

Acceptability of a school-based incentivised physical activity intervention: The B-Active program

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Keywords: Children, Physical Activity, Incentives, Acceptability.

Abstract

The purpose of this study was to examine the acceptability to students, parents and teachers of a school-based intervention that incentivised students using prizes to be more physically active (the B-Active program). Three hundred and eighty-five children (54% boys, 46% girls) in Years 3 – 6 from five schools participated in the study. Six parents and three teachers were also interviewed about their perception of the B-Active program. Overall, the students enjoyed the B-Active program but the level of acceptability was lower for the parents and teachers. This study indicates that to increase acceptability, parents need to be well informed and engaged and teachers need to be well supported so as to not add to their administrative responsibilities.

Introduction

Physical activity (PA) is of paramount importance to the health of children (Active Healthy Kids Australia, 2014). Lack of PA in childhood is associated with increased overweight and obesity, type II diabetes and risk factors for cardiovascular disease, as well as sub-optimal skeletal growth and poor psychosocial measures (Biddle & Asare, 2011; Must & Tybor, 2005; Motl, Birnbaum, Kubik et al., 2004; Pontiroli, 2004; Slemenda, Miller, Hui et al., 1991).

Clearly it is imperative that children meet

recommended PA guidelines to avoid the ill-effects of physical inactivity. Disturbingly, the 2014 Australian Report Card on PA for children and young people awarded a “D-grade” based on the evidence that the majority of Australian children ages 5 – 17 years are not meeting the Australian Physical Activity Guidelines (Active Healthy Kids Australia, 2014). Initiatives to increase PA in children are desperately needed.

As the largest portion of a typical child's weekday is spent at school and the school environment offers an accessible infrastructure through which students may be informed and monitored, school-based programs to promote PA are desirable (Powers, Conway, McKenzie, et al., 2002; Lubans, Morgan, Weaver et al., 2012). School-based programs have been shown to increase children's PA (Naylor et al 2010, Mâsse et al 2012); however, for long-term sustainability such programs need to be acceptable to the children and administering stakeholders, including teachers and parents.

This study examined the acceptability of a school-based PA program (the B-Active Program) to Year 3-6 students, their parents and teachers. The B-Active program encouraged students to participate in organised and unorganised PA both inside and outside the school environment through a reward-based, prize incentive scheme. PA-promoting programs involving rewards have been shown to increase children's PA (Cohen, Morgan, Plonnikoff et al., 2014; Epstein, Saelens, & O'Brien, 1995; Lubans, Morgan, Weaver et al.,

“The majority of Australian children ages 5 – 17 years are not meeting the Australian Physical Activity Guidelines”

2012; Hardman, Horn, Fergus et al., 2011); however, the acceptability of these programs has not been determined.

Method

Participants

All students ($N \approx 750$) in Years 3 – 6 (aged 7-13 years) from five primary schools located in outer-city suburbs of Sydney and Melbourne were invited to participate in the B-Active program and take part in the study. Of these students, 385 children (54% boys, 46% girls) returned parental consent forms and hence constituted the study sample. Additionally, six parents and three teachers were randomly selected to be interviewed about their perception of the B-Active program. Approval for the study was gained from the Avondale College of Higher Education Ethics Committee.

Study design

A mixed methods approach (Creswell & Clark, 2011) was used involving a student questionnaire and parent and teacher interviews.

The B-Active program and Implementation

The B-Active program aimed to incentivise the PA of children by utilising a web-based interface through which students could log their participation in both organised and unorganised PA to earn points that could be redeemed for prizes.

Students were introduced to the B-Active program through their school. Printed material about the B-Active program was sent home with the students to share with their parent(s). Parents were encouraged to play an enabling role in supporting their child to participate in both organised and unorganised PA by “signing off” on the PA that their child undertook. Members of the research team visited the schools and instructed the students about the B-Active program and the process of earning and redeeming prizes. The students were guided and trained in how to record their PA and how to enter it into the B-Active website, which involved creating a unique B-Active profile. The web-interface was user-friendly and once their profile had been created the students could easily log their PA participation by indicating the duration (in minutes) and type of activity (using drop-down menus). The web-interface automatically calculated and awarded points to the student's profile, with higher intensity activities earning more points.

