2013, Vol. 4, No. 3

Revue phénEPS / PHEnex Journal

Physical Activity Among Female Adolescents: Shared and Ethno-cultural Barriers

L'activité physique d'adolescentes : Examen des obstacles communs à deux groupes ethniques et spécifiques à leur ethnie

John J.M. Dwyer
University of Guelph

Kathi Wilson
University of Toronto Mississauga

Lisa Limarzi, BES and Brenda Callaghan
Get Active Mississauga

Leslie Croskery
Queen's University

Abstract

To understand the factors that shape inactivity, this research focused on identifying barriers to physical activity among female inactive adolescents (aged 13-17 years) of Indian and Polish origin living in Mississauga, Ontario. In 2008, 10 focus groups sessions were held with Indian (n=42) and Polish (n=45) inactive female adolescents. The focus group questions were designed to identify barriers to physical activity common to Indian and Polish female adolescents but also culturally-specific barriers. The results revealed three shared barriers: time constraints, perceived incompetence, and inaccessibility (economic and geographic). Also, there were culturally-specific barriers to physical activity. Among Polish participants, these barriers related to cultural commitments, whereas Indian participants identified concerns over skin exposure, traditional gender roles, and discrimination. Recommendations will be disseminated to local community partners to provide evidence that will inform programs related to increasing rates of physical activity in the City of Mississauga.

Résume

Pour mieux comprendre les facteurs qui sous-tendent l'inactivité physique, les auteurs de l'étude ont tenté de cerner les obstacles qui semblaient empêcher un groupe d'adolescentes inactives (de 13 à 17 ans) d'origine indienne et d'origine polonaise de Mississauga, en Ontario, de s'adonner à l'activité physique. En 2008, 10 groupes de consultation composés d'adolescentes inactives d'origine indienne (n=42) et d'origine polonaise (n=45) ont été constitués. Les questions formulées aux fins des consultations avaient pour objet d'identifier les obstacles communs à ces

deux groupes ethniques qui les détournaient de la pratique d'activités physiques, ainsi que les obstacles spécifiques à leur ethnie. Les résultats ont fait ressortir trois obstacles communs, soit les contraintes temporelles, la perception d'incompétence et l'inaccessibilité (économique et géographique), et divers obstacles de nature culturelle. Chez les adolescentes d'origine polonaise, ces obstacles avaient surtout trait à des engagements culturels. Chez les adolescentes d'origine indienne, les obstacles étaient plutôt associés à la crainte d'exposer trop de peau, aux rôles traditionnels de chaque sexe et à la discrimination. Les recommandations seront acheminées à divers partenaires communautaires locaux. Ces derniers pourront puiser aux données probantes de l'étude pour concevoir des politiques et des programmes visant à accroître le taux de pratique d'activités physiques dans la ville de Mississauga.

Introduction

Increasing physical activity is an important public health priority (Centers for Disease Control and Prevention, 2011; Health Canada, 2011; World Health Organization, 2012). Following the Canadian federal government's release of the Canadian Sport Policy and the more recent Healthy Living Strategy, the Ontario government created the Active2010 strategy in 2005 to increase participation in sport and physical activity across Ontario (Ontario Ministry of Health Promotion, 2005). The main objective of the Active2010 strategy is to increase participation such that at least 55% of Ontarians are physically active (Ontario Ministry of Health Promotion, 2005). The Active2010 strategy spurred the development of Get Active Mississauga, a community development tool involving a number of organizations working together to promote daily physical activity for health benefits (City of Mississauga, 2011). Lead organizations for Get Active Mississauga are the Mississauga YMCA and the City of Mississauga. The main objective of Get Active Mississauga is to identify the barriers to participation in physical activity of various target populations as an initial step in developing and implementing community initiatives aimed at increasing physical activity for these target populations (City of Mississauga, 2011). In working towards this objective, Get Active Mississauga partnered with researchers from the University of Toronto Mississauga and the University of Guelph to understand barriers to physical activity among these target populations. These partners chose to explore the extent to which female adolescents face general and ethno-cultural barriers to physical activity, which is the focus of this paper.

