

ORIGINAL RESEARCH

# Participants’ perspectives of a fall prevention exercise program in older Arab Americans: A focus group study

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## ABSTRACT

**Background and objective:** Physical exercise is an important intervention to maintain health, reduce falls and improve quality-of-life outcomes in older adults. Falls are the leading cause of fatal and non-fatal injuries, and the use of Tai Chi exercise is well-supported by the general older population. Currently, there is little evidence to support the acceptance of Tai Chi by Arab Americans who have no cultural ties to Tai Chi. It is important to understand the perspective of participants in order to gain insight into the attitudes and opinions of the target group. Purpose: To explore participants’ perspectives in a small group setting about the implementation of a culturally sensitive Tai Chi fall prevention group exercise program.

**Methods:** Participants were eight older Arab American women who completed a 12-week Tai Chi fall prevention exercise program at a non-for-profit Arab community center. A semi-structured interview and focus group study was conducted with the participants and was audiotaped. The audio recordings were translated into English, transcribed, and analyzed for emergent themes.

**Results:** Participants’ views of the program were positive. The key elements that contributed to the positive outcomes reported by participants were the characteristics of Tai Chi, the Tai Chi instructor, and the use of bilingual staff as a facilitator. The data showed three themes of self-reported benefits, including prevention awareness, physical benefits and mental health benefits, and two program-related factors: program barriers and promoters.

**Conclusions:** Findings indicated that the Tai Chi program implemented in a culturally sensitive manner can be accepted by older Arab American women. Collaborating with a community-based organization and using bilingual staff from the same culture are key factors to promote the success of the program.

**Key Words:** Older Arab Americans, Focus group, Tai Chi exercise, Community-based intervention program

## 1. INTRODUCTION

Health issues related to aging are increasingly challenging for Arab Americans in Michigan, who are the third largest ethnic population, accounting for about 6% of Michigan’s population.<sup>[1,2]</sup> Physical activity is an intervention that can reduce age-related functional decline and improve social ac-

tivity and cognitive aging.<sup>[3]</sup> Nevertheless, it is difficult to identify and determine whether understudied high-risk Arab Americans are ready for the challenges of aging. There are no variables that can help researchers understand the heterogeneity within Arab subgroups, such as those who are foreign born or are U.S. born children of immigrants, be-

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cause the classification of datasets related to national and state health does not address important prevalence differences in conditions responsible for leading causes of death for those from the Middle East.<sup>[4]</sup> Few hospitals in Michigan include ethnic identifiers on patient forms to identify these people, which makes reporting any health data about Arab Americans a problem.<sup>[4]</sup> Falls are the leading cause of fatal and nonfatal injuries among older adults.<sup>[5]</sup> The incidence of falls, hospitalizations after a hip fracture or head injury, and recovery in a long-term care facility among Arab-Americans have not been studied.

Recently, there has been an increase in peer-reviewed literature on the health behaviors, needs, and risks of Arab Americans. Using a novel approach of a hospital administrative database, Dallo et al.<sup>[4]</sup> compared the prevalence of selected health conditions between Arab American patients with white (total patients  $n = 68,047$ ) in metropolitan Detroit. The sex ratio of white patients in the sample was 59:41 (M:F) and the ratio of Arabs was 61:39 (M:F), which showed that Arab women came to the hospital less frequently. Compared to white women, Arab American women were more likely to have diabetes, hypertension, chronic lower respiratory disease and influenza/pneumonia. Compared to white men, Arab American men were more likely to have diabetes and hypertension and less likely to have chronic lower respiratory disease. These findings may be an underestimation of the disease, since there may be more Arab Americans suffering from these chronic diseases but not diagnosed because they may not have access to medical care or insurance to pay for medical expenses. Tailored and culturally relevant interventions for the Arab American population are needed because of the higher prevalence of the diseases.<sup>[4]</sup> However, there are few prospective studies on Arab Americans<sup>[6]</sup> and no longitudinal study has been conducted using physical activity interventions. There is also very little attention to the needs of older Arab Americans.<sup>[6]</sup> Ajrouch<sup>[7]</sup> found that compared with immigrants, American born older Arabs reported lower depression and greater life satisfaction. Although the pathway to the well-being of older Arab Americans is unclear, it is known that older Arab American's well-being, human capital indicators (e.g., level of education, language) and social capital factors are interrelated.<sup>[7]</sup>

Research on the impact of gender on health behavior and physical activity shows that Arab women are at higher risk for chronic diseases in the United States. Compared with the general population of California<sup>[8]</sup> and Michigan, the number of Arab women who are sedentary and overweight is considerable.<sup>[8-10]</sup> The demographic characteristics of the California study were similar to the Arab studies in Michigan, except that more women were married, had higher educa-

tion levels, and higher household incomes. In the California study, the percentage of women classified as below the federal poverty line was lower, compared with Arab women in Michigan and the total US's overall population.<sup>[8]</sup> The general health status, chronic disease risk factors, and physical activity levels of subjects from Michigan and California were lower than the general population in their respective states.<sup>[10]</sup> Research subjects in California reported that they were healthier than the Michigan study.<sup>[8]</sup> The proportion of reported cardiovascular disease risk factors was lower than the Michigan studies.<sup>[9,10]</sup> In addition, the incidence of diabetes in the California sample was lower than the Michigan study.<sup>[10]</sup>

