disease increases with acculturation to U.S. society. This study examined facilitators and barriers of using social media to provide information on physical activity, perceptions of the benefits of physical activity, and barriers to physical activity in low English proficiency immigrants in a New England city. **Methods:** Three focus groups were conducted to collect information from 25 adults in a New England city (Mean= 47.7±13.2 year, 68% female, 64% Asian). **Results:** Participants reported using social media to connect with family and friends, rather than to make new social connections. Barriers to social media use included access and privacy concerns. While the participants believed physical activity was necessary for health, they identified a number of barriers to exercise, including lack of access to exercise facilities, financial issues, and information on safe and effective ways to exercise. **Conclusion:** Using social media may be a convenient way to provide information about physical activity to low English proficiency immigrants, but researchers need to address the barriers to utilizing social media and engaging in physical activity.

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### Introduction

Sedentary behavior contributes to a number of major health problems associated with “lifestyle” diseases in the United States including heart disease, obesity, diabetes, and cancer (WHO, 2005). It is estimated that physical inactivity contributes to nearly 300,000 American deaths and 5% of all disability-adjusted life years lost annually (US Burden of Disease Collaborators, 2013). Over half of all Americans fail to achieve the recommended level of physical activity to maintain optimal health, and approximately one quarter of Americans claim to participate in no physical activity of any sort at any level (CDC, 2010). The burden of diseases related to sedentary behavior, such as hypertension and diabetes, is comparable between immigrants to the United States and the native born population, with these conditions increasing disproportionately and more quickly among immigrants (Fang, Ayala,

& Loustalot, 2012; Pabon-Nau, Cohen, Meigs, & Grant, 2010).

### Immigrants and Physical Activity

Sedentary behavior may be an especially important issue among new immigrants. Many new immigrants to the United States have a profile of social determinants, such as low formal education levels, which put them at higher risk for sedentary behavior (Williams, 2005). In addition, conditions associated with physical inactivity, such as obesity and cardiovascular disease, increase with increasing levels of acculturation among immigrants to the US (Abraido-Lanza, Chao, & Florez, 2005; Barcenas et al., 2007; Creighton, Goldman, Pebley, & Chung, 2012; Koya & Egede, 2007; Singh, Siahpush, Hiatt, & Timsina, 2011; Slattery et al., 2006; Wong, Dixon, Gilbride, Kwan, & Stein, 2013). Evidence exploring physical inactivity among immigrants, however, is mixed. Some studies show a decrease in physical activity with acculturation to American

society (Gordon-Larsen, Harris, Ward, Popkin, & National Longitudinal Study of Adolescent Health, 2003; Hubert, Snider, & Winkleby, 2005; Unger et al., 2004). Other studies indicate that physical activity increases as immigrants acculturate (Abraido-Lanza et al., 2005; Cantero, Richardson, Baezconde-Garbanati, & Marks, 1999; Crespo, Smit, Carter-Pokras, & Andersen, 2001; Koya & Egede, 2007; Slattery et al., 2006), but socio-economic status and speaking English at home may influence meeting recommended levels of physical activity (Lee, Cardinal, & Loprinzi, 2012; Lui, Probst, Harun, Bennett, & Torres, 2009; Vermeesch & Stommel, 2014). Additional research on immigrants report a more complex relationship with occupational and transportation-related physical activity decreasing with acculturation but recreational physical activity increasing (Berrigan, Dodd, Troiano, Reeve, & Ballard-Barbash, 2006; Ham, Yore, Kruger, Heath, & Moeti, 2007). Gender differences may also complicate the picture with men being less physically active after acculturation but women being more physically active (Wolin, Colditz, Stoddard, Emmons, & Sorensen, 2006).

