

Make Room for Play: An evaluation of a campaign promoting active play.

Abstract

In the context of rising screen time, only a third of Canadian children are achieving adequate amounts of active play, an important source of physical activity. ParticipACTION, a national not-for-profit organization, created the “Make Room for Play” campaign targeting parents with television advertisements depicting how screen time takes away from active play. The advertisements featured children engaging in active play (e.g., jump rope) while a black screen progressively sequesters the room for them to play. This study’s purpose was to evaluate the campaign using the hierarchy of effects model, a framework for conceptualizing the impact of mass media campaigns. It was hypothesized that recall would relate to intermediate (e.g., cognitions, self-efficacy) and distal (e.g., parental support) factors. Twenty-six percent of the general population and caregiver samples surveyed ($N=1576$) recalled (unaided) the advertisement and 45.9% recalled when prompted. Parental support was significantly higher in those recalling the campaign, $p=.009$. Twenty-four percent of parents reporting unaided recall (versus 14.0% of those not) tried to engage in active play with their children and 21.2% (versus 12.0%) tried to create opportunities for children to engage in play. Strengths and limitations of mass media approaches targeting active play and screen time are discussed.

Keywords:

Active play; screen time; ParticipACTION; hierarchy of effects, mass media

Introduction

Active play, defined as unstructured physical activity that takes place outdoors in a child's free time (Veitch, Bagley, Ball & Salmon, 2006), serves an important role in children's well-being (Pellegrini & Smith, 1998). Not only does active play stimulate social, emotional, and cognitive development (Burdette & Whitaker, 2005), it contributes to overall physical activity levels and subsequent health (Brockman et al., 2009; Brockman, Jago, & Fox, 2010).

This role of play as a source of physical activity is important in the context of declining physical activity participation among children. The 2016 Global Matrix on physical activity for children and youth reported grades for both overall physical activity and sedentary behaviour as D (low/poor; Tremblay et al., 2016). In Canada, only 9% of children and youth achieve the recommended 60 minutes of moderate-vigorous physical activity/day (Statistics Canada, 2015). When it comes to active play, only 24% of the countries included in the Global Matrix received a "good" grade of A, B, or C (Tremblay et al., 2016). In Canada, where the active play grade was D+, only 37% of 11-15 year olds play outdoors for at least 2 hours each day (Barnes et al., 2016). Over the past decades, active play has been on the decline in developed countries with parental safety concerns and a decline in free time being suggested as a few possible reasons (Gray, 2011; Sturm, 2005; Valentine & McKendrick, 1997).

To further add to this 'activity crisis', sedentary behaviour, defined as "any waking behaviour characterized by an energy expenditure ≤ 1.5 METs while in a sitting, reclining or lying posture" (Tremblay et al., 2017, p. 19), is on the rise. Contributing to sedentary time in the young population is screen time in the form of television, computer, video games, and phone or tablet devices. Among Canadian children, only 15% of 3-4 year olds meet the recommendation of less than 1 hour of screen time per day, 24% of children aged 5-11 and 10% of 11-15 year olds meet their recommendation of less than 2 hours/day (Freeman, King, & Pickett, 2016; Barnes et al., 2016).

In isolation, screen time can have a direct impact on health with research suggesting screen time negatively influences behaviour and development in toddlers (Swingle, 2016). Further, an important consideration is the trade-off between screen time and other activities that are health-enhancing (e.g., active play; Tandy, 1999). Though it is recognized that screen time and active play are distinct (Knox, Biddle, Esliger, & Sherar, 2015), there is a relationship between the two (Anderson, Economos, & Must, 2008). Often, sedentary behaviour takes place during children's free time that may otherwise, in the absence of screens, involve active play. The health implications of the combined effects of increased screen and sedentary time, along with decreased physical activity and active play are concerning. Consequently, calls have been made for research to understand how to counteract these effects through an increase in active play and decrease in screen time (Barnes et al., 2013; Janssen, 2014; The Lawson Foundation, 2016).