The California study<sup>[8]</sup> identified the following barriers for participants to maintain physical activity: not enough time to exercise, too stressed, it takes time away from the family, no one to exercise with, feel pain when exercising, and not having enough money.<sup>[8]</sup> Regarding the reasons for not exercising, the participants answered: don't have time, lazy or hate it, have an active life style, they do not care, feel fine without it, don't know how to exercise, and are not supposed to. The main predictors of lack of exercise were low self-efficacy and "not born in the United States".<sup>[8]</sup> Lack of time investment in physical activity and the extreme weather conditions where it is too cold in the winter and too hot in the summer (e.g., Michigan) results in a sedentary lifestyle among Arab women. A study of health-promoting lifestyle of Arab immigrants to the U.S. showed that physical activity was the least frequent practice among the six behavioral dimensions (health responsibility, spiritual growth, physical activity, nutrition, interpersonal relations, and stress management).<sup>[11]</sup>

Arab culture does not seem to encourage people to prevent diseases. The values of gender and modesty make physical activity different for men and for women. Muslim women in more westernized context often struggle to find conducive environments in which to practice physical activity.<sup>[12]</sup> Daily work expectation for men and women differs and meeting cultural norms takes additional time away from physical activity. Fulfilling gender roles and meeting the demands of life are factors that lead to limited physical exercise time. Islam supports the participation of women in physical activity within religion requirements for body modesty in dress and sex segregation. The environment is a barrier to participation, especially when activities were visible to the members of the community, in particular to men.<sup>[12]</sup> These barriers to physical activity result in a sedentary lifestyle for Arab American women. The lack of social support for exercise limits their ability to live an active lifestyle that prevents chronic illnesses and other health problems.<sup>[6]</sup>

As far as medical care is concerned, “wait and see” is the practice of many people.<sup>[13]</sup> Although certain religious teachings encourage people to protect their health by adjusting diet and exercise, Arabs’ belief of predetermined fate and lack of understanding of silent or insidious disease hindered them from health seeking behaviors or practicing preventative health-care for diseases. Studies showed that many Arabic-speaking immigrants were less-adherent to self-management and self-care activities compared with Caucasian English-speaking people with type 2 diabetes in Australia.<sup>[14,15]</sup>

Tai Chi has consistently been shown to positively influence health-related fitness by affording older participants a means to increase their innate healing capacities.<sup>[16]</sup> In particular, it is a cost-effective way to optimize expenditures to prevent falls and maximize health.<sup>[17]</sup> It was more effective than resistance training or stretching in people with Parkinson disease, and had the lowest cost.<sup>[17]</sup> Fall prevention interventions (Tai Chi is one of the 3 examined) provided a positive net benefit, that is, the benefits from averted direct medical costs outweigh the costs of implementing the intervention.<sup>[18]</sup> However, our understanding of older Arab women who are at risk of falling and fall injuries is limited. Hobbs et al.<sup>[19]</sup> found high prevalence of 25-hydroxyvitamin D deficiency in Arab-American women living in Michigan, and pointed out Arab women’s risks for culturally mediated health problems. Vitamin D levels were lower in Arab women with less experience in the United States and in those with less education, and was associated with conservative dress among Arab women, less sun exposure in Michigan, and insufficient vitamin D in cultural diet.<sup>[19]</sup> Vitamin D is an essential nutrient. It is widely known for its role in maintaining bone health, and more and more evidence has indicated that vitamin D insufficiency plays a significant role in regulating the risk of cardiometabolic diseases and geriatric frailty (<https://www.cdc.gov>).

The majority of the existing literature on the health behavior of Arab Americans are descriptive as opposed to examining the relationship between the exposure to the risk and the outcome.<sup>[6]</sup> The recent pilot work of using Tai Chi to intervene in low-income, ethnically diverse older community residents with complex chronic diseases has shown that Tai Chi is a potential intervention, because it is effective, does not require equipment and is flexible.<sup>[20-24]</sup>

Partnering and collaborating with community-based organizations is essential to implementing and sustaining fall prevention programs.<sup>[5]</sup> To better understand the perspectives of older Arab American women regarding the feasibility of implementing a Tai Chi fall prevention program, the researchers teamed with Arab Community Center for

Economic and Social Services (ACCESS) and developed a pilot Tai Chi exercise program for older Arab Americans through the use of multilingual and culturally sensitive strategies. The purpose of this study was to explore participants’ perspectives about the implementation of the Tai Chi fall prevention group exercise program and encourage participants to share their experience about Tai Chi. Participants’ views of the acceptability and effectiveness of the program will help us improve and modify the program.

## 2. METHOD

### 2.1 Design

In this descriptive qualitative study, a focus group method was used. The culturally sensitive Tai Chi for Falls program (TCF) was introduced to older Arab Americans who sought services in the Arab community organization, ACCESS in MI. Female participants who completed the TCF were invited to participate in the focus group discussion.

### 2.2 Setting/participants

Participants in the focus group study were 8 female Arab Americans (mean age  $62.4 \pm 3.2$ , range 58-66) who completed a 12-week TCF program at a non-for-profit Arab community center. None of the participants were born in the United States. Previous research has shown that when Arab women report that they were not American born, this suggests that additional needs may be important when healthcare professionals plan to perform physical activity interventions for such women.<sup>[8]</sup>

According to the community organization’s 2018 annual report, 56% of the clients were Arab Americans, 58% were women. 60% of the reported household income was under \$20,000 and 30% was between \$20,000-\$49,999. Since the age of seniors is usually associated with less physical activity and more social isolation, this exercise program was aimed at seniors 55 years and older so that they can intervene early to avoid situations that may lead to falls.

