

A TELEPHONE-ASSISTED PLANNING INTERVENTION TO PROMOTE PARENTAL  
SUPPORT FOR PHYSICAL ACTIVITY AMONG CHILDREN AND YOUTH WITH  
DISABILITIES

SUNITA TANNA

A THESIS SUBMITTED TO  
THE FACULTY OF GRADUATE STUDIES  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
MASTER OF SCIENCE

GRADUATE PROGRAM IN KINESIOLOGY AND HEALTH SCIENCE  
YORK UNIVERSITY  
TORONTO, ONTARIO

August 2016

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## Abstract

Enhanced parental support could increase physical activity (PA) among children and youth with disabilities (CYD). The multi-process action control (M-PAC) model highlights behavioral strategies such as action planning (AP) as critical in facilitating parental support. There is no known research examining AP as a tool to promote parental PA support among parents of CYD.

**Purpose:** Evaluate a telephone-assisted AP intervention for promoting parental PA support.

**Method:** Parents of CYD were randomized to a telephone-assisted AP intervention ( $n = 28$ ) or no-support control group ( $n = 29$ ). **Results:** Compared to the no-support control group, parents

who received the telephone-assisted AP intervention were 80% more likely to action plan. A significant time x condition interaction was found for behavioural strategies (i.e., planning,

monitoring) ( $F(1,36) = 4.14, p = .049$ ). **Conclusion:** Parents in the telephone-assisted AP intervention increased behavioural strategies to support their child's PA, which suggests AP support may enhance AP and parent support for PA.

## Acknowledgements

*Dr. Rebecca Bassett-Gunter:* I cannot thank you enough for everything you have done for me. You know you are lucky when you can consider your supervisor not just a colleague, but also a friend. You are an incredible supervisor and an amazing role model. Thanks to you, I have grown tremendously as a student and as a person as well. You are extremely hardworking, reliable and a true inspiration to your students. Thank you for always putting your students' interests ahead of yours and providing us with endless opportunities. The tremendous amount of effort you put into ensuring your students receive the best possible graduate school experience is not unnoticed. Thank you for always believing in me and giving me the honour of being your first graduate student – I hope I have made you proud. Thank you.

*Dr. Kelly Arbour-Nicitopoulos:* I've always admired your strong work ethic and how you are able to stay on top of everything. Thank you for your constant support, encouragement and constructive feedback. Thank you for serving on my committee.

*Labmates:* I am really going to miss you all. We have such a strong and supportive lab and even though we did not see each other for weeks, I knew I could always count on you. Thank you for helping me recruit participants, proof-reading my bazillion documents and supporting me throughout this process. I wish you all the best in your future endeavours, I know you will all do amazing things in life.

*Family:* Mom and Dad, I am lucky to have such loving and caring parents who would do anything for their children. I cannot thank you enough for your continued support and encouragement in everything I choose to do. I would not be where I am today without you two. I hope I have made you proud and continue to do so. Leena and Neesha, thank you for encouraging me when I wanted to give up. Neesha, you know exactly what to say to keep me calm when I am stressed out, anxious or having a panic attack. I love you all.

*Friends:* I might as well move you all into the 'family' category since I consider you my sisters. I can't express how much I appreciate our friendship, thank you all very much for supporting and encouraging me through another journey. Thank you for choosing my conference outfits, forcing me to be social, editing my work, listening to my presentations and checking up on me. You are all a blessing, love you lots!

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## Introduction

### *Disability among Children and Youth*

The 2006 Participation and Activity Limitation Survey (PALS) was administered to identify disability among Canadians. Individuals were considered to have a disability if they reported having a “physical or mental health condition or a health problem that restricts their ability to engage in activities of daily living” (Statistics Canada, 2013). In this national survey, it was noted that disability has become increasingly common among children between 5-14 years, youth between 15-19 years, and young adults between 20-30 years. The PALS identified that 4.6% of Canadian children and youth and 4.9-6.1% of young adults have a disability (Statistics Canada, 2013). The PALS also allowed for the identification of different types of disabilities which can be grouped into four primary categories including physical, sensory, developmental and psychological (Statistics Canada, 2013). Table 1 displays the subcategories of the most common types of disabilities that affect children, youth and young adults in Canada (Statistics Canada, 2013).<sup>1</sup>

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<sup>1</sup>The remainder of this paper will refer to children as 5-14 years and youth as 15-30 years (youth and young adults have been collapsed into youth).