Mass media may play an important role in promoting active play and reducing sedentary behaviour in children with one strategy being to focus on educating parents as the gatekeepers of their child's behaviour (Sallis, Prochaska, & Taylor, 2000; Trost et al., 2003; Welk, 1999). For example, campaigns may attempt to increase the value that parents place on active play by highlighting important health consequences of declining opportunities for active play. ParticipACTION, a national not-for-profit organization that strives to increase physical activity in the Canadian population (see Latimer-Cheung, Murumets & Faulkner, 2014), developed a series of campaigns targeting parents (e.g., Craig, Bauman, Gauvin, Robertson, & Murumets, 2009; Gainforth et al. 2015). In 2011 ParticipACTION produced the "Think Again" campaign to address the incongruence between children's low activity levels and a high percentage of parents who believe their children are sufficiently active (http://www.youtube.com/watch?v=vX_Hyqp-3ac&list=SPn9ck0OZhkYVlk_itMNGnDdS5pqmcTOX

). An evaluation of this campaign concluded that it was marginally effective in increasing parental knowledge of physical activity guidelines and creating more realistic impressions of children's activity levels (Gainforth et al., 2015). While "Think Again" and other campaigns target physical activity in children, a limited body of research exists on the presentation of sedentary behaviour in mass media campaigns (Knox et al., 2015).

ParticipACTION developed the "Make Room for Play" campaign which ran on television and online from January until March, 2015. Advertisements targeted the issue of screen time in children and highlighted the important interplay between increased screen time and decreased active play. The primary goal of the campaign was to increase parental awareness of the importance of active play and to highlight the potential for screen time to take away from this source of physical activity. A novel aspect of the campaign was introducing the concept of screen time as an antagonist to active play, a strategy consistent with marketing approaches (i.e., positioning target behaviours against the "competition") but less utilized in the physical activity realm (Lee & Kotler, 2015). The advertisements showed children engaging in active play (e.g., playground play) while a black screen progressively sequesters the images of the children playing. The words "Screen time is taking away play time" appear in the black area of the screen followed by "Make room for play." "ParticipACTION – Don't visit our website" appears at the end of the ad. Four 30-second advertisements were created (in both English and French) each featuring a different form of unorganized active play (playground, basketball, ball hockey, or jump rope). To view an advertisement visit: <https://www.youtube.com/watch?v=Lk-AdtfkpTc>.

The evaluation of this campaign was guided by the hierarchy of effects (HOE) model (Bauman et al., 2008; Bauman, Smith, Maibach & Reger-Nash, 2006; McGuire, 1984). This model conceptualizes the impact of a mass media campaign as a chain of links between proximal factors (e.g., recall of the campaign) and distal outcomes (e.g., behaviour change). Between awareness and behaviour change at

the extreme ends of the proximal-distal spectrum are intermediate factors such as change in beliefs about the behaviour (e.g., outcome expectancies, cognitions) and intentions to engage in the behaviour. While the “Make Room for Play” campaign may not have directly targeted these variables, the campaign indirectly sought to modify attitudes toward play and screen time, and indirectly modify self-efficacy through the ParticipACTION resources that the ad was driving parents to review. As such, the HOE model would predict that recall of the “Make Room for Play” campaign might lead to positive changes in parents’ outcome expectations about encouraging play or limiting screen time and greater confidence and intentions to create opportunities for play. More distally this could result in changes in behaviour (i.e., creating opportunities for children to engage in active play). The model recognizes that it becomes increasingly difficult to demonstrate campaign success when moving from proximal to distal outcomes but examining proximal and intermediate factors is helpful in clarifying how campaigns might exert their influence. The HOE model has been used to design and evaluate previous mass media physical activity promotion initiatives (Cameron, Craig, Bull, & Bauman, 2007; Craig, Bauman, & Reger-Nash, 2010; Huhman, Heitzler, & Wong, 2004; Spence et al., 2009) with some of these (e.g., Spence et al., 2009) being able to demonstrate associations between proximal and distal effects. However, it has not yet been applied to the evaluation of a campaign related to sedentary behaviour or a campaign targeting active play.