In collaboration with the Arab community organization, direct and indirect recruitment methods were used. Direct recruitment involves the bilingual staff coordinator of the community center personally talking with potential participants in the center and following up the conversation via telephone. Indirect recruitment involves the distribution of bilingual flyers and brochures at the community center and community center contacts. The staff coordinator explained the intervention plan in Arabic and English to senior persons interested in the program and asked them to sign up with the community center. After obtaining personal consent, the staff coordinator arranged on-site screening and health assessment appointments with the researchers and a bilin-

gual research assistant at the community center to determine whether they met the recruitment criteria and were safe to participate. This program was reviewed and approved by the University Institutional Review Board (IRB).

### 2.3 TCF Intervention description

A certified and experienced female Tai Chi instructor led twice a week 1-hour classes in the classroom of the community center for 12 weeks, separately for different genders (for example, male sessions on Tuesday and Thursday and female sessions on Wednesday and Friday). Exercise instructions were provided in Arabic and English. The staff coordinator attended each session and translated the instructor's instructions into Arabic. Before and after participating in the Tai Chi program, each participant's functional mobility performance was assessed by a well-trained bilingual research assistant to ensure that all instructions were fully understood and measurement protocols were followed. See TCF previously reported.<sup>[25]</sup>

### 2.4 Data collection and management

Eight female participants attended the 1-hour focus group discussion. Focus group method is particularly useful for exploring participant's knowledge and experiences and can be used to examine not only what people think but how and why, which do not discriminate against people who cannot read or write, and can encourage participation from people reluctant to be interviewed on their own or who feel they have nothing to say. The principal investigator developed the initial focus group questions (a semi-structured interview guide to direct the focus group discussion) based on the exit survey each participant filled out at the end of the 12-week Tai Chi classes. The senior researcher of Middle Eastern descent in the research team who is familiar with Arabic culture modified the questions and led the focus group discussion as a moderator using both Arabic and English. The questions were open-ended with clarification provided when necessary. The moderator encouraged the participants to take part in the group discussion amongst themselves rather than a discussion with the moderator. Focus groups were conducted at the community center where the TCF classes were offered, a familiar and comfortable setting for them.

### 2.5 Data analysis

The focus group was audio-recorded, translated to English, transcribed, and coded for thematic analysis by a bilingual research assistant fluent in both Arabic and English. In the initial phase of this process, the research assistant noted key terms, phrases, and major themes and had the transcripts reviewed by all members of the research team for accuracy and corrections. Researchers then met to discuss the themes

and interpretations. Data were content analyzed for recurrent themes from the participants' viewpoints on the implementation of Tai Chi fall prevention group exercise program. Findings from this analytic process are reported below. The unit of analysis was the complete thought or theme, which ranged in length from one word to several sentences. We refined codes until all data fit into exclusive, exhaustive categories. Intra-rater reliability was verified by investigator's re-analysis of selected data.<sup>[26]</sup>

## 3. RESULTS

Data showed three themes related to self-reported improvement: improved prevention awareness, physical benefits and mental health benefits; and two program related factors: program barriers and promoters (see Table 1).

**Table 1.** Main categories and themes regarding participant's perceptions about the Tai Chi program

Perceived impact and benefits
Prevention awareness
Health benefits related to concentration, breathing and relaxation
Balance improvement
Mental health benefits
Companionship benefits
Perceived program barriers
Exercise room
Transportation
Perceived program promoters
Tai Chi instructor
Bilingual staff
Social interaction

### 3.1 Preventive Healthcare Beliefs in Arab Culture

#### 3.1.1 Improved prevention awareness

All participants were older Arab women to whom Tai Chi is foreign to their culture. Although Tai Chi as a preventative health practice is new to our participants and they were exposed to it for the first time, they accepted it. They actually loved it due to the fact that it was offered in a culturally sensitive manner. For example, a female instructor taught the class, the class separated male and female participants. According to the participants, the cultural sensitivity made Tai Chi more reachable to them. One participant stated, "Because all are women, you feel more comfortable. No one concerned about how you stand or if you fell. We had the freedom and I liked that. It helped us a lot".

All participants stated Tai Chi is an acceptable exercise form. One participant stated, "We felt Tai Chi brings people more together it does not separate us". They did not know much about Tai Chi prior to participation in the study. One par-

participant stated, "I worried about it honestly. Tai Chi is from an Asian culture and it is so foreign to us. We are Middle Eastern, Arabs. We know Dabkah [Levantine folkloric dance] but we do not know Tai Chi, right?". A participant stated she thought it was Karate, or yoga. Another participant stated, "I thought it (Tai Chi) to be more like Karate with fast movements. I told the instructor that I would not be able to do the movements due to back pain. But, it was a nice surprise since it worked for me". The last participant stated, "The first day I was surprised because movement was very slow, and I did not sweat. After that a bit by a bit I started enjoying the training as my whole body was moving. It's a different experience which I enjoyed a lot and it opened a new perspective. It is completely different than what I used to do and is completely different in a positive way. It was wonderful". Finally, some participants reported searching for information about Tai Chi prior to participating in the study. One participant stated "I looked it up on Google to get information about the program and I liked it. I saw that it (Tai Chi) is done in the mountains with people doing the Tai Chi body moves".

