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'Bigger than hip-hop?' Impact of a community-based physical activity program on youth living in a disadvantaged neighborhood in Canada

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This study explored whether a hip-hop dance program was associated with improved well-being for adolescents living in a multicultural, socio-economically disadvantaged urban community in Ottawa. Sixty-seven youths between 11 and 16 years of age participated in a 13-week program. A primarily qualitative approach was used to assess perceived impact of this pilot program from the perspective of youth participants, parents, and program personnel. Two independent reviewers analyzed the data using a content and theme analysis. The findings suggested that the community-based intervention was a promising program for the promotion of youth psychological, social, and physical well-being. The adolescents, parents, and/or personnel described benefits across seven main areas, including dancing and related skills, behaviors (e.g., reduced television viewing), physical well-being, psychological well-being, relationships, respect for others and for diversity, and school performance. Implications of this study are discussed in relation to future research and to other programs targeting adolescent health promotion in urban disadvantaged communities.

Keywords: health; leisure; lifestyles; social class

Introduction

Participation in physical activity (PA) is important for the positive development and well-being of young people. It is associated with benefits for physical and psychological well-being (Biddle *et al.* 2004, Strong *et al.* 2005, Janssen and LeBlanc 2010) such as the management and prevention of chronic conditions (e.g., obesity, diabetes and depression). It is also linked to lower rates of antisocial behaviors (e.g., delinquency and risky behavior), increased participation in prosocial activities, and improved educational progress and aspirations (Jones and Offord 1989, Eccles and Baber 1999, Active Healthy Kids Canada 2010).

Adolescence is an important time to promote PA as it is during this period when long-term health behaviors are developing (Gordon-Larsen *et al.* 2004); it is also a significant period for the formation of self-identity and independence. Unfortunately, adolescents tend to become significantly less active during this period (Aaron *et al.* 2002) and a large proportion are not sufficiently active to experience health benefits. Low income, immigrant, First Nations, and other disadvantaged youth have even lower rates of PA as compared to the general Canadian youth population (Mo *et al.*

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2005, Active Healthy Kids Canada 2010). These groups of youth also tend to have poorer health, live in more stressful environments, and are at higher risk for numerous negative outcomes, particularly if living in disadvantaged neighborhoods (Gonzales *et al.* 2005).

The discrepancy in PA rates between advantaged and disadvantaged youth is an example of a social inequality in health behaviors, the causes of which are complex and deeply rooted in contextual factors, as well as in individual and interpersonal factors (Wilkinson 1996, Sallis and Glanz 2009). Research is increasingly supporting the contribution of environmental factors on health behaviors such as access to PA equipment, facilities, and programs (Romero 2005, Norman *et al.* 2006). Despite this, research and intervention efforts have generally neglected the role of the social and physical environment (Giles-Corti and Donovan 2002). Individual-level approaches have been met with limited success (Sallis and Owen 1997), particularly among disadvantaged populations (Yancey *et al.* 2006). Therefore, it is becoming increasingly apparent that interventions must target factors in the social and physical environment that impact on behavior (Brodersen *et al.* 2005). Communities are one setting that allow for this consideration (Pate *et al.* 2000).

The evidence on the effectiveness of PA interventions for adolescents in community settings is very limited (Pate *et al.* 2003, Biddle *et al.* 2004, Jago and Baranowski 2004), as most such studies involving youth to date have focused on school-based curricular interventions (Stone *et al.* 1998, Marcus *et al.* 2006, Salmon *et al.* 2007). A recent review of controlled PA trials involving adolescents reported one trial that took place in a community setting (Jago *et al.* 2006), two that targeted lower SES adolescents and were in school-based settings, and no trials that targeted ethnic minority adolescents (van Sluijs *et al.* 2007). The trial by Jago *et al.* (2006) targeted male adolescents in a Boy Scout troop for a nine-week intervention including once weekly 20-minute activity sessions and a twice weekly Internet educational component. Overall, the results on the impact of this intervention for PA and sedentary behavior were not significant. There are a few more non-experimental studies targeting adolescents in community settings that suggest positive health outcomes (e.g., Resnicow *et al.* 2000, Ransdell *et al.* 2001, Douyon *et al.* 2010). One example, Daughters and Mothers Exercising Together, involved a 12-week family-based PA program offered in the community that targeted female youth between the ages of 11 and 17 and their mothers, including a significant minority of Hispanic participants. Significant improvements were found for sport competence, physical condition, and strength and muscularity for mothers and daughters when comparing pre- to post-intervention (Ransdell *et al.* 2001).