The purpose of the current study was to evaluate ParticipACTION’s “Make Room for Play” campaign. Based on the HOE model, questions assessed both the awareness of the campaign and its’ potential impact on behaviour change or precursors to change. We examined: 1) correlates of recall of the “Make Room for Play” advertisements (unaided and aided recall) and 2) the associations between recall on intermediate (outcome expectations, self-efficacy, intentions) and distal (parental support around encouraging active play or limiting screen time, and parents’ report of child screen time and

physical activity behaviour) outcomes. It was hypothesized that parents who recalled the ad campaign would report higher values for intermediate (self-efficacy, intentions, outcome expectations) and potentially higher values for distal (parental support, child screen time & activity) outcomes associated with the model than those who did not report recall, recognizing that the most likely effects will be on the proximal outcomes and, in line with the model, any effects on distal outcomes would be less expected. Consistent with previous evaluations that have used the HOE model to evaluate mass media campaigns (Conn, Hafdahl, & Mehr, 2011; Foster, Hillsdon, Thorogood, Kaur, & Wedatilake, 2005; Gainforth et al., 2015), small, but significant, effects were predicted.

Method

Procedure & Participants

Using a post-test only design, online surveys (in English or French) were conducted by Vision Critical, a hired vendor. Participants ($N = 1576$) were recruited using the Angus Reid Forum, an online consumer panel of over 125,000 Canadians, in April 2015. Recruitment was targeted across two groups. The first included randomly-selected adults to make up the general population sample ($n = 767$). This sample was weighted to reflect the Canadian population (using Census data) by gender, age and region. The second sample was mothers with children ages 5-11 years ($n = 809$). Though Vision Critical actively recruited mothers, we chose to include all parents of children in the 5-17-year age range in analyses as this was the primary audience of the advertisements. Parents and caregivers included 60% of the total sample ($n=944$; 87% mothers; 8% fathers, 5% other forms of caregivers). See Table 1 for demographics. The study was approved by the institutional Research Ethics Board.

Measures

Demographics

Participants reported their age, gender, education, income, physical activity (moderate to vigorous minutes/week), and the number of children between the ages of 5 and 17 years under their care. Parents were asked four questions related to their past behaviour in terms of monitoring the screen time of their children (e.g., “In the past, I have talked to my spouse/partner about limiting screen time for our child/children”; 1 = strongly agree to 4 = strongly disagree).

Campaign Awareness

To assess unaided recall of “Make Room for Play”, participants were asked five questions. The first two yes/no options asked, “Have you seen any recent advertising about... 1) “physical activity?” and 2) “promoting active play as a form of physical activity for children?” In the present analysis, only this latter question was used to classified respondents into the unaided category. These questions were followed by three open ended questions (e.g., “What, if any, catchphrase or slogan can you remember seeing or hearing in the ad?”). For aided recall, participants were asked (yes/no) if they recalled seeing the four specific advertisements on television after being shown a still image of each of the four advertisements (visual recognition; the order was randomized). Participants were categorized as having aided recall if they responded yes to recalling at least one advertisement. Participants were also asked approximately how many times they had seen the ad (i.e., dose of exposure).

Outcome Expectations – Activity & Screen Time

Four statements, rated on a scale from 1 (*strongly agree*) to 4 (*strongly disagree*), assessed outcome expectations toward children’s unstructured play (e.g., “Unstructured activities, such as outdoor play, can help my child achieve the recommended level of physical activity”, “Reducing my child/children's screen time provides them more opportunities for activities like outdoor play”).

Responses were summed to create a composite score (Cronbach’s $\alpha = .72$).

Self- Efficacy – Physical Activity

Seven items, rated on a 4-point scale (1 = *very confident* to 4 = *not at all confident*) assessed parents' confidence in their ability to help their child be active when faced with barriers (Bellows-Riecken & Rhodes, 2008). Items began with the stem, "If you really wanted to, how confident are you that you can find ways to help your child be active . . . ?" End points included (1) "when he/she doesn't really feel like doing it?" (2) "and still spend time doing things he/she wants to do?" (3) "and still spend time doing things with the family?" (4) "when you have other chores and time responsibilities?" (5) "on days when you're fatigued from work/chores?" (6) "when the weather is bad?" (7) "by limiting screen time". Responses were summed to create a composite score (Cronbach's $\alpha = .88$).

Self-Efficacy – Screen Time

One item, also rated on a 4-point scale was used to assess parents' confidence in their ability to help their child reduce their screen time ("I feel confident that I can interrupt or limit my child's/children's screen time at any time").

Cognitions – Screen Time

Parents were asked how much they agreed or disagreed with two statements regarding screen time (1 = strongly agree to 4 = strongly disagree). Specifically, "For me, interrupting or limiting my child/children's screen time is important/unpleasant".