### 3.1.2 Program adoption in daily living

The majority of the participants reported they have adopted it in their daily lives. The Tai Chi program was led by an experienced female Tai Chi instructor with the help of a trained staff coordinator at the community center who translated the instructor's instructions into Arabic at each session.

The participants stated that they were so interested in the program that they were willing to pay money out of pocket to the instructor to stay and train them in the future on a regular basis, if ACCESS could not provide the classes free, which showed the participants valued the program. One participant stated, "We told the instructor that we are willing to pay, just keep on coming as we are all in need of this program". Another participant stated, "I started to pay attention to my body position and posture after Tai Chi training, we have the knowledge now; we are aware of it now. I said to myself, for one hour I am going to do Tai Chi, I implement it in life daily at home. Even when I clean my house, I think about Tai Chi moves. It's very helpful".

Participants reported using what they learned in the Tai Chi program and applying it to their regular day-to-day life, in their homes. One participant stated, "We practiced what we have learned, and we have learned something new to use for the rest of our lives. It is not just a class that goes away after you complete it. It is something that you can use daily, weekly or monthly". Another participant stated, "I liked the program, I enjoyed every minute, and really, if they conduct another (Tai Chi) program, I will participate again. It really

helped me a lot and I enjoyed it. I hope we do this again". Another participant stated, "Tai Chi is something new I really like it. If they are going to do it again, I would like to participate again with more advanced techniques too. I enjoyed it a lot, I learned more about my body, I learned more about my movements, and what can help me in my daily activities". In addition, one participant stated, "Tai Chi is good to learn. Indeed, when I went to my doctor I told him I was taking a Tai Chi class. He encouraged me too. He said Bravo. It's great".

## 3.2 Benefits of Tai Chi

Participants reported multiple benefits of Tai Chi to themselves including physical health benefits, balance improvement; mental health benefits; and companionship, without negative effects.

### 3.2.1 Health benefits related to concentration, breathing and relaxation

Participants listed multiple benefits associated with participating in Tai Chi program. Some of the benefits reported by the participants were related to reducing muscle and joint pain, since it involves slow, controlled and low impact movements, and puts minimal stress on muscles and joints. In addition, it is an easy exercise. For example, one participant stated, "For me, I had a problem with pain in my ankle and when I did the (Tai Chi) exercise, the pain was gone. My doctor was wondering why I stopped going to see him. . . . . the pain was gone". Another participant stated, "The (Tai Chi) instructor taught us a lot. She is very strong. She (the instructor) taught me to concentrate my thought and breath on my health predicament. She helped us to use Tai Chi until the predicament was overcome. I am convinced my back pain, by continuing the exercise, the pain would go away". "The instructor pointed out to us the signs of aging, which went away, it went away without us knowing".

### 3.2.2 Balance improvement

Tai Chi emphasizes slow movement, which enhances body alignment, one-legged posture, standing lateral and forward and backward weight shifts. It works with elderly people, even those with limited mobility, with no or few adverse side effects. Its balance enhancing technique also helps prevent injuries during practice. One participant stated, "Equilibrium and body balance using proper standing and sitting (techniques). I was not aware of it before I joined this class, but now I learned the difference about body equilibrium and proper standing and sitting. I bent my body and legs when I sat down or stood up." Other participants stated, "During the exercise when we do the movements, she (the instructor) told us to bend our knees to make us balanced not to fall down and it really helped us. Nobody fell. Also, she showed us

standing up place our feet close vs. feet apart, to help us feel how we could control balance while standing up . . . to prevent us from falling”. “I did not have any balance on the day I started. I could not participate in the balance movements. After two sessions, I started doing them (balance techniques). And after a while I was participating along with others. I was very pleased to be able to do balance movements”.

Participants reported significant improvements in confidence, which they believe they could keep themselves from falling. At the end of the program, Participants felt better about their physical health and increased energy level which enabled them to continue practicing Tai Chi.

### 3.2.3 *Mental health benefits*

Tai Chi includes rhythmic patterns of movement that are coordinated with breathing to help achieve a sense of inner calm. One participant stated, “Freedom, freedom of mind. I kicked out the negative energy and I brought in positive energy every time I practiced Tai Chi. It was like a great burden that went away”. Another participant said, “I slept all night, it (Tai Chi) helps my sleep and mind. I experienced mental rest”. One participant stated, “it helped me not only the bones but also my soul. It’s not just physical but also spiritual. It is a combination”. Another participant stated, “It is not like a gym, you force yourself to go to the gym, and you get tired and you go there because you must go. This one is to focus but relax, fun movements you can do. You enjoy doing them and you feel good. It puts you in a good mood”. Another participant stated, “The exercises helped us all; I was used to come with deep enthusiasm as I felt the importance of the exercises (Tai Chi)”. Lastly, one participant stated, “It is not only about help me in shape; it is mindful. It helps clear your mind . . . something inside, you need to let it out”.

Stress relief was reported by participants in this study. One participant stated, “We do get stressed out sometimes and it (Tai Chi) helped. For one hour I forget about everything which made me feel less stressful. It has helped me to release stress”. Other participants stated, “I need sometimes to relieve my stress and then I have more energy and patience. I mean it’s not just helping me, I think it is helping my relationship with other people (we live with) too. If I am in good mood, if I feel relaxed, it is going to improve our relationship. . . I know I will have more energy and patience”. “Some people eat a lot when they are stressed, like me. In the middle of the night I would wake up and eat, I knew it was because of stress. After I joined the Tai Chi classes I felt calmer and happier”.