Table 1

*Common types of disabilities that affect Canadian children (5-14 years), youth (15-19 years), and young adults (20-30 years) divided by gender*

Disability		Children		Youth		Young Adults	
		Boys	Girls	Boys	Girls	Boys	Girls
Physical	Agility	1.3%	0.6%	1.3%	1.4%	1.3-6.0%	1.4-7.0%
	Mobility	0.6%	0.6%	1.6%	1.8%	1.9-5.7%	2.2-7.5%
Sensory	Hearing	0.6%	0.4%	0.5%	0.5%	0.7-2.2%	0.5-1.9%
	Seeing	0.5%	0.3%	0.5%	0.6%	0.5-1.8%	0.7-2.3%
Developmental	Learning	4.1%	2.2%	3.3%	2.1%	2.5-2.5%	1.9-2.1%
	Communication	2.8%	1.3%	1.6%	1.1%	1.3-1.5%	1.1-1.5%
	Developmental	1.9%	0.9%	1.4%	0.8%	1.0-0.6%	0.5%
Psychological	Emotional/Psychological	2.1%	1.0%	0.8%	1.1%	1.2-1.9%	1.2-3.1%



### *Physical Activity and Children and Youth with Disabilities*

Although children and youth with disabilities (CYD) can face greater restrictions in their daily lives than typically developing children (King et al., 2003; Meiger, Sinnema, Bijstra, Mellenbergh & Wolter, 2000; Garton & Pratt, 1991; Lockwood & Lockwood, 1991; Taylor, Baranowski & Young, 1998), engaging in regular physical activity (PA) is highly recommended to enhance the overall well-being of this population (Murphy & Carbone, 2008; Rimmer & Rowland, 2008; Ploughman, 2008; Anderson-Hanley, Tureck & Schneiderman, 2011). The benefits of PA are universal for all children and youth including CYD. In fact, regular PA may be even more important for CYD than it is for typically developing children (Rimmer & Rowland, 2008; Yazdani, Yee & Chung, 2013). Among CYD, regular PA can lead to improved physical health including increased bone density, lean muscle tissue, better weight management, and lower risk of high blood pressure (Burgeson, Wechsler, Brener, Young & Spain, 2001; King et al., 2003; Brown, Brown & Bayer, 1994; Brown & Gordon, 1987; Lyons, 1993). Regular PA among CYD can also contribute to improved psychosocial well-being through the formation of friendships and relationships, increased feelings of social inclusion, development of self-identity, opportunities to express creativity, having a sense of meaning and purpose in life, and reduced feelings of depressions (Burgeson et al., 2001; Murphy & Carbone, 2008; Fidler & Fidler, 1978; Lyons, 1993; Schleien, Green & Heyne, 1993). Unfortunately, many CYD are missing out on these benefits as they are insufficiently active and specifically, less physically active than their typically developing peers (King et al., 2007; Rimmer & Rowland, 2008; King et al., 2003). For example, PA levels of children with intellectual disabilities (Chung, Kwon, & Yang, 2011) and youth with physical disabilities (Steele et al., 2004) were significantly lower than those children or youth without disabilities. In addition, whereas only 9% of typically developing children and

youth meet the recommended guidelines of 60- minutes of moderate to vigorous intensity PA per day (ParticipAction, 2015; Canadian Society for Exercise Physiology, 2014), PA participation rates for CYD have been reported as being even lower (Law, Anaby, Imms, Teplicky & Turner, 2015; Johnson, 2009; King et al., 2007). There is a need for research to develop effective interventions to enhance PA participation among CYD.