Overall, the limited evidence suggests that community-based PA interventions may be effective in increasing PA and improving the physical health of adolescents. However, there is almost no evidence on community-based PA interventions for promoting psychological and social aspects of well-being, particularly for lower-income and culturally diverse adolescents (Stone *et al.* 1998, Salmon *et al.* 2007, van Sluijs *et al.* 2007). In order to effectively intervene, we need to investigate approaches to promote PA, including community-based interventions as such interventions have the potential to address both individual and environmental barriers to PA. The purpose of this article is to describe the perceived impact of a weekly hip-hop dance program on the psychological, social, and physical well-being of adolescent

participants. Findings reported relate to an initial pilot session of this intervention, which ran from November 2006 to February 2007.

Method

The present study

A community-academic partnership was developed to respond to an identified need for pro-social, structured, relevant, and accessible PA programs in a lower-income, multicultural, and resource-poor urban community in Ottawa, Canada. The partnership included the University of Ottawa and three non-profit organisations: South-East Ottawa Community Health Centre (SEOCHC), Culture Shock Canada (CSC), and the City of Ottawa.

Prior to implementation, an intervention conceptualisation phase was conducted. In brief, a program offered by Culture Shock Canada, a non-profit organisation that uses hip-hop dance as a tool to promote youth well-being, was identified as particularly relevant for disadvantaged young people. The first reason in support of this program is that it is a structured voluntary activity, a leisure activity organised by caring adults that is intrinsically motivating, requires engagement in the activity, and involves significant effort. Such activities have demonstrated benefits for positive youth development including improved physical skills, emotional functioning, and initiative (Larson 2000, Larson and Seepersad 2003). Furthermore, hip-hop dance is arguably age-appropriate and culturally-relevant for adolescents in disadvantaged urban contexts. Hip-hop's roots are in black urban American culture; however, today 'it has evolved into a cultural form that transcends race, color, and gender...' (Wilkins 1999, p. 108). Dance is also particularly appealing for girls (Quin *et al.* 2007) and hip-hop does not require special equipment and is a non-competitive form of dance that is suitable for all abilities (Marsh and Peart 1988). It also has potential for fostering positive social involvement, a critical factor implicated in the promotion of PA and well-being among adolescents (Roth *et al.* 1998). Previous research has demonstrated PA interventions with a hip-hop component to be appealing and effective for socio-economically disadvantaged young people (Flores 1995, Fitzgibbon *et al.* 2002). Finally, consultation confirmed that a hip-hop dance program would appeal to the prioritised community (see Beaulac *et al.* 2009 for more details).

Participants

The prioritised population was lower-income or otherwise disadvantaged young people living in South-East Ottawa. A needs assessment and survey of health indicators indicated that this area is socio-economically disadvantaged, as evidenced by a high percentage of immigrant and visible minority youth, a higher incidence of poverty, and poorer health among youth as compared to the general population in Ottawa (Social Planning Council of Ottawa 2005). Recruitment lasted two months and included advertisement and outreach to partnering organisations, schools, a shopping center, and at community events. All youth, 11–16 years of age, were invited to participate if they planned on remaining within South-East Ottawa for the study period, had no previous participation in a CSC program, agreed to participate in the evaluation in English, and reported being able to participate in moderate-intensity

PA. Ethics approval was obtained from the University of Ottawa prior to this study commencing. Sixty-seven youth began the program.