Intentions – Physical Activity and Screen Time

One item, rated on a scale from 1 (*strongly agree*) to 4 (*strongly disagree*), assessed parent intentions for reducing screen time - "I intend to make stricter rules for my child/children regarding the amount of daily screen-time activities (e.g., watching TV, playing video games) in the next 6 months." Another item assessed intentions to promote activity - "Over the next six months, I intend to help my child/children be more physically active".

Parental Support – Physical Activity and Screen Time

To assess if parents had engaged in supporting behaviours, those parents who reported unaided or aided recall answered 11 yes-or-no items beginning with the stem, “As a result of seeing these ads on television have you done any of the following? Please check all that apply . . .” Endpoints are listed in Table 2 and reflect types of parental support activities that would target activity and play (e.g., “Made an effort to engage in active play with my child more often”). The percentage of parents who reported yes to a given support was used to examine the individual types of support (e.g., engaging in active play, reducing screen time) and the number of parental behaviors a participant engaged in was summed to create a continuous measure of parental support (Gainforth et al., 2015).

Child Behaviour – Physical Activity

Reflecting the Canadian Physical Activity Guidelines for Children and Youth at the time (Tremblay et al., 2011), one item assessed children’s physical activity: “Over the past 7 days, on how many days was your child physically active for a total of at least 60 minutes per day?” If parents had more than one child, they were instructed to answer for the child whose birthday occurred next.

Child Behaviour – Screen Time

Parents were asked “On average, how many hours and minutes per day does your child/children watch TV, use the computer, play video games, during their free time?” for both a typical weekday and a weekend day. They were also asked, “In a typical week, how many days do you restrict your child from watching TV, playing video games, or using the computer for more than 2 hours per day during their free time, (not including time they’re doing homework)?”. Questions focused specifically on recreational screen time and did not include time spent on homework.

Analysis

Using SPSS statistical software, frequencies were calculated for recall variables and binary logistic regression was used to examine correlates of recall (both aided and unaided) in the total sample.

If applicable, any significant correlates were used as covariates in the following MANCOVAs used to ascertain the impact of the campaign. For the primary analysis, unaided recall variable was used given that it has been argued using unaided recall is one way to ensure that the respondent has truly seen the campaign (Peetz-Shou, 1997). Only parents were included in analyses examining associations between recall and intermediate/distal outcomes as the questions pertained to thoughts and behaviours around parenting. MANCOVA tested for differences in primary outcomes (outcome expectations, intentions, self-efficacy, child activity, and child screen time) between those with unaided recall and those with only aided or no recall. A separate MANCOVA examined differences in parental support between parents reporting unaided recall and those with only aided recall (as parental support questions were only asked for those recalling the advertisements in some form). Differences in outcomes were also examined using MANCOVA with high and low dose of exposure to ads (median split for frequency of ad recall) as the independent variable. Significance was set at $p < .05$.

Results

Demographics

Participants were both French and English speaking and came from all Canadian provinces. Demographics are presented in Table 1. While the total sample was used to examine correlates of recall, only the parents with children in the target age range were included in analyses specific to thoughts or actions related to children's screen time or play. For those who were parents, mean number of children between the ages of 5 and 17 years was 1.9 ($SD = 1.1$). Mean number of minutes engaged in physical activity for the general population ($M = 183$ minutes/week, $SD = 259$) and parent ($M = 173$ minutes/week, $SD = 237$) samples suggested that many were meeting Canada's guidelines of 150 minutes per week, however, there was large variability.

For children's activity, the mean days reported for being active at least 60 minutes/day was 4.5 days ($SD = 1.00$), which falls below the suggested guidelines. Average screen time for children on a weekday was over 2 hours/day ($M = 2.04$, $SD = 1.66$) and on a weekend day was over 3 hours/day ($M = 3.39$, $SD = 2.00$), also falling short of the guidelines which suggest limiting screen time to no more than 2 hours per day (Tremblay et al., 2017).