Previous research has identified a number of possible causes of low levels of physical activity related to immigration status. These include poor weather, loss of work-related physical activity, stress, lack of transportation, lack of exercise facilities, high cost, living in unsafe conditions, linguistic and social isolation, and lack of time (Evenson, Sarmiento, Macon, Tawney, & Ammerman, 2002; Tovar et al., 2012). Social support is one factor that has been found to help immigrants engage in physical activity (Wieland et al., 2013). Aspects of social support—emotional, instrumental, informational, and appraisal support (Langford, Bowsher, Maloney, & Lillis, 1997)—may be effective ways for immigrants to overcome challenges of lack of motivation, knowledge, and resources that hinder physical activity behaviors. Emotional support focuses on being a part of a supportive social network. Instrumental support refers to providing more concrete assistance or resources, such as financial assistance that might allow someone to join a fitness club, while informational support refers to providing

information that will allow a person to resolve an issue, such as finding time to exercise. Appraisal support refers to providing information that is relevant to self-evaluation, which may be important in increasing motivation to exercise and overcoming barriers to being physically active. Inclusion of one or more of these aspects of social support may be essential to development of a successful intervention to promote physical activity in immigrant groups.

### **Social Media and Health Promotion**

Social media has emerged as a potential tool for health promotion (Neiger et al., 2012). The interactive nature of social media allows individuals to consume professionally generated content while expressing their own opinions, experiences, knowledge, and emotions (White & Dorman, 2001). By acting as a conduit of multiple aspects of social support, social media could serve an important role in improving health in a networked community (Chou, Hunt, Beckjord, Moser, & Hesse, 2009). The ability of social media to address health concerns, including increasing physical activity, includes providing information on physical activity and creating a “community” that might allow participants to receive support from others who are also trying to become more physically active. A few studies have examined how an online community may be utilized as part of an intervention to increase physical activity (Cavallo et al., 2012; Hurling et al., 2007; Richardson et al., 2010). The evidence is conflicting, with one study suggesting that an online community as part of an intervention may increase physical activity (Hurling et al., 2007), while two other studies observed no effect of an online community on increasing physical activity (Cavallo et al., 2012; Richardson et al., 2010). None of these studies focused on immigrants or examined how ethnicity may affect the results. Thus, additional research is needed to address these issues.

The purpose of this study was to examine facilitators and barriers of using social media and barriers to physical activity in low English proficiency immigrants in a New England city. Specific areas of inquiry included examination

of attitudes towards physical activity and use of social media and how social media might be used to promote physical activity in an immigrant population.

## **Methods**

### **Study Design**

A qualitative study with focus groups was designed to examine the barriers of social media and physical activity in immigrants in a high level class for English as a second language. The study was approved by the University Institutional Review Board. Brief demographic questionnaires were administered before the start of each focus group. Participants were asked about their age, gender, ethnic group, income and work status, education level, and their current exercise habits.

### **Participants**

This study was conducted at a public adult education center in a New England city of approximately 100,000 people. Sixty students from three classes of English for speakers of other languages (ESOL) were invited to participate in the study. Participants were selected from the highest level of ESOL classes to guarantee that all participants would be fluent enough in English to express their thoughts and opinions. Participants also needed to be at least 18 years of age. Twenty-eight students registered to take part and 25 actually participated, with the three focus groups having ten, eight, and seven participants. Participants were informed that the purpose of the study was to learn about their perceptions of physical activity and use of social media. Each participant received \$25 compensation for taking part in the research. Each participant provided informed consent prior to taking part in the focus group and having their voice recorded during the data collection procedures.

### **Procedures**

Focus groups are designed for collecting in-depth information regarding the beliefs, attitudes, and observations of people with specific, mutually-held characteristics (Morgan, 1998). This research approach was selected for its ability to provide a broad range of

information from the participants in the study regarding their physical activity practices and use of social media. While often focus group projects segregate participants by demographic characteristics, we intentionally chose not to separate participants by race and ethnicity for several reasons. First, separating individuals by race would have been counter to the stated principles of the partner organization. Second, previous observation of educational practices at the partner organization indicated that the students attending the classes are accustomed to speaking and sharing opinions often about personal information in an ethnically diverse environment, and that this would not be an impediment to candor. Third, in order for results from this research to be used to create behavioral interventions for individuals engaged in multiethnic communities such as this, we believed it was important to use the focus groups to spur conversation among people from different ethnicities so the participants could hear the comments of others and react to them.