The study concentrated on barriers experienced by female adolescents, and more specifically of female adolescents of Indian and Polish origin living in Mississauga for several reasons. First, at the time that Get Active Mississauga identified and determined the need for this research, census data showed that individuals from India and Poland represented the largest ethno-cultural groups in the city. Second, focusing on female adolescents is a priority because research has shown a decline in physical activity during adolescence among females (Allison, Adlaf, Dwyer, Lysy, & Irving, 2007; Findlay, Garner, & Kohen, 2009; Irving et al., 2003; Nader, Bradley, Houts, McRitchie, & O'Brien, 2008; Pate et al., 2009, 2010; Thompson et al., 2009; Troiano et al., 2008). This situation is concerning since adolescent participation in physical activity predicts, in some instances, physical activity levels during adulthood (Hallal, Victora, Azevedo, & Wells, 2006). Research has also demonstrated that female adolescents are less active than male adolescents and thus constitute a priority target population (Loucaides, Plotnikoff, & Bercovitz, 2007; Nader, Bradley, Houts, McRitchie, & O'Brien, 2008; Pearson, Atkin, Biddle, Gorely, & Edwardson, 2009; Sallis, 2000; Thompson et al., 2009). Canadian

Community Health Survey (CCHS) data show female and male adolescents differ in physical inactivity (see Table 1). For example, in 2005, 30% of females aged 12-14 years and 35% of females aged 15-17 years were inactive (as measured by total daily energy expenditure during leisure-time activities in the past three months) compared to only 20% of males aged 12-14 and 22% of males aged 15-17 years (Statistics Canada, 2005). More recent data from the 2010 CCHS show that male adolescents have higher levels of physical activity than their female counterparts. Specifically, 41% of females aged 12-14 and 15-17 were classified as active compared to 58% of males aged 12-14 and 54% of males aged 15-17 (Statistics Canada, 2010).

Table 1
Prevalence of Physical Inactivity or Physical Activity Among Adolescents, 2005 and 2010 CCHS

Group	Inactive (2005)	Active (2010)
Females		
12-14 years old	30%	41%
15-17 years old	35%	41%
Males		
12-14 years old	20%	58%
15-17 years old	22%	54%
Visible minority females		
12-14 years old	37%	
15-17 years old	41%	
Non-visible minority females		
12-14 years old	28%	
15-17 years old	33%	

Barriers to Physical Activity

Barriers to physical activity are personal, social, and situational/structural impediments or challenges to participating in physical activity (Bandura, 1997). Previous focus group research has shown that female adolescents face key barriers to physical activity. For example, female adolescents in the U.S. reported having insufficient and poor quality physical education, watching too much television, playing too many video games, and spending too much time on a computer as such barriers (Goh et al., 2009). Goh et al. (2009) also found that inaccessible community programs, unsafe neighbourhoods, discomfort with changing in locker rooms, and lacking motivation represent key barriers. In another U.S. study (Halyk, Brittain, Dinger, Taylor, & Shephard, 2010), 12-14 year old females who did not engage in at least 60 minutes of moderate to vigorous physical activity daily reported their perceived barriers to physical activity. The most frequently reported barriers among the participants, who were mostly white, were increased homework and commitment to extracurricular activities in high school, concern about safety in the community, lack of motivation, mean sports coaches and teammates, and preference to spend time with friends in sedentary activities.

Research conducted in New Zealand found that female adolescents identified factors such as a sedentariness e.g., preferred television and passive transportation), unsupportive friends, perceived incompetence, being self-conscious about others watching, facilities and equipment

not being available or accessible, unsafe neighbourhoods (e.g., gangs), lacking motivation, and lack of time as key barriers (Hohepa, Schofield, & Kolt, 2006).

Canadian research has shown that lack of time (due to homework, part-time job, and family responsibilities), screen time use, unsupportive parents and friends, inaccessible facilities, concern about safety (e.g., gangs), competition, and body-centered concerns (e.g., self-conscious about their physical appearance, menstruation, and stereotypes about femininity) pose significant barriers to physical activity among female adolescents (Dwyer et al., 2006). In summary, these studies identified key barriers related to inaccessible/poor facilities and programs, other interests (particularly sedentary activities) and priorities, lack of support from others, and personal characteristics (e.g., lack of motivation).