Intervention

The intervention was developed from a thorough literature review, consultation with youth and parents, and ongoing dialogue with community partners (see Beaulac *et al.* 2009) and was consistent with a social-ecological model of health behavior change (King *et al.* 2002). The dance model used was based on the youth program model developed by CSC. Emphasis was placed on improving dance skills and on fostering positive relationships with peers and adult role models (Roth *et al.* 1998, Kahne *et al.* 2001). Furthermore, factors related to participation and to retention were considered in the intervention development (e.g., emphasising progress and mastery over perfection; Anderson-Butcher 2005). The program was taught by two CSC dance instructors (one black female and one white male) who had experience teaching similar populations of youth. A youth coordinator was intended to provide assistance to the instructors and youth participants; however, she was often providing transportation assistance or otherwise absent. Consequently, the first author provided assistance when necessary. The intervention was delivered according to a structured intervention manual (Beaulac 2006) and the fidelity and quality of program implementation was monitored (see Beaulac *et al.* 2010).

The thirteen week free intervention took place at a community recreation center. Two formats were offered in response to community consultation, girls-only and co-ed. Classes ran for 1 hour and 15 minutes once weekly. The frequency was not ideal in terms of amount of PA (Blair *et al.* 2004) but was supported by the community (see Beaulac *et al.* 2009). Families were not permitted to attend the program beyond the first-class but were invited, along with the general community, to a showcase performance one week after the final class.

Participation and reasons for discontinuing were monitored and a number of evidence-based strategies were used to promote greater participation (Chinman *et al.* 2004). Snacks were provided when participants completed demographic information and the youths participating in a qualitative interview were entered into a draw to win a \$20 gift certificate to a music or sports store of their choice. Draws were also held for regular attendees (e.g., rock climbing pass, MP3 player) and transportation assistance was provided in the form of a ride in the SEOCHC van or bus tickets.

Measures

A primarily qualitative approach was used to investigate the perceived impact of the intervention on youth participants given the pilot nature of the intervention, the presence of linguistic and cultural barriers to using quantitative methods, and the dearth of evidence related to community-based PA programs.

Demographic information questionnaire

Sixty-three of the 67 youth participants completed the demographic information questionnaire pre-intervention. This questionnaire was based on Canadian national surveys and gathered information on age, sex, race/ethnicity, religion, number of

years living in Canada, household characteristics, and socio-economic status (SES). The SES measures comprised parent education and the Family Affluence Scale II (FAS II: Boyce *et al.* 2006). The four-item FAS II (shared bedroom, vehicle and computer ownership, frequency of holidays) has demonstrated higher reliability and validity in youth than questions of family income (Currie *et al.* 1997, Boyce *et al.* 2006). A composite score was calculated and the participants were placed along a three-point ordinal scale (low affluence = 0,1,2; middle affluence = 3,4,5; high affluence = 6,7,8,9).

Qualitative interviews

In-person individual interviews were conducted with 14 participants who were purposefully chosen to reflect the diversity of the intervention participants. All who were approached to participate initially agreed; however, two interviewees later cancelled. The interviewees included seven participants from the girls-only format and seven participants from the co-ed format (3 males, 4 females). The interviews were approximately 30 minutes, took place in a community setting within two weeks following the end of the program, and aimed to understand the perceived impact of the program by allowing the participants to describe their experience in their own words. Questions were developed in light of the existing literature and intervention objectives. The participants were asked non-leading questions such as 'Tell me how, if at all, the hip-hop dance program has affected you?' In addition, program acceptability was assessed by asking questions such as 'What would you change about the program to make it better?'