The B-Active program commenced in Term 1 and ended in Term 4 (a total of 34 weeks). During this time the students were encouraged to record their PA. The students were able to redeem their accrued points for prizes at any time throughout the program, or they could accumulate their points so as to earn a more valuable prize. Prizes consisted of sports-related equipment and there were four tiers of prizes, each requiring a different minimum number of points

“The B-Active program aimed to incentivise the PA of children by utilising a web-based interface through which students could log their participation”



Table 1: Student attitudes to the B-Active Program

Statement	True for me	Sort of true for me	Sort of not true for me	Not true for me
1. I enjoy being involved in the B-Active program.	29%	37%	17%	17%
2. The B-Active program made me do more physical activity.	23%	32%	21%	24%
3. My parent encouraged me to do physical activity so as to earn points for the B-Active program.	18%	27%	22%	33%
4. My parent took me to my sporting club or game so that I could do physical activity and earn points for the B-Active program.	20%	21%	24%	36%
5. My parent watched me do the sports that I was participating in so as to earn points for the B-Active program.	21%	27%	20%	32%
6. My parent signed my PA timecard for me so that I could earn points for the B-Active program.	25%	21%	23%	31%
7. I like the different sports and physical activities they had on the list to earn points for the B-Active program.	31%	27%	22%	20%
8. It is easy for me to get my PA timecard signed off by an adult.	30%	23%	23%	24%
9. My teacher encouraged me to be active and earn points for the B-Active program.	25%	27%	25%	23%
10. I got a prize with the points I earned in the B-Active program.	27%	25%	16%	33%
11. The list of prizes I could choose from was good.	31%	30%	18%	21%
12. I had no problem earning prizes.	26%	27%	20%	27%
13. If there were no prizes, I would still do the B-Active program and keep track of my minutes of physical activity.	27%	24%	25%	24%
14. I regularly checked how many points I had.	18%	21%	22%	39%
15. I have no problem entering in my PA timecard on the computer.	25%	24%	22%	29%
16. I would rather be involved in unorganised sport and physical activity (such as walking, biking) than organised sport (such as soccer training, dance lessons).	24%	25%	20%	31%
17. The B-Active program takes up too much of my time and keeps me from doing other important things.	19%	25%	23%	33%
18. I would like to continue being a part of the B-Active program.	33%	27%	17%	23%
19. Overall, the B-Active program is fun and worthwhile.	70%	11%	8%	11%

The students could order the prizes through the website and these were delivered to the school for presentation

with the more expensive items requiring more points. The students could order the prizes through the website and these were delivered to the school for presentation. Funding for the prizes was supplied by the BUPA Health Foundation.

Classroom teachers were involved in the program by monitoring and supporting their students throughout the program and also “signing off” on their students’ PA participation during school time.

Data collection and presentation

The students completed a questionnaire at the end of the B-Active program that comprised 19 attitudinal questions relating to the program. All questions used a 4 point Likert scale with the options ranging from *true for me*, *sort of true for me*, *sort of not true for me*

to not true for me (see Table 1). The data from the student questionnaire are presented as descriptive statistics (Table 1). The qualitative data was gathered through parent and teacher interviews which were recorded through hand written notes. These were subsequently coded into themes through an analysed process of constant comparison.

Results

Students’ attitudes toward the B-Active Program

The responses of the 385 students to the questionnaire administered at the end of the B-Active Program are shown in Table 1.

As seen in Table 1, the majority of the students enjoyed being involved in the B-Active program (Q1) and would have liked to continue in the



program (Q18). A little over half of the students that participated in the B-Active program felt that they did more PA because of the program (Q2). Approximately half of the students indicated they had no difficulty earning and claiming a prize, however, the other half indicated they did encounter difficulties (Q12). Most students seemed to be happy with the selection of prizes they could choose from (Q11). The students didn't feel the B-Active program took up too much of their time (Q17) and the majority of students felt that the B-Active program was fun and worthwhile (Q 19). Close to half of the students indicated that they felt their parents were not engaged in supporting them in the B-Active program (Q3 to 6).

Parent attitudes toward the B-Active Program

Six parents (all female) whose children were enrolled in the B-Active program agreed to be interviewed about the program. Several themes were captured from the parents' responses to questions relating to the B-Active program.

The majority of the parents felt that the B-Active Program was worthwhile, as evidenced by the following quotes:

Parent 1. Because of the B-Active program, my child wants to be more active and she is now quite confident.

Parent 2. As a parent, the program made me aware that we aren't doing as much as we should in helping our children increase their physical activity. It prompted us in that way.

Parent 3. The value in the program is that the kids enjoy it!

However, one parent stated:

Parent 4. The B-Active program didn't make any difference with my child because they are already active all the time.

The parents also indicated that they found the B-Active program a little confusing or difficult to engage with. While they felt that the B-Active program was a good concept they also felt that it did not sufficiently engaged their child/children. The parents indicated that the B-Active program could be improved by being better administered, having greater PA options to select from in the drop-down menu items in the web-interface, and better prizes at the highest point-redeeming level.

Teacher attitudes toward the B-Active program

Three teachers (two males and one female) whose class had participated in the B-Active program were randomly selected to participate in a post-program interview to assess their attitudes toward the B-Active program.

Overall these teachers thought the B-Active program was a novel idea and supported the notion of increasing PA in children. However, the teachers reported little engagement with the B-Active program themselves, as they were too busy with other school related work. They felt the administration of the program in their schools was inadequate.

