

## BRIEF REPORT OPEN ACCESS

# An Outdoor Walking Program for Immigrant Muslim Older Adults: A Community-Based Participatory Intervention

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## ABSTRACT

**Aim:** To explore Muslim immigrant older adults' experiences of a modified community-based outdoor walking program and identify factors that facilitate or hinder program acceptance and participation.

**Design:** An exploratory qualitative description single-group pilot study was designed and implemented in three phases: (1) pre-intervention focus group interviews; (2) intervention implementation with tracking of physical activity levels using personal activity monitors; and (3) postintervention individual interviews.

**Methods:** Participants were recruited using a convenience sampling strategy in a mosque in Edmonton, Canada, in June 2019. After focus group discussions with participants, walking sessions were conducted for 10 weeks in a local accessible park with required amenities such as benches and restrooms. A fitness instructor delivered the weekly program that was followed by individual semistructured interviews to explore participants' satisfaction and program acceptance. Content analysis was used for qualitative data and sociodemographic, health and physical activity level (via step counts) data was documented for all participants.

**Results:** Thirteen participants with a mean age of 66.9 years completed the program. The majority of participants led a sedentary lifestyle. Participants identified three motivators that increased program satisfaction, which were socialising with peers, having a fitness instructor, and using Fitbit activity trackers. Difficulties with transportation and lack of appropriate educational components were areas for improvement that could enhance acceptability of the program.

**Conclusions:** This study suggests that early incorporation of older immigrants' preferences increases acceptance of physical activity programs.

**Implications:** Nurses' engaging in healthy lifestyle support for older immigrants can identify the influences on positive uptake of physical activity programs in this population.

**Impact:** Immigrant Muslim older adults lack access to evidence-based physical activity programming that meets their cultural and religious preferences. This study provides some insights into ways to engage this population in similar programs.

**Patient or Public Contribution:** Community-dwelling older adults who participated in this study completed focus groups and interviews and engaged in the 10-week pilot intervention. Their input informed the modifications to the intervention.

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## 1 | Introduction

Canada currently has the second highest percentage (21.9%) of foreign-born nationals in the world and soon immigrants will constitute 30% to 50% of Canada's ageing population with increasing numbers from African and Asian countries (Statistics Canada 2017). Despite the 'healthy immigrant effect', where immigrants have better health than the general population upon their arrival to the host country, physical activity (PA) levels in some immigrant communities remain low (O'Driscoll et al. 2014; Mahmood et al. 2019). Immigrant older adults from Muslim communities are a subpopulation that often face compounding and intersecting economic, social and structural barriers to PA (Salma and Salami 2018). Exploring PA programs that address these barriers and are acceptable and feasible within Muslim communities is one potential solution.

The types of PA programs preferred by immigrant older adults from Muslim communities has not been extensively explored (Ali et al. 2022). Muslim communities in Canada are culturally and linguistically diverse with varying migration histories and levels of acculturation (Statistics Canada 2017) and, hence, a 'one size fits all' approach to PA interventions is unlikely. Walking is suggested in some studies to be a preferred choice across diverse cultural groups (Victor 2018) and, for practicing Muslims, is an everyday activity that does not conflict with religious and cultural norms. Walking is, also, an effective, low cost and low-risk activity for older adults (Hanson and Jones 2015). Engaging marginalised or disadvantaged groups in walking PA programs has been a challenge (Rigby, Dodd-Reynolds, and Oliver 2020). There is a gap in the literature on how to effectively improve community PA among immigrant Muslim older adults and no studies were located on PA for this population (Ali et al. 2022). Identifying community-based PA interventions that are acceptable and feasible in this population is a much-needed area of research and a focus of this study.