Focus groups

Three focus groups were conducted following the program to assess program implementation and impact from the perspective of program personnel and parents. One focus group was completed with personnel and included the four individuals who were most involved in the new program (i.e., two dance instructors and two health promoters for youth). Two focus groups were conducted with the parents/guardians of participants and included three parent/guardians from the co-ed group and three from the girls-only group. Additional telephone interviews were conducted with seven parents (four from the co-ed group and three from the girls-only group).

Personnel survey

A 9-item survey was developed to assess program implementation and perceived impact from the perspective of program personnel; it was completed at final classes by four separate personnel members.

Analysis

Descriptive data were generated on the demographic data. Qualitative interviews were recorded and transcribed verbatim. A content and theme analysis was conducted following the five stages as outlined by Pope *et al.* (2000). In brief, two independent reviewers, one of whom conducted all of the interviews, established

themes as they emerged from the data, and subsequently, as they related to the objectives and questions of this study. An initial draft codebook was developed after coding four interviews. There was then a practice round using the codebook with four interviews until over 80% interrater reliability was achieved. Following this, four more interviews were coded by the two reviewers; this obtained a 90% level of agreement. The final two interviews were coded by one reviewer. The order of coding the interviews was selected randomly throughout, alternating between the girls-only and co-ed interviewees. The codebook was revised as necessary when new themes arose. No new themes emerged during the analysis of the final few interviews. Attention was given to the nature of individual themes and associations between themes. Themes were then compared across the girls-only and co-ed formats and an attempt was made to capture both similarities and differences across the two groups. Data from the focus groups and personnel survey were analyzed in a similar fashion and themes identified were mapped onto the same codebook.

Results

Participant characteristics

Most of the participants were female (82.5%) and there was an average age of 12.5 years. The measure of family affluence appeared to overestimate affluence, as many participants were known to be living in social housing. Nonetheless, the youths were socially and ethnoculturally diverse (see Table 1 for participant demographic characteristics pre-intervention).

Intervention process

The youths attended on average 7.61 out of the 13 classes offered. Thirty-three (49%) of the youths discontinued the program. A higher proportion of the males discontinued, the reasons for which were unclear. Follow-up phone calls revealed that most discontinued due to factors external to the program (e.g., part-time job, homework, and family emergencies). Overall, there was high satisfaction reported with the program; however, there were a number of implementation issues that likely impacted on attrition such as inconsistent program timing, staff turnover, interruption in transportation assistance, and poor staff management of youth behavioral issues (see Beaulac *et al.* 2010 for a comprehensive reporting of program implementation).

Perceived impact of hip-hop intervention

All young people, personnel, and parents interviewed described some positive changes as a result of youth participation in the program. More specifically, the youths and parents described perceived impacts in dancing and other related skills, behaviors, physical well-being, psychological well-being, relationships, and respect. Young people also described changes in a seventh area, school performance. The broad impact of this program was articulated well by one adolescent when she expressed, 'People say dance doesn't really help but it really does and in a broader way physically, emotionally and mentally and in other ways.' Personnel described similar changes, except that they did not mention changes in behavior or health

Table 1. Demographic characteristics of the youths starting the intervention.

Variable	N ^a	%
Race/ethnicity		
Arab/West Asian	15	23.8
Black	18	28.6
White	13	20.6
Mixed	5	7.9
Other	11	17.5
Religion		
Christianity	24	38.1
Islam	25	39.7
No religion	8	12.7
Other	5	8.0
Years in Canada		
Since birth	43	68.3
More than 10 years	5	7.9
5–10 years	6	9.5
Less than 5 years	9	14.3
Youth lives with		
Both birth parents	37	58.7
Single birth parent	23	36.5
Birth parent + step parent	1	1.6
Other	2	3.2
Family affluence scale		
Low	4	6.3
Medium	36	57.1
High	23	36.5

^aTotal sample size varies from 62 to 63 depending on item response rate.

overall; they also expressed concern about the subjectivity of their observations and suggested that changes were harder to detect due to the short length of the program and limited time spent with the youths. Some staff also commented on the likely longer-term outcomes not yet evident, suggesting that the initial effects would encourage further youth participation and leadership within the community, improved school performance, and decreased participation in negative social activities.