The moderator of the focus group provided a brief introduction and invited participants to offer comments on social media and physical activity. Prior to initiating the discussion, the moderator provided simple definitions of social media (websites where people can share information and ideas with groups of people) and physical activity (exercise done for recreation, work, or transportation), so participants understood the nature of the questions and the discussion.

The moderator then presented the group with a series of questions about their knowledge and use of social media sites, physical activity, and how social networking can be used to promote physical activity and health. Table 1 includes the questions that were used for all three focus groups. The moderator did not make any attempt to lead the discussion, allowing participants to talk freely about the topic, with minimal prompting. If participants began to talk about other unrelated topics, the moderator would gently guide the discussion back to the original question or move on to the next question if the discussion was completed. A second team member made audio recordings of each

discussion and took notes to augment the data provided by the recordings.

**Table 1.**

Demographic Characteristics of Focus Group Participants		
Characteristic	N	%
Sex		
Female	17	68.0
Male	8	32.0
Race/ethnicity		
Asian	16	64.0
Hispanic	5	20.0
Other	4	16.0
Marital status (n = 24)		
Married or partnered	18	75.0
Single, divorced, widowed	6	25.0
Education		
Less than high school diploma	12	48.0
High school or GED diploma	8	32.0
Additional school after high school	5	20.0
Annual household income (n = 21)		
Under \$15,000	10	47.6
\$15,000-29,000	5	23.8
\$30,000 and over	6	28.6
Exercised at least 30 minutes		
Fewer than 5 days	14	56.0
5 days or more	11	44.0
Internet access		
Fewer than 3 days per week	6	24.0
At least 3 days per week	19	76.0

N=25, unless otherwise indicated.

**Data Analysis**

Each recording was transcribed verbatim by one team member and reviewed by another to assure accuracy of the transcript. One researcher then read each transcript and the notes from the focus groups to get a sense of the entire discussion. The researcher then re-read the transcripts, identifying individual themes and phrases for each topic of the discussion. A second researcher then reviewed the transcripts, notes, and themes, and made suggestions for revisions to the analysis. The two researchers met to compare their analyses of the focus group discussions, and a final list of themes was developed. Each researcher then reviewed the transcripts, based on the revised list of themes. Ideas and quotes for each theme were then used

to form a framework for synthesizing the information and to provide a more detailed understanding of the key themes. A third independent researcher reviewed the analysis, confirming the identified themes, relevant quotes, and synthesis of the information (Pitney and Parker, 2009).

**Results**

**Demographic Characteristics**

Focus group participants were 47.7±13.2 years old. The majority were Asian (64.0%), female (68.0%), and were married or partnered (75%) (Table 1). Approximately half of the participants had no high school diploma (48.0%) and lived in households with an annual income of less than \$15,000 (47.6%). Approximately half reported exercising at least 30 minutes per day (44.0%) and three quarters reported using the internet at least three days per week (76.0%). Demographic characteristics were similar among the three focus groups.

**Focus Group Analysis**

The qualitative results are organized by the order of the questions used in the focus groups and themes identified for each question (Tables 2-5).

**Use of Social Media.** The first question “What is your experience using social networking websites?” resulted in discussion about the participants’ knowledge and use of social media, as well as reasons why they use social media. Knowledge and use of social media varied among study participants. Some participants indicated a frequent use of social networking websites that are popular in the United States such as Facebook, Twitter, and Skype. A number of individuals also indicated their use of social networking websites that are popular in their country of origin, such as Orkut, a social networking website operated by Google and popular in Brazil, or Kin, a mobile phone line designed for those who use social media that was discontinued in 2011.

The reasons why study participants use social media revealed two major themes. These two themes were: 1) using social media to maintain connections to friends and family in their home

country and 2) gathering information about specific questions or decisions in life (Table 2). For many, social media is used predominantly to reinforce social ties with family and friends that had already been established offline, not to establish new relationships. Some participants also use social media to talk with family and friends about life issues and to get additional opinions about what they should do. By connecting with individuals already in their social network, they are able to access information about employment opportunities, convenient places to shop, or simply to practice their English. Since the information was posted online, they could access it at their convenience. Some participants indicated that, since they could read the information at their own pace, the language barrier was minimized.