### 3.2.4 *Companionship benefits*

The Tai Chi program is a group exercise. It can be fun to practice Tai Chi with friends. Exercise interventions using group format have been found to increase exercise motivation, perceived support, and decreased feelings of isolation and loneliness. One participant stated, “one important thing we benefited from was the company. I never met the participants before. We were like a family, we got to know each other. We got used to come and see them (other participants). And we enjoyed the group. It was a nice group”. Another participant stated “Even with [people] from different countries and dialects in the room, we are the same. We did not experience anything bad between us. We did not have disagreements. The program does not have favoritism; nationality did not matter”.

## 3.3 *Program related factors*

### 3.3.1 *Program barriers*

We are very grateful to the community center for providing training space for Tai Chi classes. However, due to the center’s competitive activities and demands for space, the classes were mostly provided in a classroom. One participant stated, “I did not like it (room). I could turn but it’s too small”. Another participant stated, “It is a classroom. We had to move the tables and put them back when we finished. If we had a different building, bigger hall would be better. Tai Chi emphasizes breathing so you need fresh air. It would have been better if the room was on the second floor, so you could see outside through a window. It could have been more helpful”.

The availability of the staff was another barrier. The staff member of the community center who attended the intervention and was familiar with the program, could not leave her current duty at the center to implement the Tai Chi program in the community after the sessions were completed by the Tai Chi instructor, i.e., making the exercise a staff-run program instead of a certified Tai Chi instructor-led program.

Some participants reported transportation and class time as a barrier. One participant stated that “Some people would miss their lunch to come to the (Tai Chi) class”. Another participant said, “In the beginning, I had a problem with transportation, but since Z joined the program and she lives close to me, I manage to come with her, if you live far it is a problem”. Another participant added, “I cannot come by myself I do not drive”.

### 3.3.2 *Program promoters*

The participants emphasized the importance of having a staff member from the same culture who speaks their language to help implement the program. One participant stated, “M.

(the research coordinator) was wonderful. She knew who does not understand English. She was translating in Arabic and knew who need [translation] and she used to call us to remind us to come, or if there were class time changes (because of bad weather). Z. (the research assistant) also translated for us”.

All participants talked about the Tai Chi instructor playing a pivotal role in conducting the group sessions and developing good relationship with the participants. One participant stated, “We feel very comfortable with the teacher. If you continue new classes here again, please hire her again”. Another participant stated that “It is like you are in school and you have a special teacher who is really good and who is not just an ordinary teacher”. A third participant stated, “She played music, I enjoyed it (Tai Chi) so much with the music. Most of the time she played forest/bird sounds – but sometimes she played Mozart. She showed us how to concentrate and seek tranquility with the music”. Finally, a participant stated “When the instructor said goodbye, I cried. She liked us a lot. she (the Tai Chi instructor) always says, “say to yourself you are beautiful”. I looked at myself in the mirror and I saw that I was aging, but I said to myself, don’t mind that you are still beautiful. You see there are many things I remember from the class, because of the instructor”.

#### 4. DISCUSSION

In this study, we explored the participants’ views on the implementation of a community-based Tai Chi fall prevention exercise adapted to the Arab culture. Older Arab female participants reported a wide range of psychological and physical benefits of practicing Tai Chi, including enhanced balance, flexibility, breathing, sleep, and calmness, consistent with the benefits reported by other studies on general older adults.<sup>[27]</sup> The integrated mind-body characteristics of Tai Chi were particularly attractive to the participants. The biggest obstacle found by participants was classroom space, and previous research found that teaching methods were the main obstacle.<sup>[27]</sup>

The key elements that contributed to the positive outcomes reported by the participants are the characteristics of Tai Chi, the Tai Chi instructor who helped them appreciate the unique features of Tai Chi, and the use of bilingual staff and as a facilitator. Participants were very satisfied with the instructor and reported that if community organizations plan to conduct other Tai Chi programs, they were willing to participate out of their own pockets. The instructor understood the physical limitations, such as back and joint pain in sedentary older adults, provided them emotional support and encouraged them to continue participating in the program. Our findings are consistent with other findings in Manson et al’s<sup>[22]</sup> study

and by Beaudreau,<sup>[28]</sup> where community-dwelling older participants (50 years or older) reported it is important that the instructor motivate participants, get along well with them, are older, and understand the needs of the participant.<sup>[28]</sup> They found that a small group is an ideal choice for teaching and learning Tai Chi. The instructor used many ways to facilitate learning among older adults, such as slower speed, more repetition and accurate instructions. Similarly, our participants reported that the instructor used different types of music to facilitate their learning and asked them to repeat the exercise after demonstrating the moves. In addition, the bilingual staff from the same cultural background spoke their language (Arabic), which provided the participants a sense of security and facilitated the English instruction. The level of enthusiasm of the bilingual staff for the program is also important, because she should be a companion and motivator of the participants.