## 2 | Study Purpose

A community-based participatory research study on healthy ageing in Edmonton, Alberta (2018–2019), identified PA as a key area of concern for older Muslims and stakeholders (Salma and Salami 2020). In response to this identified community concern, a partnership between the University of Alberta (Faculty of Nursing, Faculty of Public Health, and the Faculty of Kinesiology, Sports and Recreation) and a local Mosque that hosted a weekly seniors' program was formed to start an outdoor walking program over the spring and summer months of 2019. One of the coauthors was involved simultaneously with the Getting Older Adults Outdoors (GO-OUT) intervention that aims to increase outdoor mobility for older adults via an educational workshop and a 10-week outdoor walk group program (Salbach et al. 2019; Salbach et al. 2024; Barclay et al. 2023). The GO-OUT intervention has not specifically targeted immigrants but was deemed safe and feasible in supporting outdoor mobility for a sample of older adults from the general population (Barclay et al. 2018). Two key research questions were identified:

1. Is the GO-OUT intervention acceptable to immigrant Muslim older adults?
2. What are the barriers and facilitators of implementing this intervention for immigrant Muslim older adults?

## 3 | Methods

A qualitative description design (Sandelowski 2010) was used to inform the design and evaluate the acceptability and feasibility of the program from participants' perspectives. A socioecological model (Bammann et al. 2021) was the guiding framework to conceptualise the barriers and facilitators that influenced participation in the walking program. Convenience sampling was used where regular attendees at a seniors' social program in an urban mosque were approached for participation in the study. A brief presentation was provided about the walking program during a group meeting at the Mosque and willing participants were asked to sign up with the mosque coordinator who then forwarded contact information to the research team. Inclusion criteria were individuals who were older adults (age  $\geq 55$  years) with self-reported difficulty walking in the outdoor community environment and an interest in attending the 10-week program. Eligible participants needed to be independent walkers with or without assistive devices. Exclusion criteria included receiving therapy to improve mobility, at high falls risk, and having a medical condition that precludes participating in a group exercise class. Ethics approval was received from the University of Alberta Research Ethics Office, and written informed consent was obtained from all participants.

### 3.1 | Pre- and Postintervention Data Collection

Older adults' preferences and experiences can increase the acceptability of an intervention (Brach et al. 2016) and, hence, their input informed adaptations to the GO-OUT intervention. Two focus groups (6–8 participants in each; total 13 participants) were conducted to evaluate the needs and preferences of the group. The focus groups occurred over one hour at a mosque where they attended their weekly social program and were transcribed verbatim. The focus groups identified preferences for walking locations, times, cultural guidelines and past experiences and comfort with exercise. One to three weeks post intervention, individual interviews were conducted with participants and the walking group instructor to explore satisfaction and feasibility. Participants were interviewed at home, with the aid of an interpreter and audio-recorded interviews lasted on average 30 minutes. Interview guides were used for data collection (Table 1) led by the first author who has expertise in qualitative methods and working with immigrant older adults. A community member and a graduate student were available to interpret for participants in the group who were not fluent in English. We viewed the interpreters as coresearchers in the data collection and analysis process, providing contextual and cultural insights into participants' concerns (Croot, Lees, and Grant 2011).

### 3.2 | Intervention Implementation

The GO-OUT intervention Salbach et al. (2024); Barclay et al. (2023); Salbach et al. (2019) was adapted for this study. The first

**TABLE 1** | Focus group and interview guide sample questions.

| Focus group questions (preprogram)   | Interview questions (postprogram)   |
|--|---|
| <ul style="list-style-type: none"> <li>• What types of exercise programs have you participated in the past?</li> <li>• What would motivate you to participate in an exercise program?</li> <li>• What are some barriers or challenges you might have in participating in the program?</li> <li>• Are there specific requests/features you might like to see in an exercise program?</li> </ul> | <ul style="list-style-type: none"> <li>• You have participated/helped facilitate a 10-week walking program, what has this experience been like for you?</li> <li>• Can you describe, if any, the impact participating in this program had on your daily life?</li> <li>• Can you describe some of the challenges/facilitators you experienced with participating in this program?</li> <li>• Can you describe your plans for walking outdoors in the future after participating in this program?</li> <li>• If we could implement this program long-term at the mosque, what are some of the changes you would like to see? What would you like to keep as is?</li> </ul> |