Awareness

In terms of unaided recall, 26.4% of the total sample ($N = 1576$) recalled an ad about active play as a form of physical activity for children and the message of "Screen Time" was correctly recalled by 40% of these individuals. 23% of the general population who recalled seeing an ad about physical activity correctly named at least one of the slogans "Screen time cuts into playtime" or "Don't visit our website" in open-ended responses. Those that did not correctly name the slogan either reported nothing or 4% named "Be/get active", "Bring Back Play" (a previous ParticipACTION campaign), or "Get moving/in Motion" (In Motion is another national organization). 45.9% of the total sample (i.e., an additional 19.5% above those with unaided recall) reported being aware of at least one of the ads with aided recall (i.e., shown a picture of the ads). Of the four ads, the "playground" ad garnered the highest recall (39.7% of the overall combined samples could recall) followed by 24.5% recalling the jump rope ad, 19.4% the ball hockey, and 17.5% the basketball ad. When those who recalled the ads were asked how often they had seen them on television the reported mean was 7.8 times ($SD = 12.2$).

Correlates of Awareness

The binary logistic regression used to ascertain associations between the demographic variables (age, gender, income, education, parent vs. not, number of children, adult activity, past parent behaviour relating to screen time) and the likelihood of aided recall (vs. no recall) identified no significant correlates (Nagelkerke $R^2 = .029$). For unaided recall, past parent behaviour emerged as a significant

correlate ($p = .006$, Nagelkerke $R^2 = .082$). Therefore, past parent behaviour related to screen time monitoring was used as a covariate in the subsequent analyses for unaided recall.

Differences in Outcomes by Awareness

Using only the parent sample, MANCOVA was conducted with unaided recall vs. only aided or no recall as the independent variable and past parental behaviour as a covariate. No differences emerged for outcome expectations, intentions, self-efficacy to limit screen time or promote activity, actual screen time, or child's physical activity levels (p 's $< .10$).

Differences in Parental Support

Parent support was only asked for parents recalling the ads in some form (unaided or aided). The composite parental support score was higher for those with unaided recall than those without (i.e., those reporting only aided recall of the campaign), $F(1, 171) = 7.06$, $p = .009$, partial eta squared (η_p^2) = .04. In addition to testing for differences using the global score of support, analyses examining differences in each specific type of support was conducted. Specific supports that were more likely to be utilized by those recalling the advertisements were “made an effort to engage in active play with my child more often” ($p = .003$, $\eta_p^2 = .051$) and “started doing more physical activity myself and/or as a family” ($p = .028$, $\eta_p^2 = .028$). Also, the likelihood of “doing nothing” to promote physical activity/play and reduce screen time in children was significantly lower in those who reported unaided recall of the ad ($p = .002$, $\eta_p^2 = .055$). Magnitude of specific support usage for those with only aided versus unaided recall is provided in Table 2.

Differences in Outcomes by Dose

A MANCOVA in the parent sample revealed differences between high and low dose of exposure to ads (frequency of times recalled seeing the ads). Outcome expectations were slightly higher in the low dose group ($p = .003$, $\eta_p^2 = .027$).

Differences in individual parental supports revealed that those who saw the ad more frequently were more likely to engage in supportive behaviour (e.g., make an effort to create opportunities for their child to engage in active play and engage in active play) and those reporting doing nothing was lower in the high dose group ($p = .003$, $\eta_p^2 = .050$).

Discussion

Using the HOE model as a guide, the impact of ParticipACTION's media campaign "Make Room for Play" was assessed in terms of campaign recall (a proximal outcome) and the association of recall with intermediate and distal outcomes. 45.9% of the total sample reported aided recall and 26.4% reporting unaided recall of the advertisements. In comparison to other campaigns, unaided recall for the "Make Room for Play" campaign was lower than ParticipACTION's previous campaign, "Think Again", which reported 42% unaided recall (Gainforth et al., 2016). In a systematic review of physical activity campaigns Abioye, Hajifathalian, and Danaei (2013) report awareness rates for national campaigns ranging from 11% to 88% with many at or just below the 50% range (e.g., 46% for "Romsas in Motion" in Norway, 54% "Netherlands on the Move", 38% "Active for Life" in the UK, 61-88% for "Push Play" campaign in New Zealand, and 11-31% "Canada On the Move", a 2004 campaign) suggesting that, overall, recall of "Make Room for Play" appeared comparable to or slightly lower than other mass media campaigns. In terms of significant demographic correlates of recall, the campaign's reach was similar across gender, age, income level and parents/non-parents. Past parental screen time management was associated with recall. Thus, parents who engaged in such behaviour in the past may be more receptive to such messaging (e.g., a processing bias; Dworkin & Goldfinger, 1985).