### *Parental PA Support Behaviour among CYD*

Social support has been defined as the “functional characteristics associated with the interactions between a parent and his or her child in the context of intentionally participating in, prompting, discussing, and/or providing activity-related opportunities” (Beets, Cardinal & Alderman, 2010). Parents are a significant source of support and play an important role in facilitating the PA of their children (Beets et al., 2010; Gustafson & Rhodes, 2006; Trost et al., 2003; Baranowski, 1997; Sallis, Prochaska & Taylor, 2000; Kohl & Hobbs, 1998). Parents can provide support through two broad categories including tangible and intangible supportive behaviours (Beets et al., 2010). Tangible behaviours include instrumental support (e.g., providing transportation, payment of fees and purchasing equipment) and conditional support (e.g., participating with the child and watching them play respectively; Beets et al., 2010). Alternatively, intangible behaviours include motivational support (e.g., providing encouragement and praise) and informational support (e.g., discussing the importance of PA and how to be active; Beets et al., 2010). Parental PA support has been extensively studied and has been identified as a key correlate of children’s PA participation (Beets et al., 2010; Trost et al., 2003; Gustafson & Rhodes, 2006; Baranowski, 1997; Sallis et al., 2000; Kohl & Hobbs, 1998). Meta-analytic evidence from 112 studies suggests there is a medium sized effect between parental PA support and child PA participation (Rhodes & Yao, 2015). In addition, parental PA support has

been found to mediate the relationship between parental PA beliefs (i.e., parental beliefs regarding child PA participation and support for child PA participation) and child PA participation (Rhodes & Yao, 2015).

The role of parental support is especially significant for CYD (Hallum, 1995; Scal, 2002; Antle, 2007) and parental support remains an integral part of the overall well-being of young adults with disabilities and CYD transitioning into adulthood (Stewart, Law, Rosenbaum & Willms, 2001). Specifically regarding PA, research has emphasized the importance of parental PA support for PA participation among CYD (An & Goodwin, 2007; Law, Petrenchik, King & Hurley, 2007; Roh & Oh, 2003). For example, CYD whose parents had a high level of commitment to their child's PA and sports participation had a two-fold increase in participation compared to CYD whose parents had a low level of commitment (Kowalchuk & Crompton, 2009).

Fortunately, the majority of parents have positive attitudes towards their children's PA participation and therefore want to support their children (Rhodes et al., 2013). Many parents, including parents of CYD, are aware of the benefits of PA (Rhodes et al., 2013; Jeong, Kim & Lee, 2015), and want their children to achieve valued goals through PA participation such as improved health, development of various skills and increased social interactions, feelings of normalcy and self-confidence (Antle, Mills, Steele, Kalnins & Rossen, 2007; Tanna, Arbour-Nicitopoulos, Rhodes, Bassett-Gunter, in preparation; Jeong et al., 2015). Although many parents have good intentions to provide support for child PA, often times these intentions do not translate to parental PA support behaviour (Rhodes et al., 2013). Indeed, many parents face barriers to providing PA support such as environmental barriers (e.g. lack of availability and access), occupational barriers (e.g. lack of employer consideration for family PA) and policy

barriers (e.g., high-cost PA programs; Rhodes et al., 2016). Parents of CYD face heightened challenges in supporting PA for their child regardless of the type or severity of their child's disability (Rimmer & Rowland, 2008). Some of these heightened challenges include issues around program accessibility, financial assistance, child's PA preference, instructors' knowledge, quality of programs, parent's time and mood and child's safety and mood (Tanna et al., in preparation; Jeong et al., 2015). Considering the challenges parents face in providing PA support, it has been suggested that parental PA support should be considered a behaviour unto itself that warrants intervention (Rhodes et al., 2016). Indeed, it has been recommended that interventions aimed at increasing child PA participation should target parental PA support (Trost et al., 2003; Rhodes & Yao, 2015). Given the important role of parental PA support for CYD (Kowalchuk & Crompton, 2009), there is great value in the development of interventions to enhance parental PA support among parents of CYD. Unfortunately there is limited research to guide the development of interventions to enhance parental PA support behaviour in general and specifically among parents of CYD.