phase of the intervention was a one-day educational workshop that preceded the walking program. During the workshop, participants circulated in small groups to eight interactive stations covering the following topics: Canadian physical activity guidelines for older adults; goal setting; Nordic pole walking; footcare, footwear, proper walking pattern and use of walking aids; fall prevention; exercising safety including monitoring exercise intensity; and postural awareness and balance exercises (see Salbach et al. 2019 for details). Participants received an educational workbook in English, but diagrams and photographs helped participants follow along in the workshop. Although the workshop for the GO-OUT program included instruction on use of a pedometer, we revised this section to discuss the use of a personal activity monitor (FitBit Alta) to monitor PA levels. This is a slim lightweight wristband that uses triaxial accelerometry to calculate step counts, energy expenditure, METS (metabolic equivalent of tasks), distance travelled, sleep and time spent in different activity intensities (Fitbit Inc. 2013). Participants were asked to wear Fitbits during their waking hours starting one week before the intervention to one week after the intervention. Physical activity data were downloaded from [Fitbit.com](https://www.fitbit.com)'s Dashboard and were often reviewed with each participant before the weekly session began. A small number had sufficient digital literacy to download the application on their smartphone and monitor their progression independently. A physiotherapist and two Registered Nurses (fluent in Arabic and Urdu), who identified as women, led the workshop at the local mosque.

The second phase of the intervention was a progressive, task-specific group outdoor walking program where participants engaged in walking sessions in a local park once per week over 10 weeks. A key difference from the GO-OUT protocol was that walking sessions in the original study occurred twice per week (Salbach et al. 2019). Each session included a 10-min warm-up, a continuous distance walk, task-oriented practice of an outdoor walking skill (e.g., walking at different speeds, over varied terrains, uphill and downhill), a second continuous distance walk, and a 10-min cool down. The warm up and cool down included stretching, functional strengthening exercises and balance exercises. The variety and challenge of walking activities were progressively increased (e.g., walking farther, carrying objects and navigating slopes/uneven surfaces). A public park with access to rest places and public washrooms and with a variety of walking terrains was chosen. The fitness instructor was a health professional with the expertise in delivering group PA programs and with cardiopulmonary resuscitation (CPR) certification.

### 3.3 | Qualitative Data Analysis

All interviews and focus groups were audio-recorded and transcribed verbatim followed by inductive content analysis using the Nvivo 12 qualitative software (Vaismoradi, Turunen, and Bondas 2013). The first author and an Urdu-speaking graduate student analysed the data together in co-working sessions and came to an agreement on key findings. Some audio recordings were in Urdu and required the graduate student to conduct initial analysis by reading and extracting relevant data in Urdu to not lose cultural and linguistic nuances, then translate quote exemplars that were deemed relevant to English and have these quotes validated for conceptual equivalence by another Urdu-speaking graduate student. Conceptual equivalence is often used for cross-language qualitative translations and is defined as the achievement of equivalence of meaning from a source language to a target language (Croot, Lees, and Grant 2011). The first author and project lead and the graduate student conducting the interviews were cultural insiders to the participating community and the first author had conducted health research with immigrant communities for five years prior to this study. The preliminary study findings were shared with the research team and input was solicited; this strengthened analysis as the research team included a public health scientist, a physiotherapist, the seniors' group lead and a fitness instructor who shared a cultural background with participants.