Our findings are similar to previous studies, which used bilingual staff to apply community-based health promotion interventions. For example, a study by engaging bilingual and trained community health workers to provide culturally and linguistically appropriate (Gujarati) healthcare information in face-to-face individual and group sessions.<sup>[29]</sup> The program effectively involved participants (mean age  $41.9 \pm 15.9$  years) in lifestyle changes, which significantly reduced the prevalence of type 2 diabetes and hypertension. One success of the intervention is that participants can talk freely with community health workers and express their opinions and difficulties and community health workers can motivate participants to apply the techniques and engage in physical activity and relaxation exercises.<sup>[29]</sup> Another study by Fink et al. showed that bilingual community instructors were trained to lead 12-week, twice-weekly, one-hour Tai Chi classes, thereby resulting in broad participation and improved physical performance (e.g., flexibility, balance, strength) among non-English speaking older adults with different cultural backgrounds. Participants were mainly of Asian background (69%) with the remainder being East African (30%) and white (1%), from local community organizations in the urban centers of Minneapolis and St. Paul that support non-English speaking older adults.<sup>[30]</sup>

The social isolation experienced by female immigrants of Arab culture is different from the isolation in mainstream culture. Leaving their homeland, this is likely to be their initial social support, difficulty adapting to the new society and different values, morals and language, exasperated to the social isolation.<sup>[31]</sup> Our participants reported an enhanced sense of social bonding and were motivated to engage in Tai Chi exercises as a way to increase their social connections. The finding is consistent with the findings of earlier

studies,<sup>[32,33]</sup> which reported that enjoying social interaction is a key factor related to the acceptance and motivation of physical exercise by the elderly. They found that promoting entertainment is not just about health and promoting social interaction.

This study adds to the evidence that cultural demands can be addressed without religious transgression. By combining culturally sensitive lifestyle interventions with dietary advice and guided physical exercise, obese women (35 to 54 years old) in two Muslim Arab communities in Israel effectively lost weight, reached their physical exercise goals, and improved their quality of life.<sup>[34]</sup> In our study, the intervention design addresses social norms and the role of women in Arab society and families. Before starting the plan, a meeting with community staff has been scheduled to get their support. Our participants accepted the Tai Chi program as a preventive health practice. Some of them even searched for information about the program on the Internet, discussed Tai Chi with their doctors, and actively sought information about preventive health practices. These results indicate that performing Tai Chi in a culturally sensitive manner is an attractive program for participants. If cultural norms and necessary adjustments are not taken into account, the intervention plan may fail. Accessibility related to weather, travel, and appropriate program leader/teacher are barriers to participating in community-based Tai Chi programs identified by other researchers.<sup>[22]</sup> Perceived health improvement, time of day, opportunities for social engagement and networking, program pairing are factors that promote the enrollment of older people living in ethnically diverse communities.<sup>[22]</sup> Program pairing refers to variables such as convenient location, time, partnerships with neighborhood organizations, and in short, easier access to activities.<sup>[22]</sup> Bilingual study coordinators from the same cultural background can increase the total number of participants and subgroups of research participants, thereby increasing the success rate of the study.<sup>[25]</sup>

The final key element of our program is conducting the intervention in a community-based organization that the participants frequently visit for health and social services. The non-profit health and social service organization we worked with played a pivotal role in subject recruitment and program implementation. The organization helps Arab immigrants adjust to their new life in the United States and provides health, education, employment and social services to recent immigrants and refugees. A convenience sample survey of 275 customers aged 18 and over of the organization showed high levels of depression and anxiety. Refugees report higher levels of depression and anxiety than other immigrants or American-born Arab Americans.<sup>[35]</sup> Another study conducted by trained bilingual survey administrators

assessed the health-related behavior of the organization's clients, specifically breast cancer knowledge and screening barriers of 100 healthy women, 50 breast cancer women survivors and 25 healthy men.<sup>[36]</sup> The results of the study indicate that there is a gap in the knowledge of breast cancer among Arab Americans in the community. In our study, the bilingual staff coordinator used direct and indirect recruitment methods, which are essential for recruiting Arabs to participate in the program. Participants are familiar with the exercise space, but a larger exercise space may encourage more practice. Recent political events in the United States and around the world, including terrorist attacks, have exacerbated Islamophobia and discrimination against Arab and Muslim Americans, and intensified wave of discrimination.<sup>[37]</sup> This makes Arab community-based organizations even more important in promoting the health of Arab communities. The next step in the research is to assess the organization's priorities, resources, and readiness to implement an evidence-based fall prevention program and obtain leadership support, and to determine how collaboration supports short- and long-term goals by maintaining mutually beneficial partnerships.

### Limitations

The small sample size associated with limited resources to recruit participants may affect data collection, analysis, and research results. The participants in this study represent people from a region in the United States, and only Arab women who participated in the Tai Chi study at the Arab Community Center, not a random sample of the current Arab American population. The data provided here may be inconsistent with the opinions of other older Arab Americans. Selection bias limits the generalizability of the research results. Future research should use random sampling techniques to obtain subjects. Despite these limitations, the use of community sample is a good starting point for this research. Most of the existing literature on Arab American health behaviors is descriptive, rather than studying the relationship between exposure to risk and outcome.<sup>[6]</sup> This study investigated the potential application of Tai Chi in reducing falls in older Arab women living in Michigan. Arab women are at higher risk of culturally mediated health problems.<sup>[19]</sup> New knowledge about the understanding of Tai Chi and other health prevention behaviors of Arab women has been gained.