**Table 2.**

Social Media: Themes and Relevant Quotes.

<b>Question: What is Your Experience Using Social Networking Websites?</b>	
<b>Themes</b>	<b>Quotes</b>
Use of social media to connect with family (n=21)	-Connect with family or friends "I love Twitter and Fuego. And I communicate with my family, with my sons, and with my friends from my country. I use it every day." "[I do not use social networking sites to chat with people I do not know] No just to talk with my family... with my family in my country."
Barriers to using social media	-Access to technology or internet (n=2) "I use the internet to contact my family for only one time a week because two families need to use the computer." "Yeah, I like it but I do not have enough time.... I have time, one time a month, to talk with my family in Cambodia, but only one time a month." -Privacy issues (n=5) "I think sometimes the social network is not good. It is like, for example, on Facebook if you have some friends that post a picture or something from the family. Sometimes they are talking, 'Oh, this is so nice' it's just not proper to comment on the photo. So that's why sometimes I say I hate it. I don't like it. So that's why I said I have three accounts for Facebook. I want some privacy between my friends and my family." -Only young people use social networking sites (n=3)

n=number of participants who mentioned a particular theme during focus group discussions.

**Barriers to Using Social Media.** The discussion also highlighted the barriers to using social media. Focus group participants mentioned a number of issues that might limit their use of social media, including access to technology or the internet, work and family obligations, privacy issues, and age barriers. Relevant quotes are included in Table 2.

Participants found using social media interesting or helpful, but a few did not use it on a regular basis because of a lack of access to the technology (for example, internet access or a computer). The education center had computers available, but students were not permitted to access certain websites, including some of the more popular social networking websites. In addition, many local libraries have computers available to access the internet, but participants did not always have the time to visit the library for this purpose. Other participants indicated that they would like to use social media more but that a lack of time due to other obligations, including long work hours or caring for their families, prevented them from having time to use social media. These individuals indicated that they would be more likely to use social media more if the limitations to access or lack of time were removed.

A few participants expressed concerns about privacy while using social media. They understood the potential for the information that is posted on social media sites to be available for others to read. They were worried that their personal information could be seen by people that they did not want to have it, and they expressed different techniques that they used to reduce this likelihood. The privacy concerns emphasized that the main use of social media for the participants was to maintain and enhance communication with people that they already knew, not to replace face to face contact or to make new connections.

Some individuals indicated that they do not use social networking websites at all as a conscious choice. They observed that social media was not popular among older people who had not grown up with this technology. These individuals reported that they had never needed social media

in the past to manage relationships or to improve their lives and did not see a need to start using it now.

**Table 3.**

Physical Activity. Themes and Relevant Quotes.	
<b>Question: Tell Me About Your Physical Activity Habits.</b>	
<b>Themes</b>	<b>Quotes</b>
Transportation or job activities (n=11)	<p>“I do physical activity with walking and I need it for transportation. Sometimes, I can walk to work. [for] my body.”</p> <p>“[At work] I have to bend to lift things and move things around”</p>
Fitting exercise into daily routines (n=12)	<p>“When I go to work I am the group leader usually... and I sit a lot but I never want to sit except, you know, like [when] I write down something. For fifteen minutes, I walk around inside the room. I want to keep my body moving all the time.”</p>
<b>Question: What have you heard about the relationship between physical activity and health?</b>	
<b>Themes</b>	<b>Quotes</b>
Promote health (n=17)	<p>“I know that when I exercise for thirty minutes during the day I sleep very good at night. And I feel strong.”</p> <p>“With my husband, he never did exercise before and he was smoking cigarettes before and drinking alcohol. So when he met me and I was running, bicycling, skateboarding he look at me like I was crazy but I was healthier than him. So now he is stopped smoking and he is doing exercise with me and not drinking as much has helped his system and himself.”</p>
Social interaction (n=7)	<p>“I lift some weights, and every night with my nephew I do some sit-ups and push-ups. He is little like five years younger and ... I bought some little weights for him that he can lift.”</p>