#### *Theory of Planned Behaviour and the Intention-Behaviour Gap*

Interventions in the PA domain are more likely to be effective if they are developed based on a theory of behaviour change (Glanz, Rimmer & Viswanath, 2008). The Theory of Planned Behaviour (TPB; Ajzen, 1991) suggests that an individual's intention (i.e., perceived likelihood of performing a behaviour), is the primary determinant of any given behaviour. Intention to perform a behaviour is influenced by an individual's attitude (i.e., positive or negative evaluation of the behaviour), subjective norm (i.e., perceived social pressure toward performing the behaviour), and perceived behavioural control (PBC; i.e., perceived personal control over the behaviour; Ajzen, 1991). The TPB has been extensively applied in the PA domain and suggests

that intention and PBC are the strongest predictors of behaviour (McEachan, Conner, Taylor & Lawton, 2011; Hagger, Chatzisarantis & Biddle, 2002b; Rhodes & Courneya, 2003; Armitage, 2005; Jackson, Smith & Conner, 2003; Norman & Smith 1995).

Recently an adapted TPB has been used to examine parental PA support behaviour among typically developing children (Rhodes et al., 2013). Canadian mothers ( $n=663$ ) with children between 5 and 11 years old completed a questionnaire which assessed 1) value of PA; 2) attitude (child PA); 3) attitude (parental support); 4) PBC (parental support); 5) intention; and 6) child PA participation (Rhodes et al., 2013). Results suggested that mothers had very positive attitudes about PA for their child and ranked PA as important as homework (Rhodes et al., 2013). The largest predictor of intention to provide parental PA support was attitude (parental support), which combined with attitude (child PA) and PBC (parental support) explained 77% of the variance in intention (Rhodes et al., 2013). There is only one known study that has applied the TPB as a framework for examining parental PA support among parents of CYD (Jeong et al., 2015). Participants included parents of CYD (i.e., intellectual, physical, developmental, sensory disabilities) who were recruited from disability-focused schools and therapeutic programs for CYD across four South Korean provinces. Parents ( $n=220$ ) completed questionnaires regarding their beliefs and intentions toward supporting PA participation for their CYD. The study revealed that attitude (child PA) and subjective norm (parental support) predicted parents' intention to support their children to participate in PA, explaining 47% of the total variance in intention (Jeong et al., 2015). Contrary to the tenets of the TPB (Ajzen, 1991), PBC was not a direct predictor of either intention or behaviour. The authors suggested that PBC may have been perceived to be beyond the volition of Korean parents as a result of uncontrollable barriers (Jeong et al., 2015). Regardless, intention was a statistically significant determinant of parents'

support behaviour ( $\beta = .75$ ;  $p < 0.01$ ; Jeong et al., 2015). Although this study is important in extending the use of the TPB to understanding parental PA support among parents of CYD, it is limited by the single-item measure of parental support behaviour which may not fully capture the range of parents' behaviour (Jeong et al., 2015). Therefore future studies should use a more comprehensive measure of parental PA support behaviour. In addition, there may also be value in examining whether parental PA support is related to child PA, as was hypothesized in an adapted TPB study on understanding parental support of child PA behaviour (Rhodes et al., 2013).

The TPB has recently been scrutinized because of its inability to address the discordance between intentions and behaviour known as the intention-behaviour gap (Connor & Norman, 2005). In general, high intentions translate to relatively low behaviour in the PA domain. For example, in a PA study, 48% of participants with positive PA intentions failed to act on those intentions (Rhodes & de Bruijn, 2013a). Specifically to parental PA support behaviour among typically developing children and youth, Rhodes and colleagues (2016) found that most mothers had positive intentions to provide parental PA support, however over half failed to carry out these intentions and actually engage in parental PA support behaviours. Although less pronounced, the intention-behaviour gap was also highlighted in research using the TPB to examine parental PA support among parents of CYD as intentions (model included attitude and subjective norm) explained 56% of the variance in parental PA support behaviour leaving unexplained variance (Jeong et al., 2015). Identifying key factors associated with the intention-behaviour gap is important to inform the development of effective interventions to enhance parental PA support among parents of CYD.

