

# The Utility of Physician Referred Outdoor Physical Activity for South Asian Women

A partnership between University of the Fraser Valley (CHASI Hub), Divisions of Family Practice and the City of Abbotsford Parks, Recreation and Culture

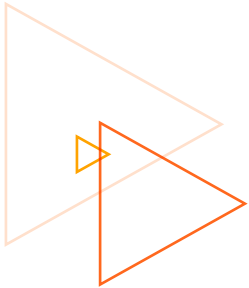
## Introduction

In Canada, South Asians are the largest and fastest growing immigrant population increasing by 35% between 2001 and 2006. By 2031 it is expected that the Canadian South Asian population will reach 3.6 million. The Abbotsford metropolitan area has the highest population of ethnic South Asians in Canada. When compared to other Canadian ethnic groups, Canadian South Asians have higher cardio-metabolic risk factors (Anand et al., 2000) (such as dyslipidemia and impaired fasting glucose) which have been demonstrated to lead to a disproportionately higher burden of T2D (Garduno-Diaz and Khokhar, 2011) and CVD (Yusuf et al., 2001, Joshi et al., 2007). Immigrants in Canada from South Asia have a 3 to 4 times greater risk for development of T2D when compared to immigrants from Western countries (Creatore et al., 2010) and a recent review of fifty Canadian studies suggests 2.25 greater odds of T2D in South Asians compared to Caucasians (Rana et al., 2014). In addition, the onset of T2D occurs at a younger age (5-10 years earlier), increasing the likelihood of associated complications such as CVD (Mather et al., 1998) and South Asians with T2D have an increased likelihood of mortality compared to Europeans (Swerdlow et al., 2004). The mechanisms behind the elevated prevalence of T2D in South Asians is diverse but biologic factors

such as central adiposity and insulin resistance, impaired beta cell function and genetic predisposition are all potential contributors (Hu, 2011).

South Asian immigrants report lower levels of physical activity than Europeans in New Zealand, the United Kingdom and Canada (Kolt et al., 2007, Fischbacher, Hunt & Alexander 2005, Liu et al., 2010, Williams et al., 2011). For instance, in Canada, 62.8% of South Asians reported being physically inactive, the highest of any other ethnic group in Canada, compared to 50.3% of Caucasians (Liu et al., 2010). The health survey for England found that Indian, Pakistani and Bangladeshi men were 12%, 30% and 45% less likely, respectively, to meet physical activity guidelines when compared to the general population (Fischbacher, Hunt & Alexander 2004). This is a concern because low levels of physical activity may explain over 20% of the excess CVD mortality in South Asians, making physical inactivity a strong contributor to mortality (Williams et al., 2011). Physical inactivity may therefore be a key target for intervention.

South Asian women are even less likely to participate in physical activity than South Asian men (Daniel, Wilbur 2011). Measurements of physical activity by accelerometry in South Asian women in the United Kingdom found 65% of old-





We have previously found that compared to Europeans, South Asians reported that they were less comfortable attending a fitness/gym centre and were more likely to state that they do not have access to appropriate equipment for exercise. In addition, our community partners have confirmed the need for physical activity programs targeted to South Asians to take into account these cultural issues. To raise levels of physical activity among South Asians in Canada, it is important to promote alternative culturally-appropriate types of physical activity that may be more acceptable and familiar to South Asians than are conventional standard exercise activities; this may then improve adherence to a physically active lifestyle.

er South Asian women were failing to meet physical activity guidelines (Curry, Thompson, 2014). The reasons for low physical activity participation rates may have their roots in South Asian culture as physical activity is not a part of daily routine (Khanam, Costarelli 2008) with language, religious beliefs and cultural practices as barriers to physical activity uptake. Primary barriers to physical activity in South Asian women in Canada are reported as lack of time due to work and family, and lack of motivation (Caperchione et al., 2013) while South Asian women in the United Kingdom report facilitators such as exercising in a social setting, and having a role model as well as individual goal setting (Jepson et al., 2012; Horne et al., 2013). It is therefore necessary to account for cultural preferences if promoting physical activity in the South Asian population (Lawton et al., 2006) and this may require innovative thinking in order to increase the likelihood of physical activity uptake and maintenance (Mundra et al., 2012).