While studies have documented declines in physical activity (Allison et al., 2007; Findlay et al., 2009; Irving et al., 2003; Nader et al., 2008; Pate et al., 2009, 2010; Thompson et al., 2009; Troiano et al., 2008) and focus group research has identified a number of barriers to physical activity among female adolescents (Dwyer et al., 2006; Goh et al., 2009; Halyk et al., 2010; Hohepa et al., 2006), little research has examined ethno-specific barriers among Canadian female adolescents. While at least one Canadian study did include an ethno-culturally diverse sample, the study did not seek to identify specific ethno-cultural barriers (Dwyer et al., 2006). Thus, the research presented here makes an important contribution to the field of study by examining the extent to which perceived ethno-cultural barriers to physical activity exist among Indian and Polish female adolescents. Furthermore, the results of the study will inform the planning and implementation of physical activity interventions in Mississauga and, possibly, other culturally diverse cities.

Methods

Participants and Recruitment

Since the objective of the study was to describe and analyse barriers to physical activity, we sought to include female adolescents who were not physically active (see below). Specifically, we aimed to recruit inactive Indian and Polish female adolescents (13-17 years of age) who speak English. Individuals were recruited with the assistance of gatekeepers from four community-based organizations (i.e., religious, after-school programs and cultural education programs). Gatekeepers introduced the research to potential participants during regularly scheduled program activities. Those interested in participating completed a form, which included the following question on current levels of physical activity: "In a usual week, how many days per week do you do moderate to vigorous physical activity for at least 60 minutes (this can include 10-minute bouts)?" At the time of our study, it was recommended that adolescents do at least 60 minutes of moderate physical activity on most days of the week to achieve health benefits and reduce the risk of disease (U. S. Department of Health and Human Services, 2005). This recommendation often equates most days of the week with five or more days (Eaton et al., 2010). Thus, in our study, individuals reporting four or less days per week were considered to be inactive. All individuals classified as inactive were included in a focus group. A total of 87 inactive female adolescents participated in the research, 45 of whom were Polish and 42 of whom were Indian. Participants ranged from 13 to 17 years of age.

Procedure

Focus groups were chosen as the method of data collection because they enable the collection of a diversity of perspectives from a large number of participants (Bedford & Burgess,

2001). Furthermore, with respect to our sample, focus groups have been shown to be a useful data collection tool when working with culturally-specific population groups (Asanin & Wilson, 2008; Hughes & DuMont, 1993). The focus groups addressed one question that was an ice-breaker and two questions aimed at understanding both general and ethno-specific barriers to physical activity (see Table 2).

Table 2
Focus Group Interview Guide Questions

1. Moderate physical activity is activity, such as brisk walking, bicycling and skating, which causes small increases in breathing or heart rate. Vigorous physical activity is activity, such as running and aerobics, which causes large increases in breathing or heart rate. It is recommended that individuals participate in at least 60 minutes (this can include 10-minute bouts) of moderate to vigorous physical activity at least 5 days per week. Do you feel the need to work towards this recommended level of physical activity? (Ice-breaker)
2. I would like you to think back to recent times when you wanted to be physically active but weren't able to. What prevented you from being physically active?
3. Do you as a young Indian (Polish) woman face different barriers to physical activity than young women from other cultural groups? Tell me about those barriers.

Trained facilitators from the Polish and Indian communities were hired to run the focus groups. A total of 10 focus groups (five sessions for each ethno-cultural group), ranging in size from 6-11 participants, were conducted between March and June of 2008. Focus groups were conducted for each group until no new information was shared during subsequent sessions. The fifth session did not generate new information and therefore theoretical saturation was achieved. This is consistent with Morgan's (1998) view that saturation is often reached with five focus groups. All participants received a Get Active Mississauga cinch pack and water bottle and a YMCA and City of Mississauga day pass to utilise recreational facilities in the city.

The research was approved by the Office of Research Ethics at the University of Toronto. Standard university ethics guidelines of informed consent and confidentiality were followed. Due to the ages of the participants involved in the research, both individual and parental written consent to participate were obtained.