## 4 | Results

A convenience sample of 13 Muslim older immigrants (Table 2) participated in this pilot study between 24 July 2019 and 21 September 2019. Muslim older adults who participated in the pilot study were of 55–85 years of age, with varying levels of English-language fluency, income and education. Predominant regions of origin for immigrants were the Middle East/North Africa, South Asia and East Africa. Of the 13 participants, the mean age was 66.9 years and 85% ( $n = 11$ ) were female. The group was comprised of nonsmokers and the most common chronic conditions reported by study participants were hypertension, arthritis and diabetes. All participants ambulated independently; however, two participants used a cane. The majority of participants participated in some summer walking but were categorised as sedentary or low-active at the time of initiation of the intervention. The classification of active levels was categorised as walking fewer than 5000 steps/day equals sedentary lifestyle, 5000–7499 steps/day being

**TABLE 2** | Demographic table.

| Health & social demographics         |      | <i>n</i> = 13 |
|--------------------------------------|------|---------------|
| Age (years), mean                    | 66.9 |               |
| Health & social demographics         |      | <i>n</i> %    |
| Gender, female                       | 11   | 85            |
| Marital status                       |      |               |
| Single, divorced, separated, widowed | 10   | 80            |
| Married                              | 3    | 20            |
| Education                            |      |               |
| Less than primary school             | 2    | 15            |
| Completed primary school             | 1    | 8             |
| Completed secondary school           | 3    | 23            |
| Completed university                 | 6    | 46            |
| Graduate studies                     | 1    | 8             |
| Employment                           |      |               |
| Employed outside of home             | 4    | 31            |
| Financial status                     |      |               |
| Some money left over                 | 6    | 50            |
| Not enough for ends meet             | 1    | 8             |
| Just enough for ends meet            | 5    | 42            |
| Caregiving Roles                     |      |               |
| Primary caregiver                    | 2    | 15            |
| Lifestyle behaviour                  |      |               |
| Smoking status                       |      |               |
| Current smoker                       | 0    | 0             |
| Former smoker                        | 3    | 23            |
| Never smoked                         | 10   | 77            |
| Physical activity                    |      |               |
| Summer walking frequency             |      |               |
| 3 days/week                          | 3    | 23            |
| 4 days/week                          | 1    | 8             |
| 6 days/week                          | 2    | 15            |
| Daily                                | 5    | 38            |
| None                                 | 1    | 8             |
| Not disclosed                        | 1    | 8             |
| Assistive walking device             |      |               |
| None                                 | 11   | 85            |
| Cane                                 | 2    | 15            |
| Health conditions                    |      |               |
| Hypertension                         | 5    | 38            |
| Arthritis                            | 5    | 38            |
| Diabetes                             | 3    | 31            |

low active, 7500–9999 steps/day moderately active, and 10,000 steps/day very active (Tudor-Locke and Bassett Jr. 2004).

Generally, the overall satisfaction with the program was high with attendance consistently above 90%. The following quotes reflect participants' overall satisfaction with the program: 'I will motivate and ask other people to come and join this program' (woman, participant 110) and 'This program was very beneficial for me, I was very lazy and did not go for walks but after this program, I walk for minimum 45 minutes per day in the backyard'. (woman, participant 111). The fitness instructor implemented the intervention consistently without major changes beyond moving to once/week instead of twice/week sessions. Participants were asked about satisfaction, acceptance and factors that would enhance the feasibility of the program in their community (see supplemental material for quote exemplars by participants). Two key motivating elements in the program are explored in detail below: (a) The social dimension of the program and group characteristics, and (b) the use of Fitbits to track weekly activity. We also explore key constraints on the future feasibility of the program.