Lifelong participation in physical activity results in numerous health benefits and has been shown to provide primary and secondary prevention for over 25 health conditions (Warburton et al., 2010). Regular physical activity is recommended for the prevention and management of obesity and its associated risks such as T2D and CVD, and in particular, these recommendations stress the importance of physical activity to reduce abdominal obesity to manage risk (Despres et al., 2008b, Despres et al., 2009, Haskell et al., 2007). Global recommendations by the World Health Organization for physical activity suggest people should attain 150 minutes per week of moderate-intensity aerobic physical activity or 75 minutes of vigorous-intensity physical activity or an equivalent combination. For additional health benefits, adults are encouraged to increase their moderate-intensity

aerobic physical activity to 300 minutes per week or 150 minutes of vigorous-intensity physical activity or an equivalent combination (World Health Organization Guidelines, 2010).

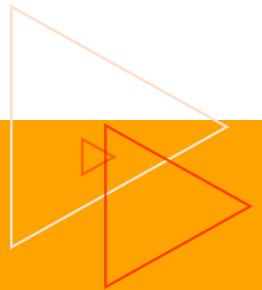
Additionally, there are many benefits to engaging in physical activity in an outdoor environment. Emerging evidence points to a synergistic relationship between the psychological benefits of physical activity and the restorative effects of exposure to nature. (Mitchell, 2013). Evidence supports that both physical activity and exposure to natural environments can greatly impact a person's psychological well-being by enhancing a person's mood, self-esteem, positive emotions, attentional and cognitive capacities, and reducing stress and anxiety (Mackay & Neill, 2010; Lawton et al., 2017). Outdoor physical activity appears to be a promising opportunity within the practice of safe physical distancing, as we are forced to adapt to a new normal in health care and safety. In our study examining physical activity behavior and well-being since the onset of COVID-19 restrictions in Canada, we found a strong association between anx-

iety and the amount of outdoor physical activity in both active and inactive populations. In the same study, we found that participants with flourishing mental health indicated greater nature relatedness than those with lower mental health, and active participants reported greater connectedness and relatedness to nature than the inactive population. Therefore, how much one is connected or appreciates the natural environment interrelates with their mental well-being (Lesser and Nienhuis, 2020).

Physician involvement is another crucial aspect when connecting hard to reach patients with exercise programs. Physicians meet with patients on a regular basis and can easily assess who can benefit from physical activity. Research indicates that most patients trust their healthcare provider (Sohal et al., 2015) and so with the help of physicians, South Asian women may be more receptive to physical activity programming. Connecting physicians with local initiatives and kinesiology experts may, to a certain extent, help bridge the gap that exists between physicians and patients needing physical activity.

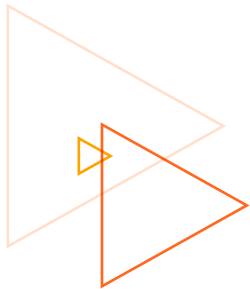
## Objectives

The goal of this project is to elucidate the importance of the physician referral for exercise programming in engaging South Asian female patients who would benefit from lifestyle changes. The main outcome of this study will be the adherence to an outdoor physical activity program offered to South Asian females and instructed by a South Asian female, 3 times per week for 8 weeks.



## Methods

Primary care physicians contacted by the Divisions of Family Practice will be asked to refer patients who they believe would benefit from exercise programming to an outdoor physical activity program 3 times per week for 8 weeks. Patients must be considered low risk, female and South Asian and willing and able to attend an outdoor physical activity program on Mondays, Wednesdays, and Fridays from 5:30 to 6:15. Prior to enrolling in the program patients will complete an informed consent and the Get Active questionnaire with their primary care physician.