## 5. IMPLICATIONS AND CONCLUSIONS

Community-based fall prevention program is an effective approach to help older adults prevent falls. Although Tai Chi is not culturally familiar to the Arab culture, it has considerable potential for conferring health benefits to older Arab women with appropriate cultural adaptations. Nurses have a



long history of leading health promotion efforts. Community health nurses are in a unique position to reduce falls and its devastating consequences such as hospitalization after a hip fracture or head injury, physical and emotional pain, and recovery in a long-term care facility. Nurses understand the communities they serve and the resources and community partners available to address the issue. They can increase public awareness and knowledge of falls as well as advocate for policy change within their communities and beyond. An integrated and collaborative approach to fall prevention,

integrating specific expertise, community access, funding opportunities and common workloads will ultimately lead to more effective and sustainable public health interventions.

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## CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

## REFERENCES

- [1] Arab American Institute Who Are Arab Americans? Available from: <http://www.aaiusa.org/who-are-arab-americans>
- [2] MDHHS - Michigan Department of Health and Human Services, Health Risk Behaviors Among Arab Adults Within the State of Michigan. 2013 Arab Behavioral Risk Factor Survey.
- [3] Cohn-Schwartz E. Pathways From Social Activities to Cognitive Functioning: The Role of Physical Activity and Mental Health. *Innovation in Aging*. 2020; 4(3). PMID:32665981 <https://doi.org/10.1093/geroni/igaa015>
- [4] Dallo FJ, Ruterbusch JJ, Kirma JD, et al. A health profile of Arab Americans in Michigan: a novel approach to using a hospital administrative database. *Journal of Immigrant and Minority Health*. 2016; 18(6): 1449-1454. PMID:26472547 <https://doi.org/10.1007/s10903-015-0296-8>
- [5] CDC. Preventing falls: how to develop community-based fall prevention programs for older adults.
- [6] Abuelezam NN, El-Sayed AM, Galea S. The health of Arab Americans in the United States: an updated comprehensive literature review. *Frontiers in Public Health*. 2018; 6: 262. PMID:30255009 <https://doi.org/10.3389/fpubh.2018.00262>
- [7] Ajrouch KJ. Resources and well-being among Arab-American elders. *Journal of Cross-cultural Gerontology*. 2007; 22(2): 167-182. PMID:17226096 <https://doi.org/10.1007/s10823-006-9033-z>
- [8] Qahoush R, Stotts N, Alawneh MS, et al. Physical activity in Arab women in Southern California. *Eur J Cardiovasc Nurs*. Dec 2010; 9(4): 263-71. PMID:20579937 <https://doi.org/10.1016/j.ejcnurse.2010.03.002>
- [9] Hatahet W, Fungwe TV. Obesity and cardiovascular disease risk factors are ethnicity based: a study of women of different ethnic backgrounds in southeastern Michigan. *Ethnicity & disease*. Winter 2005; 15(1 Suppl 1): S1-23-5.
- [10] Jaber LA, Brown MB, Hammad A, et al. Lack of acculturation is a risk factor for diabetes in Arab immigrants in the US. *Diabetes Care*. 2003; 26(7): 2010-2014. PMID:12832304 <https://doi.org/10.2337/diacare.26.7.2010>
- [11] Aqtash S, Van Servellen G. Determinants of health-promoting lifestyle behaviors among arab immigrants from the region of the levant. *Res Nurs Health*. 2013; 36(5): 466-477. PMID:24037811 <https://doi.org/10.1002/nur.21555>
- [12] Benn T, Pfister G, Jawad H. *Muslim women and sport*. Routledge; 2010.
- [13] Ypinazar VA, Margolis SA. Delivering culturally sensitive care: The perceptions of older Arabian Gulf Arabs concerning religion, health, and disease. *Qualitative Health Research*. 2006; 16(6): 773-787. PMID:16760535 <https://doi.org/10.1177/1049732306288469>
- [14] Alzubaidi H, Mc Namara K, Browning C, et al. Barriers and enablers to healthcare access and use among Arabic-speaking and Caucasian English-speaking patients with type 2 diabetes mellitus: a qualitative comparative study. *BMJ Open*. Nov 17 2015; 5(11): e008687. PMID:26576809 <https://doi.org/10.1136/bmjopen-2015-008687>
- [15] Alzubaidi H, Mc Narmara K, Kilmartin GM, et al. The relationships between illness and treatment perceptions with adherence to diabetes self-care: A comparison between Arabic-speaking migrants and Caucasian English-speaking patients. *Diabetes Research and Clinical Practice*. Sep 11 2015. PMID:26415673 <https://doi.org/10.1016/j.diabres.2015.08.006>
- [16] Wayne PM, Manor B, Novak V, et al. A systems biology approach to studying Tai Chi, physiological complexity and healthy aging: design and rationale of a pragmatic randomized controlled trial. *Contemp Clin Trials*. Jan 2013; 34(1): 21-34. PMID:23026349 <https://doi.org/10.1016/j.cct.2012.09.006>
- [17] Li F, Harmer P. Economic Evaluation of a Tai Ji Quan Intervention to Reduce Falls in People With Parkinson Disease, Oregon, 2008-2011. *Preventing Chronic Disease*. 2015; 12: E120. PMID:26226067 <https://doi.org/10.5888/pcd12.140413>
- [18] Carande-Kulis V, Stevens JA, Florence CS, et al. A cost-benefit analysis of three older adult fall prevention interventions. *Journal of Safety Research*. Feb 2015; 52: 65-70. PMID:25662884 <https://doi.org/10.1016/j.jsr.2014.12.007>
- [19] Hobbs RD, Habib Z, Alromaihi D, et al. Severe vitamin D deficiency in Arab-American women living in Dearborn, Michigan. *Endocrine Practice*. 2009; 15(1): 35-40. PMID:19211395 <https://doi.org/10.4158/EP.15.1.35>
- [20] Manson J, Ritvo P, Ardem C, et al. Tai Chi's effects on health-related fitness of low-income older adults. *Can J Aging*. Sep 2013; 32(3): 270-7. PMID:23915817 <https://doi.org/10.1017/S0714980813000305>
- [21] Manson J, Rotondi M, Jamnik V, et al. Effect of tai chi on musculoskeletal health-related fitness and self-reported physical health changes in low income, multiple ethnicity mid to older adults. *BMC Geriatr*. 2013; 13: 114. PMID:24160867 <https://doi.org/10.1186/1471-2318-13-114>
- [22] Manson JD, Tamim H, Baker J. Barriers and promoters for enrollment to a community-based Tai Chi program for older, low-income, and ethnically diverse adults. *Journal of Applied Gerontology*. 2017;