#### 4.1 | Acceptability of Activity Tracking Devices

Step count data were recorded for 12 of the 13 participants who consistently wore their Fitbit during waking hours. Data were uploaded for nine weeks only. For one of the 10 weeks, the walking session was cancelled due to a summer storm. Since weekly sessions in the park was the place for Fitbit data to be synched with the online dashboard, the data for that week were not captured. Unfortunately, majority of older adults in this group did not have the digital literacy skills and/or the technology devices to do this independently. Overall, participants were consistent in wearing the Fitbits during the week, pointing to the feasibility of using wearable technologies in future studies to collect data but, also, increase motivation as described below in the interviews: 'The walking is very important for my diabetes and after wearing this Fitbit I got some motivation to walk' (woman, participant 105) and 'I first started walking by myself because of this Fitbit. This was like my friend who was monitoring me throughout'. (woman, participant 114). Participants were observed comparing weekly step counts during their walking sessions, which developed into a friendly competition for some. The researchers, also, noted some apprehension when the Fitbits were not working properly as demonstrated in calls to the research assistant to troubleshoot during the week or asking for assistance during the park meetings. Some difficulties were identified with using these devices such as the dexterity needed to secure the wrist strap, the need for it to be waterproof for the religious purpose of performing ablution for daily prayers (Muslims often pray five times per day and might perform ablution for each prayer), or the ease of uploading and viewing information to the Fitbit dashboard.

#### 4.2 | Social Motivators of Participation

Participants emphasised consistently that the social dimension of the program was a strong motivating factor. Providing space and time for socialisation, using trainers and volunteers who were fluent in participants' languages and who had insider



cultural knowledge, and calling participants before each session to encourage participation were key adaptations. Connecting with peers in a safe environment, which was culturally and religiously sensitive, was deemed essential for motivation to persist in the program as stated in the following examples given by older women and men: ‘Walking itself is a pleasant thing particularly in the company of others...Mini companionship was the thing which was the major attraction for me’. (man, participant 104), ‘sitting alone on your own doesn’t make one walk’ (woman, participant 105), and ‘If you go walking alone it’s hard if you go with a company you feel the enjoyment and time passes quickly’ (woman, participant 109). The research team ensured that there was time before and after the program for participants to socialise with healthy snacks, including hosting a celebratory barbeque event at the end of the 10-week program. Participants were mostly from the same ethnocultural community, spoke the same language and attended the same local mosque. The common social, cultural and religious ties increased motivation to attend and facilitated comfort during the sessions.

The preference for gender-specific activities was emphasised by some participants who were observant Muslims, dressed modestly and did not want to have close interactions with the opposite gender: ‘It didn’t make a difference what ethnic group or religion the other participants were. She does prefer a lady’s group’ (Translator for participant 105). Other participants attended with their spouses or stated that they were able to maintain expectations of modesty while walking. Walking is flexible in terms of dress code, men and women were still able to walk in separate groups at a distance from each other. Men tended to walk together in a group, leaving some distance, behind the women who followed the fitness instructor.

- Interviewer:** Do you feel shy talking to men and exercising with them?
- Participant 1:** They are brothers.
- Participant 4:** A little.
- Participant 1:** A little, but we have hijab (head covering) on. (women, FG1).

### 4.3 | Constraints on Feasibility of Intervention

Three constraints that would limit future feasibility of this intervention were identified during team observations of the study sessions and interviews with participants. The walking program commenced once per week as initial discussions with participants identified challenges with committing to biweekly sessions due to transportation issues, and this challenge remained even after participants requested more than one session/week. The walking program was designed to occur in a park with particular features to enhance the safety, comfort and feasibility of implementing the intervention. Transportation difficulties and the lack of park spaces where some participants lived was a major limitation. Taking a taxi or other seniors driving services was costly or participants were unfamiliar with ways to access these services. Ride-sharing were used by some participants, while one participant dropped out after two sessions due to transportation issues:

It depends on the weather condition, sometimes we can’t even arrive there...its very hard for me to drive.  
(Participant, man, FG1)

The lack of PA literacy was, also, identified as a potential barrier to participate in the walking program. Participants required more awareness and education about PA, its benefits for older adults, ways to manage pain during PA, and required levels of PA for them given their age and other physical limitations beyond the one-day workshop at the beginning of the program and tailored to the knowledge gaps of the target population. Culturally specific dimensions for education include ways to safely engage in PA while fasting and modest dress options for PA while still avoiding overheating. Some participants were observing the Islamic ritual of fasting from food and drink during some of the walking sessions.