The digital recordings of the focus groups were transcribed verbatim following a specific protocol (Poland, 1995). The transcripts were compared to the audiotapes for accuracy and then imported into NVivo, a software package for managing qualitative data. Meaningful segments of text were coded to represent themes, paying particular attention to both shared barriers and those unique to each ethno-cultural group. A constant comparison approach was used to develop themes, which involved coding comments by continually referring to previously coded comments for comparison (Flick, 2006; Morse & Richards, 2002). Two of the authors independently read the transcripts and inductively generated a list of themes with descriptive comments. Each theme was compared and discussed, resulting in an agreed upon set of common codes and themes.

Some limitations of the study deserve mention. First, participants were recruited based on falling within the 13-17 years age range and were not asked their specific age. It is quite possible that 13-14 year olds identified or put more importance on different barriers than the 16-17 years olds. Second, while the Polish and Indian participants are part of an homogenous group

unique with respect to their cultural heritage, it is important to acknowledge the diversity that exists within each group. Within these homogenous groups, barriers to physical activity may vary by socioeconomic status, religion, length of time parents have been in the country, etc.. Third, all of the participants in this study were recruited through culturally-specific groups and organizations. As such, the barriers they experience may differ from those experienced by female adolescents who are not as connected to their cultural communities. Finally, this research focused on barriers to physical activity among inactive adolescents without questioning them on their intention to be active in the near future. If some participants had no intention of being active, their answers could be based on past experienced barriers or barriers that have been dealt with by abandoning physical activity, not barriers that they presently experience.

Results

The focus group interviews revealed barriers common to both groups of adolescents and also specific ethno-cultural barriers to physical activity. In this section, we present specific details of both shared and ethno-specific barriers. Verbatim quotes have been selected to represent the most typical perceived barriers among the female Indian and Polish participants.

Shared Barriers

The focus groups revealed that female Indian and Polish adolescents experience three similar barriers to physical activity – priorities /time constraints, perceived incompetence, and inaccessibility (see Table 3).

Table 3
Shared Barriers to Physical Activity Among Indian and Polish Females

Priorities and time constraints:
When discussing how school was more of a priority than physical activity, participants said:
• "When you come home, you are so tired. Sometimes you don't even do your homework. You just come home and you want to turn on the TV. And then you start doing your homework and you don't even think about physical activity." (Polish participant #1, session 1)
• "I do it (field hockey) every year, but this year I was unable to because I had a harder semester, and I had to do better in school so I could get into university instead of spending my time exercising. So that was my reason for not joining this year." (Indian participant #25, session 3)
• "My mom thinks playing all those games is wasting your time. It's better to study and everything. That's what she thinks." (Indian participant #40, session 5)
• "My mom and most immigrants don't have a good job. Well, they have a good job, but it's not a profession. It's more like working with your hands and it's very tiring. It's not like at an office. So my mom wants me to study so I don't get the same job that she has, like manufacturing or whatever." (Polish participant #44, session 5)
Perceived incompetence:
• "I think self-esteem or what other people think about what you're doing can affect that because, if I can't play basketball, I'm not going to play it when all the other people know how to play but I don't know how to play. So that could be a factor. Because if you don't

know what you're doing properly, then you're not good enough to do it." (Indian participant #22, session 3)

- "Sometimes there's competition. You know that other people play better than you, so you don't try out because you feel that you're going to make a fool of yourself." (Indian participant #14, session 2)
- "I went with a friend, just so we could just try to see how it [volleyball] was. And every girl had her shirt from her rep team on, and we were the only ones that weren't on a team outside of school, so that kind of made us feel like, 'Okay. We kind of suck.'" (Polish participant #21, session 3)
- "I would like to join a sport. It's just that for these past teams, I didn't think I was really good for them. I was not good in those sports. But I'm thinking about soccer but I don't know if I'm good or whatever. I would like to join, but I just don't have confidence." (Polish participant #35, session 4)

Geographic and economic inaccessibility:

- "I wish some gyms were for free – like those fitness gyms that have all the equipment. I wish they were for free because I still can't afford to pay $30 for a membership to go there. If it was free, I think more people would go and get exercise." (Polish participant #22, session 3)
- "My school is half way across the city. Sometimes being there for seven o'clock in the morning for tryouts or practices, it's a bit of a limitation. When you're so far away, you have to get up in the morning earlier. And when you've slept late after doing an assignment, it's kind of you don't want to get up. So there's that factor to consider too – their (parents') convenience to drive you in the morning and to pick you up after school from competitions in different cities." (Indian participant #17, session 2)

As a frequently discussed barrier, participants indicated that they prioritize their academic studies over physical activity. They stated that they would not participate in physical activity after school or on weekends if they had homework/assignments to complete or had to study for upcoming tests. Participants indicated that, as children of immigrant parents, they felt a great deal of pressure to perform well in school because their parents had afforded them with better opportunities by immigrating to Canada.

Perceived incompetence, another frequently discussed barrier, was identified by participants stating that they would not participate in team sports if they did not think that they had the ability to perform well. In fact, it became clear that a number of participants lacked the confidence to even try out for team sports.

Finally, issues of geographic and economic inaccessibility were identified. For example, both groups of participants identified distance to recreational activities as a key barrier. Many participants indicated that because they are too young to drive, they must rely on parents or older siblings to drive them to and from recreational activities that are located further than walking or cycling distance. Many also noted that a lack of public transportation makes it difficult to participate. Issues of economic inaccessibility related to the high costs of purchasing gym memberships and sports equipment (e.g., rugby).

Unique Ethno-cultural Barriers

Perhaps most interesting and insightful are the unique barriers to physical activity identified by each ethno-cultural group. Among the Polish participants, they identified cultural commitments as a barrier uniquely experienced by Polish youth (see Table 4). Polish

participants identified strong cultural commitments within the Mississauga Polish community and cited a number of cultural activities (e.g., folk dancing, church functions, and Polish school) that they must attend and that take priority over other physical activities. The expectation to participate in cultural activities overrides any individual desire to participate in "non-cultural" activities.

Table 4
A Culturally-specific Barrier Among Polish Females

When discussing how cultural commitments leave little time for physical activity, participants said:
• "After school I usually have … [Polish] Scouts, or I have to go to piano or something. I get home and right after school is that activity … and then I think, 'Oh-oh. I didn't go swimming.'" (Participant #23, session 3)
• "I don't believe that you have to go to church. I just go because it's a Polish kind of thing." (Participant #12, session 2)
• "Especially for parents who have emigrated from Poland, they want Polish all the time here. If a Polish event is happening, then we have to go to it." (Participant #15, session 2)
• "My parents make me go to Polish school (on Saturday mornings), but I don't like it much." (Participant #10, session 2)

The Indian participants made no mention of such cultural commitments. In contrast, they identified concerns over skin exposure, traditional gender roles, and discrimination as three key ethno-cultural barriers that prevent them from participating in physical activity (see Table 5). For example, in terms of concerns over skin exposure, parental disapproval prevents most Indian participants from engaging in activities that require tight, revealing attire or bathing suits. In addition, a number of participants identified the difficulties associated with trying to participate in activities while wearing long pants and shirts (e.g., tripping, added weight, and restrictions while swimming). Another frequently discussed barrier among Indian participants was the impact of perceived traditional gender roles among family members. In particular, participants indicated that parents and grandparents often do not accept sports and physical activity as being appropriate for girls. For example, participants stated that within their families, domestic chores were viewed as integral life skills that took priority over physical activity. As a result, many of the participants do not have the support of family members to participate in school-based or individual and team-based sport activities. Finally, many Indian participants identified feeling discriminated against while participating in physical activity, especially team sports. In particular, many noted hearing racial slurs directed at them by teammates, opposing players, officials, and parents during games.