## The program

Attendance will be taken based on the enrolled participant list at every offered exercise session in order to assess adherence. The program will be conducted at Ellwood park, an outdoor location in central Abbotsford easily accessible by public transit and central to where a large number of the South Asian community lives. The location will additionally be chosen for safety and comfort level of participants. The instructor will be a graduating kinesiology student with previous experience in conducting exercise sessions for this population under the supervision of Dr. Iris Lesser at the University of the Fraser Valley. The program will involve cardiorespiratory, musculoskeletal and flexibility exercises for a 45-minute period of time. Classes will occur from 5:30 to 6:15 three times per week. Due to COVID-19 and associated restrictions participants are required to maintain 6 feet of physical distancing at all times during the exercise program and are provided masks if desired.

## Results

Three medical clinics with a large South Asian patient population were invited to recruit patients for this program. Specifically, physicians Dr. Tristan Kooner, Dr. Harleen Bhatti and Grover and Grover Medical Clinic referred appropriate patients into the program. The program commenced in late July and ran for 8 weeks into September with some cancellations due to air quality advisories or low patient attendance. Overall approximately 11 South Asian women sporadically attended the exercise program with approximately 4 at each exercise session. Sessions attended by participants range from 1 to 11. The average number of sessions attended was 5.45 out of a possible 17. This translates to an average attendance percentage of 32.09%.

Seven participants completed pre-intake questionnaires that were translated into Punjabi. Participant ages ranged from 27 to 54 with an average age of 42. Three participants reported hypertension, three participants reported type 2 diabetes and three participants reported depression with the majority having multiple comorbidities. Average score on the perceived stress scale was a 20 which translates to a moderate stress level. Average exercise self-efficacy score was 15 which translates into a low level of exercise self-efficacy (scoring criterion ranging from 0 to 100 with higher scores indicating higher exercise self-efficacy). In addition to health conditions that would be improved through regular physical activity, this population of South Asian women are experiencing moderate levels of stress and very low levels of exercise self-efficacy suggesting that greater educational opportunities for physical activity are needed in this community.

## Declarations

Ethics approval was granted by the University of the Fraser Valley Human Research Ethics Board and all patients provided written informed consent. Funding for this project was provided by the Community Health and Social Innovation Lab at the University of the Fraser Valley.

## Acknowledgements

The authors would like to thank the participants, the physicians, Divisions of Family Practice, the City of Abbotsford Parks, Recreation and Culture and the University of the Fraser Valley CHASI lab for their engagement in this project.

## Challenges

There were a number of expected as well as unexpected challenges in running this program in the summer of 2020. First and foremost, this program was designed to run during COVID-19 in order to improve physical activity engagement in this population in a safe manner when outdoor exercise was advised and indoor exercise was restricted due to safety concerns. However, challenges of implementing this program during COVID-19 was the manner in which patients were referred to the program. While physician referral is the basis for this project, it was also a noted challenge during the pandemic as fewer patients were going to medical clinics and a greater number of physician visits were done online or by phone which limited the face to face physician/patient rapport and opportunity to recruit patients. This resulted in a small sample size to begin the program in July with other noted challenges of adherence due to the pandemic. For instance, participants who travelled outside of Canada or to the east coast during the summer would be required to self isolate for 2 weeks upon return and would be unable to attend the exercise sessions. Lastly, wildfire smoke from the western states resulted in unhealthy air quality in mid September and outdoor exercise was restricted.

## Future Opportunities

Given the physician and community interest in providing physical activity opportunities to South Asian women there is a large potential for future projects assessing the impact of physician referral for physical activity in this population. Previous qualitative interviews conducted by Navdeep Rai found the physician recruitment to be an important role in patients signing up for the program as well as the importance of cultural relevancy and female-only groups in the comfort and enjoyment of the exercise sessions. In addition, low reported exercise self-efficacy and moderate reported stress levels suggest that this population would benefit from culturally specific physical activity programming. With a larger time-slot for recruitment and greater referral pathways there is opportunity to more robustly assess not just adherence to outdoor physical activity but broader health outcomes as well.