We need to do more group sessions every week after the class to talk about this (physical activity literacy)... formal education with a translator in a group setting...  
(woman, participant 115)

Overall, potential future adaptations to the GO-OUT intervention for Muslim older immigrants should include time and space for socialisation, culturally relevant PA literacy tools, and creative solutions to transportation barriers.

## 5 | Discussion

This community-based initiative highlights some key factors that may increase the acceptability and feasibility of a walking program in community-dwelling immigrant Muslim older adults. The social environment of the group intervention was shown to be a key motivating factor. The opportunity for social interaction and enjoyment were also reported by participants in the original GO-OUT Study as increasing motivation to walk (Salbach et al. 2024). Enjoyment, opportunities for friendship and a sense of belonging have been reported to influence participation in PA interventions (Costas-Bradstreet and Spence 2021; Zubala et al. 2017). This was exemplified by refreshments and nutritious snacks shared at the end of each session. This group was not gender-segregated, in the post-intervention interviews, most participants found the mixed-gender environment acceptable as outdoor walking was seen as an activity that allowed women to maintain their modesty and men their dignity. Other studies with Muslim populations have identified the need for gender-segregated spaces in gyms and swimming (Abdulwasi et al. 2018; El Masri, Kolt, and George 2021), but this might not apply to walking outdoors. It is possible that the option to attend walking sessions with spouses or family caregivers from opposite genders would facilitate participation, especially since transportation barriers were a major hurdle in this study.

An unexpected motivating factor was the use of Fitbits where participants reported increased motivation to walk outside the designated weekly one-hour group session. Other studies on consumer wearable activity trackers show increased PA in the general population (Franssen et al. 2020) and in older adults (Cooper et al. 2018), which warrants further exploration of the

opportunities for wearable technologies to increase PA in older adults from diverse ethnocultural groups. Further exploration of user-friendly wearable technologies for older adults who might have low digital literacy will be required to maximise the benefits of using such devices.

Having research assistants and a fitness instructor that spoke a common language with participants was imperative to increasing a sense of comfort with the program. Language and cultural barriers are regarded as critical to accessing and utilising PA programs among older immigrants (Abdulwasi et al. 2018; El Masri, Kolt, and George 2021). It is notable that this was a convenience sample of motivated older adults who had voiced interest in participating in the program and had positive perceptions of PA in the preprogram focus groups. Expanding this study to less motivated older adults might involve additional considerations for acceptability and feasibility. For example, South Asians have reported negative perceptions of PA seeing it as unnecessary or having harmful effects (Koshoedo et al. 2015), which warrants nurses and other healthcare professionals attend to beliefs around PA when making lifestyle recommendations. The original GO-OUT study showed improvements in older adults' walking capacity (specifically walking self-efficacy) and increased walking speed and distance achieved during walking sessions that supports the implementation of outdoor walking programs in community settings (Salbach et al. 2024). Considering the preferences and needs of older immigrants in similar community-based walking programs is important to improve outdoor mobility in this population.

## 6 | Conclusion

This project points to some strategies that can increase participation in outdoor walking programs. Nurses supporting immigrant older adults can explore the use of wearable technologies and programs with strong social components as motivators for adoption of positive lifestyle behaviours.

### Author Contributions

All authors collaborated on conceptualisation of the project and related research activities. Jordana Salma, Shelby Yamamoto, and Allyson Jones led investigation and data curation. Jordana Salma completed data analysis. Nancy M Salbach and Ruth Barclay were responsible for methodology and resources (intervention design and material). Jordana Salma wrote the original draft, and all authors completed editing and revisions of subsequent drafts.

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### Conflicts of Interest

The authors declare no conflicts of interest.

### Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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## Supporting Information

Additional supporting information can be found online in the Supporting Information section.