In terms of intermediate and distal outcomes related to recall, no differences emerged in outcome expectations, intentions, self-efficacy, child activity, and child screen time, but there were significant differences between those recalling specific ads and those who did not in the distal outcome of parental

support for screen time and play. This provides tentative support for the positive impact of the campaign on parents support for children's play because of seeing the advertisement(s), though it was surprising in that the HOE model would predict campaigns have the strongest influence on proximal outcomes (and less strong effects on distal outcomes). Specific supports parents reported included engaging in active play with their child or doing more physical activity as a family (e.g., 24.4% of parents with unaided recall, vs. 14.0% of those without unaided recall, reported trying to engage in active play with their children). Additionally, 56.5% of those who reported unaided recall of the ad compared to 44.2% of parents without unaided recall reported trying to either reduce screen time or support their child's play in at least one way (e.g., plan when kids could be active, enforce screen time rules). As parental support is the critical family-level variable linked to child physical activity (Rhodes et al., 2016), these results are promising and reflect a potential positive association of parental support with the campaign.

However, the finding that, among those who recalled the campaign, large percentages did not engage in supportive behaviours because of the ads still needs to be considered (e.g., at least 70% did not engage in any given specific support and 40% reported doing nothing). Also, further investigation is necessary to understand why intermediate variables were not impacted, as the HOE model would predict. One possibility is the advertisements did not target parents' cognitions specifically. While they may have been effective in exposing the issue of low active play and high sedentary time and potentially driving parents to resources that might target these cognitions, they did not target specific ways for parents to engage their children within the ad. For example, to target efficacy through modelling, showing success of another parent in a similar position might have a greater effect. Reinforcing the need for more work in this area, Leavy, Bauman, Rosenberg, and Bull (2014) advocate for greater consideration of individual socio-cognitive variables in the design of campaign messaging.

In addition, given the cross-sectional nature of the research, it could be that parents who were already supporting their children's play were more likely to notice the ads because it corresponds with their beliefs (confirmation bias). Research investigating the WIXX campaign, aimed at promoting physical activity among children in Quebec, Canada, would support this possibility. Perceptions (e.g., believing kids who do regular physical activity are healthier) and parental activity were both related to recall (Bélanger-Gravel, Cutumisu, Gauvin, Lagarde, & Laferté, 2017). Further, it could also be an effect of simple instructions on action control. Parents may already know the issue is important and the ads act as cues to action. There may be no major learning/shift involved in terms of cognitive variables (which would explain the lack of relationship between the campaign and more proximal/intermediate outcomes) but it puts the issue back on the parents' radar (therefore a change in the distal outcome of support).

Dose-response analysis, quantifying the response (campaign outcomes) in relation to exposure to the campaign, has not been investigated systematically in the assessment of physical activity mass media campaigns (Yun et al., 2017). Huhman et al. (2004) reported a significant positive association between dose of media exposure and the outcomes for one psychosocial (expectations of the benefits of physical activity) and one behavioral (sessions of free-time activity) outcome in the first and the second years of the VERB campaign. For the "Make Room for Play" campaign, differences between high and low dose of exposure (frequency of times recalled seeing the ads) suggested that seeing the ad more frequently related positively to behaviour. Therefore, efforts to increase dose are recommended for physical activity mass media campaigns.

Though more intermediate factors did not seem to relate to recall, it is important to note that factors such as self-efficacy are still important precursors to behaviour (Ajzen, 2002; Bandura, 1977). If parents are more confident in reducing screen time or encourage active play in children, theory would

predict they will be more likely to follow through with actions such as limiting screen time or providing opportunities for active play. It has been suggested that factors such as decreasing parents' safety concerns around children's physical activity (Lee et al., 2015; Stone, Faulkner, Mitra, & Buliung, 2014) or addressing environmental barriers (Holt et al., 2016; Davison, Lawson, & Coatsworth, 2012) could play an important role in increasing this sense of control and might be useful targets of future mass media campaigns (e.g., increase parents' efficacy around supporting their child's safety during active play). As literature would support that mass media campaigns underpinned by theory have the strongest effects on physical activity (Leavy, Bull, Rosenberg, & Bauman, 2011), this is an important area of continued exploration.