**Physical Activity Habits.** When participants were asked about physical activity, they indicated a wide range of responses (Table 3). The major themes from the discussions were that physical activity was for 1) fun and relaxation, 2) as part of job responsibilities, and 3) for active transport, such as walking or biking to get to a specific location (school or work). Respondents reported participating in a variety of recreational physical activity, including

walking for fun, jogging, yoga, working out at a gym, aerobics, and organized sports. A few mentioned that their jobs required them to do lifting or moving things, activities that kept them active. At least one participant mentioned using creative strategies to fit exercise into their daily routine, like intentionally walking around the office or work area. Many of the participants mentioned that they often walk to work or class and that this was their main form of exercise each week.

**Benefits of Physical Activity.** Participants also focused on health benefits and social interaction associated with physical activity (Table 3). One participant mentioned that it is important to exercise “for your heart.” This comment suggests that study participants were aware of the link between physical activity and heart disease. The participants also described ways in which physical activity increased their short-term feelings of wellness through, for example, increasing their energy or relieving their aches and pains.

Participants associated physical activity with social interaction. Many viewed physical activity as an opportunity to engage in meaningful behaviors with friends and family. They portrayed these interactions as substantial in and of themselves, not simply in terms of the utility that they had in fostering physical activity.

**Barriers to Physical Activity.** Participants mentioned a number of barriers that prevented them from engaging in physical activity (Table 4). The barriers included 1) weather issues, 2) lack of space and facilities to exercise, 3) health or physical ailments that limited their ability to exercise, 4) financial issues such as not having the money to join a gym or buy special equipment, 5) lack of time, and 6) a lack of knowledge about safe and effective ways to exercise.

A number of individuals commented on coming from a warmer climate and finding it difficult to adjust to cold weather. They indicated that they needed to think about new activities or different types of exercise to stay healthy. In addition,

several people were from hometowns with more open space available for physical activity than the city in which they now lived. These individuals indicated a desire to continue to be physically active but indicated that the disruption to their routine due to their new living circumstances made this difficult.

**Table 4.**

Barriers to Physical Activity. Themes and Relevant Quotes.

Themes	Quotes
Weather (n=4)	"In my country, I like to swim. But in my country it is so warm and I came here and the weather is not warm."
Space or lack of facilities (n=2)	"Yes, before I came to the United States, I used to play soccer in another country and basketball. When I came here, there was not a lot of room so I can't do that."
Health or physical ailments (n=5)	"I played soccer in my country. Seven or eight years ago I suffered a condition in my back... and I couldn't play anymore. I do some exercises with my arms but I am not able to do the harder exercise because I have chronic pain all the time."
Financial limitations (n=2)	"Nobody has a lot of money right now to go to the gym and with the limited time we have we want to do something great... Sometimes I cannot exercise at the gym or walk by myself because I do not have a babysitter. So I need something with kids."
Safe ways to exercise (n=5)	"Well, exercise is better for you depending on the condition. For example, if you have diabetes, what kind of exercise is good for you? Or if you have high cholesterol what exercise is good depending on the condition?"

Participants also mentioned that physical ailments prevent them or their friends and family members from engaging in physical activity. Many of the participants associated these physical ailments with the aging process. They mentioned that they needed more information on how to exercise safely in spite of health problems.

Participants indicated that logistical problems play a role in keeping them from exercising as often as they would like. Individuals explained that the financial costs of joining a gym, particularly in a poor economic climate,

prevented them from engaging in physical activity. In addition, people mentioned that they often do not have time to set aside for physical activity when they are busy with work, keeping a household and raising children, among other responsibilities. Many requested additional information on ways to exercise without the financial costs of using a gym and how to include their children or other family members in the activity. Study participants suggested that they would be more likely to engage in physical activity if they had access to exercise facilities that were inexpensive, convenient, and family friendly.

Another problem mentioned by the participants was the lack of information about safe and effective ways to exercise. This was the case when the participant or a family member had a medical condition that might limit their ability to exercise. Participants expressed concern that they were unsure what types of physical activity would be best for them or their family member, considering their medical condition. If they had access to this type of information, they would be more likely to include exercise as part of their day.