Hip-hop dancing and other related skills. Consistent with quantitative findings, the most common change reported by all but one youth, most parents, and all staff was improvement in hip-hop dancing and/or related skills (e.g., dancing in general). This point was clearly expressed by one youth: 'It's kinda like taking a diamond in the rough and polishing it up. You still got the diamond, just that it's more cut and clean.'

Behaviors. Most young people reported an increase in participation in overall PA, with the remaining youths indicating that this program helped them stay active:

'I noticed that I was actually doing lots of exercise instead of being lazy...' several parents mentioned an increase in motivation to dance and be active. One youth indicated, 'I like to just turn on my radio and just dance now,' while another explained that 'As soon as we get home the next day inside the community we'd be (...) performing [dance routines].' Almost half of the parents reported an increase in their youth's PA as a result of practicing outside of class. As an unintended benefit, some parents reported an increase in activity among siblings as a result of at home practicing. Some youths and parents also described an improvement in other health behaviors (e.g., nutritional choices). For instance, one youth reported: '(...) so since I'm doing hip-hop I guess I could start taking care of my health more.'

It appears that participation in this program also led youth to try new activities. For instance, one reported that 'It made me get out more,' while another expressed that 'I did it and then it seemed a lot easier than I thought it would be so then it gave me a bit more confidence to try something new...' Only one reported that this class took away time from another recreational activity. In addition, some youths described a decrease in such behaviors as watching TV or causing trouble. For instance, one said that 'Before I'd always be on the computer...since the dance class I haven't really been watching TV all that much (...) now I like to dance for free time.' Some parents indicated that the youths became more committed to their chores, read more, played fewer video games, or watched less television. In contrast, one expressed an increase in acting out in response to being bullied in the class.

Physical well-being. Many youths described changes to their physical health and a few improvements in their health overall; only a couple indicated no change. For instance, quite a few youths, and some staff and parents indicated that participation in this program had improved youth fitness: 'I'm more fit now and I can do sports even better.' In addition, some young people described increased strength and energy. Some parents also reported an increase in energy and weight loss for their adolescents. Two young people indicated that they were injured in class but did not discontinue as a result.

Psychological well-being. A high proportion of young people, several parents, and all staff reported psychological benefits. The most common benefit, reported by almost all of the youths, was improved self-confidence: 'Before I was like it's useless. I probably wouldn't be able to do it that well. Now I'm gonna try really hard at it and give it my all and maybe try to get into (sport team).' Others reported 'Now I put myself out there' and 'I think it made my self-esteem higher.' One parent commented 'It improved her self-confidence, showed her that she was capable of doing a lot more than she thought'. Many staff commented that this change was reflected in the youths' increased comfort in dancing, performing in front of others and in interacting with peers. Many young people suggested that sense of accomplishment was a factor that contributed to improved self-confidence, and that participating in this program was important for their self-identity: 'I felt more like I was doing more as a person.'

Half of the young people, and slightly more of the co-ed youths, reported improved mood, while a few girls-only youths reported uncertainty or no change in mood: 'I'm just happier about myself, and I think that's the most important thing that I got out of this hip-hop class.' Another expressed: '(hip-hop class) made me

happier.' A few parents also reported improved mood in their youths. A few young people and some parents also described improved self-discipline and goal setting. This change was articulated well by one youth: 'I learned to be more disciplined because there were rules at the hip-hop (class) and then even if those rules were not cool I tried to follow those rules because I know they're appropriate rules.'