Table 5
Culturally-specific Barriers Among Indian Females

Skin exposure:
• "And then, your parents are like, 'Oh no! They're too short!' Like the volleyball shorts are really short. My parents spazzed out at me when they saw them. It was really, really annoying. They were screaming at the top of their lungs. And then they were like, 'No, you

can't play volleyball!'… So then I had to quit the school team even though I made it. It was really upsetting." (Participant #29, session 4)

- "Some people won't approve of me wearing a swimsuit because of the way it looks. I'm not being racist, but if you're white, that's fine because it's the western culture. But if you're Indian, they'll be like, 'No, that's not right. That's not modest. You're exposing too much.'" (Participant #38, session 5)
- "I think it's the clothes sometimes. I know a couple of girls that really want to play volleyball and soccer, and since they have to wear short shorts, they don't approve of it. I know a lot of Indian parents don't want their girls running around in front of boys with their legs bare." (Participant #24, session 3)

Traditional gender roles:

- "For a girl in the Indian culture, you should know how to cook, clean, and just do the house chores. So, even if you have time and you want to go and do physical activity, they'd say, 'No. Why are you wasting time? Go learn how to cook instead.'"(Participant #38, session 5)
- "Brown parents are usually like, 'Oh, there's no point in girls going out and playing stuff because once you're married, all you're going to do is come home, cook, go back to work, and take care of your family. There's no point in having daily exercise.' But the thing is that, we have a life too. It's not just boys, boys, boys, right? They compare you to boys or to other girls who do housework." (Participant #34, session 4)

Discrimination:

- "I play lacrosse, and me and another girl are the only brown girls, and everybody else is white. And then, not my team, but other teams will use that against us, and be like, 'They have to suck' because we're brown. And then I get the whole, … 'Why are you playing?' They'll try to get into you [they try to upset you, get into your head, and throw off your game by saying racist comments], but I ignore it. I know one of my friends who plays hockey, and she was told that too.... When they see that you're the only brown girl on the team, they're like, 'Who are you?' kind-of-thing, especially from another team." (Participant #25, session 3)
- "We have to put up with them calling us Paki and swearing at us when playing hockey and then the referees actually give you penalties when you did nothing. It was just because you're brown." (Participant #2, session 1)

Discussion

The goal of the current study was to contribute to understanding barriers to physical activity by examining the role of ethno-cultural factors. The results revealed that female adolescents from the Polish and Indian communities in Mississauga experience both shared and culturally-specific barriers to participating in physical activity.

The research revealed three barriers common to both Indian and Polish female adolescents – priorities and time constraints, perceived incompetence, and geographic and economic inaccessibility. Previous focus group research has identified similar barriers among female adolescents (Dwyer et al., 2006; Goh et al., 2009; Halyk et al., 2010; Hohepa et al., 2006). Similar to previous research (Dwyer et al., 2006; Halyk et al., 2010; Hohepa et al., 2006),

participants in the current study often referred to sports when reporting barriers to physical activity.

In terms of priorities and time constraints, Dwyer et al. (2006) also found that female adolescents perceive that they do not have enough time to be physically active because school is a priority and they have a lot of homework. Similarly, in the Dwyer et al. (2006) study, some participants reported that their parents discourage them from doing physical activity so as to spend more time on homework. Halyk et al. (2010) also found that the most frequently reported barrier is increased homework and commitment to extracurricular activities in high school. Some participants mentioned parents' priority for school rather than sports as a barrier (Halyk et al., 2010).

Hohepa et al. (2006) also found that participants consider perceived incompetence to be a barrier to physical activity. Some participants in that study did not try out for sports teams because they felt that they are not as good as others on the teams, would let the teams down, and would feel embarrassed. Also, similar to the current study, some participants in the Dwyer et al. (2006) study reported that they do not participate in sports because competitive sports is too stressful. Only 1 of the 24 participants in the Halyk et al. (2010) study reported lack of skill as a barrier but this is not surprising given that 50% of the participants were on a school sports team.

Geographic and economic inaccessibility was also identified as a barrier in previous research. Goh et al. (2009), Halyk et al. (2010), Hohepa et al. (2006), and Dwyer et al. (2006) reported that some participants do not engage in physical activity because community facilities and programs are not available or accessible (e.g., specific facilities are not in the neighbourhood; transportation to facilities is difficult; it is too expensive to enroll in programs and purchase sports equipment).