*Bridging the Gap: Action Planning*

Recently the multi-process action control model (M-PAC; Rhodes & Yao, 2015; Rhodes & de Bruijn, 2013b) has been applied to understand parental PA support with the goal of bridging the intention-behaviour gap (Rhodes & de Bruijn, 2013b). The M-PAC model encompasses constructs from the TPB while emphasizing the role of attitude, PBC and intention as extensive research has found that these constructs are the strongest predictors of behaviour within the PA domain (Rhodes et al., 2013; Loprinzi & Trost, 2010; Trost et al., 2003; Hagger et al., 2002b; Rhodes & Nigg, 2011). In addition, the M-PAC model builds from past theoretical literature and targets other constructs such as behavioural regulation of support behaviours (i.e., action planning, coping planning, self-monitoring), parental PA support habit and parental PA support identity (Rhodes & Yao, 2015; Rhodes & de Bruijn, 2013b; Rhodes et al., 2016). The M-PAC model has been applied in examining parental PA support considering the role of 1) attitude (child PA); 2) attitude (parental support); 3) PBC (parental support); 4) intention; 5) parental PA support behaviour; and 6) behavioural regulation of support behaviours. This work highlighted the importance of behavioural regulation skills (i.e., behaviour such as action planning, coping planning and self-monitoring of behaviour) for translating intentions into parental PA support behaviour (Rhodes et al., 2016). The M-PAC model suggests that the formation of an intention can prompt the use of behavioural regulation skills (Rhodes & Yao, 2015; Rhodes & Nigg, 2011) which represents the strongest tactic to enact behaviour change within the PA domain (Conn, Hafdahl & Mehr, 2011; Michie, Abraham, Wittington, McAteer & Gupta, 2009; Rhodes & Pfaeffli, 2010).

Indeed, the M-PAC model focuses on bridging the gap between intentions and behaviour through the role of action control (Kuhl, 1984). Action control includes regulatory behaviours such as action planning, coping planning and self-monitoring (Rhodes & Yao, 2015; Rhodes &

Nigg, 2011; Sniehotta, 2005b), which are critical for translating intentions to behaviour in the PA domain (Mistry, Sweet, Latimer-Cheung & Rhodes, 2015a; de Bruijn, Rhodes & van Osch, 2012; Latimer, Martin Ginis & Arbour, 2006; Shirazipour, Latimer-Cheung & Arbour-Nicitopoulos, 2015; Rhodes, Naylor & McKay, 2010; van Osch et al., 2009). Action planning involves identifying an appropriate plan for following through with a specific behaviour detailing where, when and how to engage in a particular behaviour (Hagger & Luszczynska, 2014). Coping planning on the other hand, maximizes the likelihood of behaviour by considering possible situations that may interfere with the action plan and creating a plan to overcome these interruptions (i.e., if I planned to drive my child to swimming but I have to stay at work late, then I can ask the neighbour to drive my child instead; Schwarzer, 2008; Sniehotta, 2009). Self-monitoring involves observing and evaluating the success or difficulty of executing a plan to carrying out a specific behaviour (Carver, 2004; Carver & Scheier, 1982). Engaging in action control behaviours such as action planning, coping planning and self-monitoring increases the likelihood of behaviour enactment (Rhodes & Yao, 2015; Rhodes & Nigg, 2011) and can help bridge the intention-behaviour gap.

Action planning specifically has been explored to determine its influence on the intention-behaviour relationship within the PA domain (Mistry et al., 2015a). This study aimed to determine if the TPB constructs geared toward action planning could predict change in PA behaviour and if action planning behaviour predicted future PA (Mistry et al., 2015a).

Participants were measured on their PBC over action planning behaviour, intentions to create an action plan, self-reported action planning behaviour, intentions to be active and self-reported PA (Mistry et al., 2015a). Results showed that (1) intention to plan was a better predictor of planning behaviour versus intention to be active; and (2) planning behaviour was a significant predictor of