“As a parent, the program made me aware that we aren't doing as much as we should in helping our children increase their physical activity”



Teacher 1. The B-Active program needs a teacher or coordinator at the school to drive it.

The teachers also deemed the prizes on offer did not provide enough incentive to motivate the children to be more active.

Teacher 2. The prizes were a good enough incentive to get the students to document the physical activity they were already doing but not good enough to motivate the students to actually do more exercise.

Discussion

The results of this study indicate that the B-Active program was acceptable to the majority of students, but less so to the parents and teachers. Several lessons from the study emerge relating to increasing the acceptability of the B-Active program, as well as other programs that aim to increase PA through prize-incentivisation.

The B-Active program rewarded both organised and unorganised PA, which appeared to increase acceptability of the program. In addition to increasing acceptability, encouraging unorganised PA is important from a public health perspective. For example, while approximately three quarters of Australian children participate in organised sport (Australian Bureau of Statistics, 2012), only 19% meet the National PA recommendations (Active Healthy Kids Australia Report, 2014). This disparity is attributed to the high level of sedentary activities children participate in when they are not engaged in organised sporting activities. There is a growing recognition that organised PA, such as involvement in sporting teams, is often not enough to activate children and that more active play is necessary and needs to be encouraged (Active Healthy Kids Australia, 2014). Acknowledging and rewarding

“There is... recognition that organised PA, such as ... in sporting teams, is often not enough ... and that more active play is necessary”



unorganised PA in prize-incentivising programs like the B-Active program is therefore important.

Being a prize-incentivised program, the quality of the prizes was clearly an integral part of the B-Active program that greatly influenced its acceptability to the participating students, and as discussed below, its potential effectiveness for motivating increased levels of PA. The findings of this study suggested that the students valued the prizes enough to document the activity they were already doing, but possibly not enough to motivate increased PA participation. Clearly, prizes that are highly valued by the students are ideal for programs like B-Active, however, there are two considerations that arise from this imperative. Firstly, prizes more highly valued by the students typically incur a higher cost. In this study, the prizes were donated by the BUPA Health Foundation but a funding source might often not be available to schools in which case the program would not be viable or sustainable. Hence, programs like B-Active might not be applicable in all contexts and communities. Secondly, it is important that the prizes are consistent with the ethos of the program that aims to encourage healthy living practices. In the B-Active program the prizes centred around sporting equipment such as Frisbees and various styles of balls. However, these prizes might not be attractive to children who are not “sporty”, which is the precise demographic that the program seeks to influence. Careful consideration therefore needs to be given to the prizes offered through the program to balance student interest and financial outlay. In some contexts there might be opportunity to offer inexpensive prizes, such as privilege-based incentives, and the relative acceptability of these

should be considered in further studies.

The lower acceptability of the B-Active program to the teachers than the children was largely a consequence of the additional responsibility associated with administering the program. However, only a low number of teachers were interviewed and hence the data might not be representative of the entire teacher group. Notwithstanding, the teachers interviewed expressed that most teachers already feel considerable pressure in their work environment and the addition of extra responsibilities is therefore not welcomed. There was a strong sentiment that for the program to be successful a “champion” was needed to drive and administer the program at the school level. Such a “champion” would provide clear directions to all stakeholders on how to engage with the program as well as provide ongoing encouragement and support for the parents, teachers and students in the use of the program. It was suggested that this is most essential at the introductory phase of the program until a ‘culture’ of participation is established, but also ongoing to facilitate engagement. Indeed, in a recent multi-component school-based PA intervention that yielded significant outcomes (Cohen et al., 2014), a large amount of effort was dedicated to supporting the teachers.

The majority of the students indicated that they felt their parents were not engaged in supporting them in the B-Active program and that parental involvement was minimal. These reflections by students are consistent with responses by the parents and may be indicative of the B-Active program being a school-based initiative. It is relevant to note that previous work by Trost et al. (2003) supports the notion that parental support is an important correlate of a child’s PA. This suggests that in order to increase the success of the B-Active program, strategies to increase parents’ engagement are desirable.

The focus of this study was acceptability of the B-Active program, however, it is acknowledged that even though the program might be acceptable to the students, this might not equate to program effectiveness as measured by the primary objective of increasing PA levels. While in this study half of the students indicated that they did more PA due to the program, a study involving objective measures is need to validate this report. It is noteworthy that while half of the students indicated that they did increase their PA as a consequence of participating in the program, the other half indicated they did not. In further studies it will be important to consider, as indicated by one parent, that many students are already highly active and therefore the B-Active

“It is noteworthy that while half of the students indicated that they did increase their PA ... in the program, the other half indicated they did not”



“Future research should focus on less active children and the potential benefits of the B-Active program for them”



program would likely to not produce further increases in PA levels. Future research should focus on less active children and the potential benefits of the B-Active program for them. Indeed, studies involving PA interventions commonly target schools located in low income areas as low socioeconomic status is associated with lower PA levels (Lubans et al., 2012).