**Using Social Media to Promote Physical Activity and Health.** The last few questions in the discussion focused on what other types of health topics would they like to see covered on a social networking website (Table 5). Participants mentioned they would be particularly interested in learning more about a few topics related to health promotion and exercise. Despite the fact that the guiding questions specifically addressed physical activity, the participants repeatedly mentioned other issues that were of concern to them. One of the most frequently mentioned topics was food. Individuals were interested in learning what kinds of food could help promote health and what foods should be avoided. Participants indicated that food was central to their beliefs about their personal health. In these cases, individuals indicated that they would be more likely to use wellness information provided through health promotion if it included information about preparing food as part of a healthy and satisfying diet.

Several individuals indicated additional health issues that they considered to be important for general health, such as stress reduction. In their comments, the participants reiterate their support for physical activity to promote health. At the same time, however, while they believe that physical activity is necessary for health, there are other issues that are important to consider for optimal health.

**Table 5.**

A Social Networking Website Promoting Physical Activity.  
Themes and Relevant Quotes.

<b>Question: Imagine there is a social networking website designed to help people communicate about physical activity. What would this website need to be like in order for you to use it regularly?</b>	
<b>Themes</b>	<b>Quotes</b>
Healthy eating (n=10)	“I would like to see different types of exercise online and about the healthy food and what kind of food and fruit and vegetable are good for you. When I have time to cook I can see which one is healthy to learn.”
Stress reduction (n=2)	“In my opinion, physical exercise is not enough to be healthy because in my opinion there are two parts. There is spiritual ...and if you have stress or depression is not good for you even if you exercise every day.”

### Discussion

The purpose of this study was to examine facilitators and barriers of social media, perceptions of the benefits of physical activity, and barriers to physical activity in low English proficiency immigrants in a New England city. The results revealed a number of important issues about low English proficiency immigrants related to the development of health promotion programming based on the use of social networking technology. Barriers to social media use included access to a computer and the internet as well as privacy concerns. Although participants knew that physical activity is important, they also identified a number of barriers to physical activity, including lack of access to facilities and the need for information on safe and effective ways to exercise. Using social media may be a convenient way to provide information about physical activity, but

researchers need to address the barriers to social media and physical activity.

Our findings of high levels of use and interest in social media are consistent with previous research. While use of social media by new immigrants was low in a national survey as late as 2007 (Kontos, Emmons, Puleo, & Viswanath, 2010), it has increased rapidly among this population group in recent years (Smith, 2011) and is almost universal among young minority groups (Vyas, Landry, Schnider, Rojas, & Wood, 2012). Nevertheless, there remain individuals who are unable to access social media as a result of lack of access to facilities where internet is available or knowledge of how to access these media (Smith, 2011). Our findings highlight those of previous studies that emphasize the importance of ensuring access to digital communication among all members of society regardless of social position in order to guarantee the equitable access to health-promotion information (Neter & Brainin, 2012; Schradie, 2012).

This research was also consistent with earlier findings in reporting that adult immigrants are primarily interested in using social media to communicate with those that they already know. Previous research indicates that 66% of individuals consider communication with friends and family a major reason for using social media, while only 9% use social media to make new friends (Smith, 2011). This indicates that programs that use social media as a health promotion tool would be most effective if they are aimed at enhancing established social networks rather than encouraging individuals to create new on-line relationships.

The focus groups revealed that immigrants use a variety of forms of physical activity, primarily for transportation and recreation. Participants are familiar with the benefits of exercise, including improved physical, mental, and social health. At the same time, there are a number of barriers to physical activity for this group, including poor weather, poor health, lack of money, insufficient time, communication barriers, and incomplete knowledge about safe and effective exercise options. Finally, augmenting a social media



campaign to promote physical activity with information about healthy foods and ways to relieve stress may make the program more appealing and meaningful for low English proficiency immigrants.