Relationships. Another important area of change mentioned by many youths, several parents, and staff was changes in social network and/or improvements in peer, sibling, parent, and/or teacher relationships. The most common change expressed by all but one youth was an increase in relationships: 'I met a lot of new people here, and I still talk to some of them a lot too.' Some parents and staff indicated that the youths made more friends, one parent also indicating that it led to an increase in social skills. Several young people and some parents also described an increase in positive parent-child interactions that involved sharing new skills and receiving positive feedback from parental figures: 'After every class I'd show [my mother] every dance that I learnt.' A few youths also described an improvement in teacher relations: 'I just stopped giving [my teacher] attitude, and then he started becoming nicer.' Another explained: 'I learned something at the hip-hop place that listening to your elders actually makes you more clever than not listening, so at school I decided to try it and it actually worked.' In addition, one staff member reported an increase in leadership skills for some youths who had taken an active role in the class. Finally, the youth participants reported an expansion in the diversity of their social networks, one describing:

It was good because I got to see different people, and I got to see that there's more – because my friends and me are kind of all the same and we're all in a shell and we need to break out of that shell and see different people.

Respect for diversity. A few youths also reported changes in their respect for diversity: 'In hip-hop I learned how to respect everyone's different the way they dance, the way they think, the way they act.' Another said: 'The important thing I learnt from this class is like we're all unique, we all have our different good things and bad things and just to be yourself and let out the person in you.' The staff indicated that the program had helped the youths to be more respectful toward others and increased awareness of issues of diversity by exposing the youths to difference. A staff member described: 'We create opportunities to impact on peoples' well-being just by the very virtue of being someone different (...) and to share that with them. It's part of a collective village of people trying to raise these children.' Two parents also believed that exposure to diversity had benefited their youths with regard to respect and understanding.

School performance. Finally, several youths, and in particular the participants in the girls-only group, also expressed that they noticed improvements in their school performance as a result of the program, such as improved homework completion and grades. One expressed this change when saying 'I was actually getting good marks instead of getting lower marks.'

Discussion

Strengths and limitations

Strengths of this study include the focus and representation of culturally diverse and disadvantaged participants, the high level of reliability between the independent raters, and the inclusion of multiple perspectives on intervention impact (Johnson and Onwuegbuzie 2004). In addition, 14 participants appeared to be sufficient to achieve thematic saturation. Although selection effects are a possible threat to the credibility of the interviews, this does not seem to be a likely limitation as participants were selected to represent the diversity of participants, including young people that we suspected would provide both positive and negative feedback on the intervention. The consideration of community needs and external validity are also important strengths (Green and Glasgow 2006).

This study included two proxy measures of SES. As expected, most youths did not know parent level of education (Boyce *et al.* 2006). Consistent with other research (e.g., Currie *et al.* 1997), the FAS had a high response rate; however, it appears to have over-estimated family level of affluence. The usefulness of the FAS could be improved with revisions to take into account changes in what is considered 'normal' (e.g., car and computer ownership) and/or adaptations for different contexts. Given continued difficulties in measuring youth SES, the use of multiple indicators is advisable.

The qualitative approach was important for capturing the experiences of culturally diverse youths. It has been suggested that epistemologically, conducting interviews is an appropriate data generation tool when 'what you want to know about may be rather complex, or may not be clearly formulated in your interviewees' minds in a way which they can simply articulate in response to a short standardised question' (Mason 1996, p. 40). Moreover, difficulties in using a quantitative method have been reported in research involving low-income and culturally diverse communities (Cardona and Joshi 2007). Nonetheless, the nature of the findings is preliminary and the non-experimental design of this study is an important limitation. Consequently, we can not attribute causality and findings relate only to young people who completed the intervention. Future research using a more rigorous design is warranted. Should such research utilise a quantitative or mixed design with culturally diverse youth, it ought to consider different methods of administering questionnaires (e.g., orally in youths' first language) and other cultural adaptations to the research methodology.