A final consideration for future studies is the duration of the program. In the present study the B-Active program was conducted over 34 weeks. This is a long duration for the students, parents and teachers to stay motivated and engaged with the program, which may affect its acceptability. Further studies might consider a shorter duration, which might also alleviate the effects of seasonal variation on PA levels in the study design, although a shorter duration might not reflect potential long-term benefits (Cohen et al., 2014).

Conclusion

The students who participated in B-Active were accepting of the program and enjoyed participating in it. There is a need to objectively explore whether this level of acceptability translates to increased PA levels within the participating students. Parents and teachers were less accepting of the program than the children and increasing their level of engagement and 'buy-in' is important in future studies. In particular, teachers require support

when initiating school-based interventions designed to increase PA in order to minimise increases in their administrative responsibilities. **TEACH**

References

- Australian Bureau of Statistics (ABS). (2012). Children's participation in sport and leisure time activities, 2003 to 2012. Catalogue No. 4901.0. Canberra: Australian Bureau of Statistics; 2012.
- Active Healthy Kids Australia. (2014). Is Sport Enough? The 2014 Active Healthy Kids Australia Report Card on physical activity for children and young people. Adelaide, South Australia: Active Healthy Kids Australia. <http://www.activehealthykids.ca/ReportCard/2014ReportCard.aspx>
- Biddle, S. & Asare, M. (2011). Physical activity and mental health in children and adolescents: a review of reviews. *Br J Sports Med*. DOI:10.1136/bjsports-2011-090185.
- Creswell, J. & Clark, V. (2011). Designing and conducting mixed methods research. (2nd Ed.). Thousand Oaks, CA: Sage
- Cohen, K., Morgan, P., Plotnikoff, R., Callister, R. & Lubans, D. (2014). Physical activity and skills intervention: SCORES cluster randomised controlled trial. *Med Sci Sport Exerc*. DOI: 10.1249/MSS.0000000000000452
- Epstein, L., Saelens B., & O'Brien, . (1995). Effects of reinforcing increases in active behaviour versus decreases in sedentary behaviour for obese children. *Int J Behav Med* 2(1): 41–50.
- Hardman, C., Horne, P., Fergus, ?. & Lowe C. (2011). Effects of rewards, peer-modelling and pedometer targets on children's physical activity: A school-based intervention study. *Psychol & Health*, 26(1): 3-21.
- Lubans, D., Morgan, P., Weaver, K., Callister, R., Dewar, D., Costigan, S., Finn, T., Smith, J., Upton, L. & Plotnikoff, R. (2012). Rationale and study protocol for the supporting children's outcomes using rewards, exercise and skills (SCORES) group randomized controlled trial: A physical activity and fundamental movement skills intervention for primary schools in low income communities. *BMC Public Health* 2012, 12:427. <http://www.biomedcentral.com/1471-2458/12/427>.
- Masse LC, McKay H, Valente M, Brant R, Naylor P. (2012). Physical activity implementation in schools: a 4-year follow-up. *Am J Prev Med* 43(4): 369–377
- Moti R, Birnbaum A, Kubik M, Dishman R. (2004). Naturally occurring changes in physical activity are inversely related to depressive symptoms during early adolescence. *Psychosomatic Med* 66: 336–342.
- Must A, Tybor D. (2005). Physical activity and sedentary behavior: a review of longitudinal studies of weight and adiposity in youth. *Int J Obesity* 29, S84–S96. DOI:10.1038/sj.ijo.0803064.
- Moore L, Gao D, Bradlee M, et al. (2003). Does early physical activity predict body fat change throughout childhood? *Prev Med* 37:10-17.
- Naylor P, Scott J, Drummond J, Bridgewater L, McKay HA, Panagiotopoulos C. (2010). Implementing a whole school physical activity and healthy eating model in rural and remote First Nations schools: a process evaluation of Action Schools. *Rural and Remote Health* 10: 1296.
- Pontioli A. (2004). Type 2 diabetes mellitus is becoming the most common type of diabetes in school children. *Acta Diabetol* 41:85–90.
- Powers H, Conway T, McKenzie T, Sallis J, Marshall S. (2002). Participation in extracurricular physical activity programs at middle schools. *Res Quart Exer Sport* 73(2): 187-192.
- Slemenda C, Miller J, Hui S, Reister T, Johnston C. (1991). Role of physical activity in the development of skeletal mass in children. *J Bone and Min Res* 6(11): 1227-1233.
- Trost S, Sallis J, Pate R, Freedson P, Taylor W, Dowda M. (2003). Evaluating a model of parental influence on youth physical activity. *Am J Prev Med* 25(4): 277-282.