The three barriers common to both ethno-cultural groups were also mentioned in previous quantitative survey research to examine perceived barriers to physical activity among female adolescents. For example, Kimm et al. (2006) found that frequently mentioned barriers among 16-19 year old females are not having time, feeling too tired, lack of interest in physical activity, no place to do physical activity, and perceived incompetence. Also, Robbins, Sikorskii, Hamel, Wu, and Wilbur (2009) reported that the main barriers among females in middle school are being too busy, feeling tired, and having minor aches and pains from doing physical activity.

The main contribution of the present research is that it revealed ethno-cultural barriers to physical activity, an issue that has received little attention in the current field of study. In doing so, the research revealed that in addition to the shared barriers identified (e.g., priorities and time constraints and inaccessibility), female Polish adolescents also contend with demands on their time as a result of culturally-specific commitments (e.g., Polish school and church). In comparison to their Polish peers, Indian adolescents appear to face different barriers to physical activity. In addition to the shared barriers, the latter are also limited by parental concern over revealing attire as well as beliefs about traditional gender roles (i.e., girls do not play sports). Most disheartening, though, is the finding that Indian participants often avoid participating in formal physical activity (e.g., organized sports) because of concerns about racism and discrimination. The ethno-cultural barriers to physical activity in this study were not reported in the four previous focus group studies, perhaps because the current study specifically focused on ethno-cultural groups whereas previous research did not (Goh et al., 2009; Halyk et al., 2010) or did not specifically ask about ethno-cultural barriers among multi-ethnic groups of female adolescents (Dwyer et al., 2006). Though Hohepa et al. (2006) examined barriers among ethnic groups in New Zealand, participants reported general barriers rather than ethno-cultural barriers.

It is important to mention here that the fact of questioning the participants on specific ethno-cultural barriers (question 3) could have lead them to identify such barriers, that would not have been mentioned otherwise. This oriented question prevents us from commenting on the relative importance of these ethno cultural barriers compared to the shared barriers.

The results of this research lend insight into the planning and implementation of programs aimed at increasing participation in physical activity among female adolescents from culturally diverse backgrounds. Addressing the issues identified in this research will require commitment, resources and the dedication of cultural leaders, organizational leaders, and community leaders to develop initiatives and programs that will result in more positive values for daily physical activity for young women and better access to physical activity. The next step for Get Active Mississauga is to bring together all community leaders to address these issues and to develop strategies for increasing the opportunities for both formal and informal physical activity in a culturally-safe atmosphere.

Recognizing that this is a single study and more research in this area is needed, the research findings lend themselves to a number of possible general recommendations. First, given that school work constitutes a major time constraint and that accessibility to facilities and programs is a concern, one possibility would be to ensure that schools provide ample opportunities for adolescents to participate in physical activities on site. This could include the creation of different clubs (e.g., walking, track, and yoga) for physical activity. The clubs would be open to all interested participants and not limited to only those who excel at sports and physical activity. This might also overcome some of the barriers related to perceived incompetence. The City of Mississauga has, in the past, partnered with specific schools to provide in-house recreational physical activities (i.e., recreation centre staff go into schools to provide programming). This has been successful (in terms of participation) and the City and the boards of education should explore expanding this model in all schools.

In addition, a number of the shared barriers identified by participants (e.g., geographic/economic inaccessibility and perceived incompetence) relate to formal participation in physical activity, such as membership on teams sports or local recreation centres. This speaks to the need for Get Active Mississauga to continue to promote informal physical activities (e.g., walking and jogging) that do not require membership costs and that can be done within close proximity to home as well as "learn to" activities designed to build competence and self-confidence.

Finally, the concerns about discrimination raised by Indian participants speak to the need for cultural sensitivity training within sports for coaches, players and officials. Such training should be mandatory for all individuals participating in city-sponsored and school-related physical activity and should be combined with a zero-tolerance policy for racism and discrimination. This would help to ensure that spaces of physical activity are culturally-safe places to play sports.

In order to implement programs and strategies to encourage physical activity, it is essential to understand the barriers that are contributing to the decline. Especially important, considering the diversity of cities like Mississauga across the country, is an in-depth understanding of those barriers that are unique to ethno-cultural groups. This is essential for ensuring the creation of inclusive and culturally-safe opportunities for physical activity for all residents.

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