The high level of interest in physical activity found in this study suggests that immigrants may be receptive to programs promoting an active lifestyle. The current findings indicate that immigrants are interested in diverse types of physical activity for both recreation and transportation. Programs that integrate varied opportunities for exercise into daily schedules could help increase levels of physical activity among this population. Additional studies will be needed to examine how the use of social media campaigns might not only affect how people perceive the benefits of physical activity, but also how social media might be utilized to increase physical activity in low English proficiency immigrants.

Emphasizing the benefits of physical activity may be important to the success of programs that promote physical activity. Previous studies have found that immigrants are aware of the relationship between sedentary lifestyle and disease and value the health improvements that exercise can provide (Juarbe, Lipson, & Turok, 2003). As our research shows, this awareness can include both long-term benefits, such as reduction of chronic disease risk, and short-term benefits, such as improvement in sleep patterns and mood. Participants also expressed the use of exercise to promote support and social interactions with family members. The association between physical activity and healthier social relationships can be an important benefit that can be used to promote physical activity among immigrants (Eyler et al., 2003; Sussner, Lindsay, Greaney, & Peterson, 2008).

Removing barriers to physical activity may be an important way to promote healthy behaviors in immigrant populations (Stodolska, 2000). Immigrants face disproportionate challenges in achieving high levels of physical activity such as a perceived lack of available facilities (Bungum, Landers, Azzarelli, & Moonie, 2012; Eyler et al., 2003; Taylor et al., 2012), or the money and

time to access these facilities (Eyler et al., 2003; Tovar et al., 2012). Those who immigrate to a new climate may also find the weather in their new home to be a damper on physical activity (Lindsay, Sussner, Greaney, & Peterson, 2009; Sussner et al., 2008; Tovar et al., 2012). Cultural and communication barriers, as well as physical or health ailments, may also be a barrier to physical activity (Evenson, Sarmiento, & Ayala, 2004; Juarbe et al., 2003). Our research provides confirmatory evidence that immigrants are concerned about these issues and the influence on physical activity. These findings suggest that programs designed to provide information about physical activity opportunities that are affordable, safe, effective, convenient, and tailored to a person's physical abilities may help boost physical activity among immigrants. Providing reliable and timely information in a social networking format where immigrants can evaluate the information collectively with their peers could be a successful method for providing this information.

#### **Study Limitations**

A primary limitation in this study is the small number of participants taking part in this research, limiting the breadth of the responses provided by the participants. It is possible that with a larger group of respondents, additional information could have been collected. However, data was collected from the participants until themes were introduced multiple times by several different participants indicating that the content was approaching saturation.

A related issue is the fact that this study collected data from a specific group: low English proficiency immigrants in an ESOL program in a medium sized U.S. city in the Northeast (100,000 to 300,000 people, <http://midsizocities.blogspot.com/>). This study represents neither the population as a whole nor the immigrant population in general. It may be that participants in an ESOL program are categorically different from other immigrants. It may be that those who seek to integrate into mainstream English-speaking culture have different norms and motivations compared to others in the immigrant community (Cervatiuc,

2009). It may also be true that this population of mostly Asian and Hispanic immigrants have different experiences with social media use and physical activity compared to those of other immigrant groups (August & Sorkin, 2011; Gortmaker et al., 2012). Nevertheless, the information gained in this study provides additional information about immigrant perceptions towards physical activity promotion that may be useful to the development of future programs.

### Conclusions

The purpose of this study was to examine facilitators and barriers of social media, perceptions of the benefits of physical activity, and barriers to physical activity in low English proficiency immigrants in a New England city. New programs to promote physical activity

should aim to provide social support and reduce barriers to physical activity by introducing immigrants to information about safe, convenient, affordable, and ability-appropriate exercise opportunities in the local community. In order for social media to be utilized to promote physical activity by this group, researchers will need to address the barriers to social media use, including access and privacy issues.

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Author Information

\*Cynthia M. Ferrara  
University of Massachusetts Lowell  
Department of Physical Therapy  
3 Solomont Way, Ste 5  
Lowell, MA 01854  
Email: cferrarauml@gmail.com

\* corresponding author