- 36(5): 592-609. PMID:26224598 <https://doi.org/10.1177/0733464815597315>
- [23] Woods NF, Cochrane BB, LaCroix AZ, et al. Toward a positive aging phenotype for older women: observations from the women's health initiative. *J Gerontol A Biol Sci Med Sci*. Nov 2012; 67(11): 1191-6. PMID:22518819 <https://doi.org/10.1093/gerona/gls117>
- [24] Dogra S, Al-Sahab B, Manson J, et al. Aging expectations are associated with physical activity and health among older adults of low socioeconomic status. *J Aging Phys Act*. Apr 2015; 23(2): 180-6. PMID:24700305 <https://doi.org/10.1123/japa.2012-0337>
- [25] Yao L, Kridli SA. Cultural Sensitivity of a Community-Based Falls Prevention Program Targeting Older Arab American. *Open Journal of Nursing*. 2018; 8(11): 835-847. <https://doi.org/10.4236/ojn.2018.811063>
- [26] Crabtree BF, Miller WL. *Doing qualitative research*. Sage; 1999.
- [27] Gryffin PA, Chen WC, Chaney BH, et al. Facilitators and barriers to tai chi in an older adult community: a theory-driven Approach. *American Journal of Health Education*. 2015; 46(2): 109-118. <https://doi.org/10.1080/19325037.2014.999964>
- [28] Beaudreau SA. Qualitative variables associated with older adults' compliance in a tai chi group. *Clinical Gerontologist*. 2006; 30(1): 99-107. [https://doi.org/10.1300/J018v30n01\\_08](https://doi.org/10.1300/J018v30n01_08)
- [29] Balagopal P, Kamalamma N, Patel TG, et al. A community-based participatory diabetes prevention and management intervention in rural India using community health workers. *The Diabetes Educator*. 2012; 38(6): 822-834. PMID:23033123 <https://doi.org/10.1177/0145721712459890>
- [30] Fink D, Houston K. Implementing an evidence-based Tai Ji Quan program in a multicultural setting: a pilot dissemination project. *Journal of Sport and Health Science*. 2014; 3(1): 27-31. <https://doi.org/10.1016/j.jshs.2013.10.003>
- [31] Yosef A. Health beliefs, practice, and priorities for health care of Arab Muslims in the United States. *J Transcult Nurs*. 2008; 19(3): 284-91. PMID:18445762 <https://doi.org/10.1177/1043659608317450>
- [32] Devereux-Fitzgerald A, Powell R, Dewhurst A, et al. The acceptability of physical activity interventions to older adults: A systematic review and meta-synthesis. *Social Science & Medicine*. 2016; 158: 14-23. PMID:27104307 <https://doi.org/10.1016/j.socscimed.2016.04.006>
- [33] Yao L, Foley KT, Kolanowski AM, et al. Proto Tai Chi: In search of a promising group exercise for the frail elderly. *Geriatr Nurs*. Mar-Apr 2014; 35(2 Suppl): S21-6. PMID:24702715 <https://doi.org/10.1016/j.gerinurse.2014.02.021>
- [34] Kalter-Leibovici O, Younis-Zeidan N, Atamna A, et al. Lifestyle intervention in obese Arab women: a randomized controlled trial. *Arch Intern Med*. Jun 14 2010; 170(11): 970-6. PMID:20548010 <https://doi.org/10.1001/archinternmed.2010.103>
- [35] Pampati S, Alattar Z, Cordoba E, et al. Mental health outcomes among Arab refugees, immigrants, and US born Arab Americans in Southeast Michigan: a cross-sectional study. *BMC Psychiatry*. 2018; 18(1): 1-8. PMID:30514261 <https://doi.org/10.1186/s12888-018-1948-8>
- [36] Ayyash M, Ayyash M, Bahroloomi S, et al. Knowledge assessment and screening barriers for breast cancer in an Arab American Community in Dearborn, Michigan. *Journal of Community Health*. 2019; 44(5): 988-997. PMID:31055704 <https://doi.org/10.1007/s10900-019-00671-4>
- [37] Abuelezam NN, El-Sayed AM, Galea S. Arab American health in a racially charged US. *Am J Prev Med*. 2017; 52(6): 810-812. PMID:28413143 <https://doi.org/10.1016/j.amepre.2017.02.021>