The focus of the campaign was novel in targeting outdoor play in the context of screen time. Its evaluation also contributes to a limited body of research examining the presentation of sedentary behaviour in mass media campaigns (Knox et al., 2015). The large sample, weighted to reflect the overall Canadian demographic, was also a strength. In terms of limitations, measuring recall can be difficult/inaccurate (Niederdeppe, 2014). Further, the sample was recruited through a consumer panel which can lead to biases as there are likely differences in those who sign up to do the study vs. those who do not. Like many others interested in examining health communication campaigns, this study utilized a post-test only design which carries with it limitations (Noar, 2009). Though we are not alone in drawing from the HOE model to understand a campaign using a cross-sectional design (e.g., Spence et al., 2009), the model would be most appropriately applied in a longitudinal design (e.g., the VERB campaign, Bauman et al., 2008). Drawing from the HOE model highlighted how the campaign awareness might relate to parental support, however, the intermediates are still unknown. Further, while the campaign was unique in highlighting the screen time-active play dynamic, it did not directly target theoretical constructs such as self-efficacy within the advertisements. This may have limited its

effectiveness or limited its ability to influence these types of variables in parents. As this was a secondary analysis of data collected by a third party we were limited to the measures utilized (some unvalidated) and we were not able to assess other potential intervening variables such as parental media use or parental concerns about outdoor play. Finally, as Bauman et al. (2008) point out, mass-media campaigns are likely ineffective in isolation. There is a need for policies, supportive environmental changes, and access to sustained services and programs to compliment the message shared by the campaign (Heath et al., 2012). Further, to increase and sustain physical activity at the population level, there is a need for campaigns to be multi-dimensional to create broader social environments supportive of physical activity (Leavy et al., 2011; Yun et al., 2017). Our findings confirm the likely modest impact of mass-media campaigns, without integration within broader interventions, to increase active play among children.

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Table 1: Demographic Characteristics for Total Sample of Participants

	N	%
Total Sample	1576	100
Age		
Under 30 years	130	8.2
30-39 years	386	24.5
40-49 years	405	25.7
50-59 years	226	14.3
60-69 years	130	8.2
70+ years	77	4.9
Not specified	222	14.1
Language		
English speaking	1274	80.8
French speaking	302	19.2
Sex		
Male	359	22.8
Female	1217	77.2
Parents or caregivers of children between ages of 5-17 years		
Mothers	820	86.9
Fathers	76	8.1
Other form of caregiver	48	5.1
Income		
Less than \$25,000	147	9.3
\$25,000 to < \$35,000	109	6.9
\$35,000 to < \$50,000	142	9.0
\$50,000 to < \$75,000	254	16.1
\$75,000 to < \$100,000	209	13.3
\$100,000 to <\$125,000	108	6.9
\$125,000 or more	171	10.9
Don't know or prefer not to say	436	27.7
Highest level Education		
Elementary	53	3.4
High school graduate	457	29.0
Completed college/technical school	322	20.4
University undergraduate degree	382	24.3
Post-graduate degree	140	8.9
Unspecified	222	14.1

Table 2: Percentage of parents reporting engaging in supportive behaviours by awareness

Parental Support Behaviours:	Only Aided Awareness (n = 342) % Parents Report Behaviour (SD)	Unaided Awareness (n = 283) % Parents Report Behaviour (SD)
Set goals for how much activity my child/children will get each day of the week	6.0 (24.6)	11.0 (31.7)
Planned a time when my child/children can be active	9.0 (28.8)	14.0 (35.3)
Enforced rules for how much screen time my child/children accumulates	11.0 (31.8)	16.0 (36.3)
Talked to my child/children about being more active	17.0 (37.6)	22.0 (41.2)
Talked to my spouse/partner, or other parents about active play and our children	11.0 (31.5)	14.0 (34.5)
Talked to my spouse/partner about encouraging my child/children to be more active	10.0 (30.4)	14.0 (34.5)
Made an effort to create opportunities for my child/children to engage in active play	12.0 (32.5)	21.0 (40.9)
Made an effort to engage in active play with my child more often*	14.0 (34.8)	24.0 (43.0)
Visited the website for the organization that sponsored the ad	1.0 (9.3)	4.0 (18.5)
Looked for information about how to get more physically active	6.0 (24.0)	9.0 (28.4)
Started doing more physical activity myself and/or as a family*	17.0 (37.8)	29.0 (45.3)
Done nothing*	54.0 (49.9)	40.0 (49.1)

*significantly different at $p < .05$