Another limitation is that we did not explore the maintenance of the benefits over time, a common limitation of PA intervention research. It has been suggested that for the true assessment of an intervention's impact and sustainability, a follow-up period of two years is ideal (Glasgow *et al.* 1999). In addition, attrition from the intervention and research was high. This problem appears to be common of community-based PA interventions for youth and disadvantaged populations (Stone *et al.* 1998, Taylor *et al.* 1998, Resnicow *et al.* 2000, Jago and Baranowski 2004) and signifies insufficient program exposure and thus impact, biasing the findings toward young people who were more motivated to continue the intervention.

Conclusions and implications

This community-based PA program sought to promote positive development and well-being among youth living in a disadvantaged, multicultural urban community.

Participants were diverse suggesting that the program reached the intended population. Despite implementation issues and low intervention dosage, the findings suggest that this intervention led to a number of perceived benefits. Almost all the young people, staff, and parents reported an improvement in hip-hop dancing and/or other related skills, and in self-confidence. In addition, many described improved behaviors, an increase in participation in PA, and trying new activities, improved physical health, mood and relationships; some also described an increase in respect for others or for diversity. Less commonly, the youths and parents also indicated that health overall and/or attention improved; a few also reported improved school performance. These findings are consistent with other research on the benefits of participation in PA and positive youth development programs (Eccles and Baber 1999, Kahne *et al.* 2001, Catalano *et al.* 2004); however, the fact that a few youth reported improved school performance was surprising given the short duration of the program. It is important to note that overall, the staff described fewer benefits of the program than did the youths and parents. The reason for this difference may be that the staff only interacted with the young people within the context of the program. Importantly, very few negative perceived impacts were reported.

The literature, combined with evidence from this study, strongly suggests that the ideal length of a PA program is longer than three months (Roth *et al.* 1998); one review has suggested nine months as a minimum length for positive youth development programs (Catalano *et al.* 2004). The issue of frequency is less clear. A higher frequency is needed for optimal health benefits (Blair *et al.* 2004); however, other factors need to be considered such as youth interest in participating in this one activity more than once weekly. We would argue that promoting youth involvement in diverse recreational activities, including regular PA, is preferable (Bates 2006, Strong *et al.* 2005). It is also critical that community input be sought in planning key aspects of programs as such input is linked to improved program design, implementation, impact, and sustainability (Israel *et al.* 1998).

In sum, increasing attention is being given to the promotion of PA among youth, as rates of participation decline (Active Healthy Kids Canada 2010) and physical health problems associated with physical inactivity such as obesity and diabetes rise (Salmon *et al.* 2007). Yet, the opportunity for promoting psychological and social well-being among youth through the promotion of PA remains under-recognised. Moreover, lower-income and culturally diverse youth have rarely been consulted on their views of the problem of physical inactivity and few studies have investigated community-based PA interventions among adolescents (Stone *et al.* 1998, Jago and Baranowski 2004, Marcus *et al.* 2006, Salmon *et al.* 2007).

Overall, we conclude that this community-based hip-hop dance program may be an effective and relevant program for the promotion of PA and positive development among lower-income and culturally diverse urban youth but that it should be done for a longer period of time. Future research needs to confirm the benefits of the program for this and other communities; it is also needed to better understand the psychological and social benefits of PA programming, especially for culturally diverse and disadvantaged young people. Although we cannot speak to the generalisability of these findings, the lessons learned can be applied to the development of similar interventions. For example, despite a number of efforts to reduce barriers to youth participation, some contextual constraints remained largely due to poverty and its consequences (e.g., unstable and poor housing arrangements,

health problems for the youths and family members). It is important that community interventions attempt to reduce the constraints that they can address; it is also critical that funders understand that additional resources may be necessary to appropriately meet community needs (e.g., separate programs for male and female youth). Furthermore, multi-setting interventions have strong support, and as the problem of physical inactivity is complex, attempts should therefore be made to combine community-based PA interventions with interventions targeting other settings (e.g., school, home; Catalano *et al.* 2004, van Sluijs *et al.* 2007). Efforts to promote the well-being of young people also need to come from multiple levels and across sectors, including collaborative partnerships (Biddle *et al.* 2004).

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