change in PA (Mistry et al., 2015a). The study suggested that researchers should focus on motivation for PA *planning* by identifying an action plan to increase the likelihood of behaviour (Mistry et al., 2015a). An additional study employed action planning for PA among individuals with disabilities (Latimer et al., 2006). Individuals with spinal cord injury were randomized to an 8-week action planning intervention ( $n= 26$ ) or control ( $n= 28$ ) condition. Participants in the experimental condition formulated action plans over the telephone with the help of the researcher to schedule three 30-minute bouts of PA per week and self-monitored their behaviour (Latimer et al., 2006). Participants in the control condition engaged in telephone calls with the researchers to discuss PA, and were responsible to self-monitor their behaviour but did not formulate action plans (Latimer et al., 2006). In addition to completing a TPB-based questionnaire, participants were asked to rate their scheduling self-efficacy (i.e., confidence to engage in 30-minutes of PA one, two, and three times per week; Latimer et al., 2006). Self-efficacy is the belief in one's ability about their capabilities to complete a task and is affected by mastery experiences, vicarious experiences, social persuasion and physiological factors (Bandura, 1994). Results from Latimer and colleague's (2006) research showed that participants who formed action plans followed through with their PA intentions and engaged in more PA than participants in the control condition. In addition, scheduling self-efficacy was higher at follow-up in the experimental condition compared to the control condition which suggests the value of action planning interventions for helping individuals to increase their confidence to schedule PA (Latimer et al., 2006). Thus, these studies suggest there is value in employing action planning to bridge the gap between an individual's intentions and the likelihood of behaviour enactment.

There are limited studies known to employ an action planning intervention among parents to increase parental support behaviour. An intervention was employed to determine the

effectiveness of action planning for providing parental support for sunscreen use (van Osch et al., 2009). Parents ( $n=436$ ) were randomly allocated to a questionnaire-only control group or an action planning experimental group in which they were asked to formulate action plans detailing when, where and how they would protect their child from the sun during the upcoming summer season. Although the intervention had no overall effect, parent's motivation for child sunscreen protection was found to moderate the effect of the intervention such that action planning was effective in highly motivated parents only. It was suggested that action planning can be an important strategy to facilitate parental support behaviours among highly motivated individuals (van Osch et al., 2009). A PA planning intervention was conducted in families with typically developing children (Rhodes et al., 2010). Inactive families ( $n=85$ ) were randomized into an experimental (received PA guidelines, healthy active living guidelines and planning materials) or control (received PA guidelines and healthy active living guidelines) group. Although both the experimental and control group had good intentions to participate in regular family PA, only the experimental group resulted in higher family PA. Based on the success of previous PA planning interventions, there is value in exploring a PA planning intervention among parents of CYD to investigate action planning as a tool to facilitate parental support for PA. There is no known research to examine the effectiveness of action planning to facilitate parental PA support among parents of CYD. Given that majority of parents are highly motivated to support their children's PA (Rhodes et al., 2013), action planning may be a suitable intervention to enhance parental PA support behaviour among parents of CYD.

Although action planning holds promise as a tool to facilitate parental support (Rhodes et al., 2013; Rhodes et al. 2016; van Osch et al., 2009), additional support for parents may be required to enact action planning given the many barriers and challenges parents of CYD can

face when supporting their child's PA participation (e.g., lack of time and support for parents; Tanna et al., in preparation; Jeong et al., 2015). There is no known research examining strategies to support action planning among parents of CYD. Within the PA domain, an earlier study explored the effects of a text message intervention to help create PA-based action plans using an online planning tool (Mistry, Sweet, Rhodes & Latimer-Cheung, 2015b). Results showed there was a general absence of action planning among participants. The authors suggested that future action planning interventions should use a more interactive method of action planning (i.e., support from the researcher) to increase the quantity of action plans (Mistry et al., 2015b). Furthermore, participants may benefit from receiving guidance and feedback on their action plans (Mistry et al., 2015b).

Telephone support for action planning may be one strategy to enhance the effectiveness of action planning. Within the PA domain, telephone support for action planning has been found to be effective (Evers, Klusmann, Ziegelmann, Schwarzer & Heuser, 2012). For example, among a study of older-aged women, participants ( $n=86$ ) were randomized into either a telephone-assisted (i.e., received coping planning instructions plus telephone support) or a self-administered (i.e., received coping planning instructions, no additional support) planning condition. The women who received telephone support for planning reported significantly more coping planning and increased adherence to PA compared to the women in the self-administered group. Indeed, within the PA domain, the aid of a researcher can result in greater planning behaviour and the development of more effective plans compared to those developed by the individual alone (Kwasnicka, Penseau, White & Snihotta, 2013; Green et al, 2002).

Although telephone-based programs are more costly and require more staff time compared to printed materials, such programs can be more effective for behaviour change by maintaining a

personal connection between the counsellor and participant (Castro, King & Brassington, 2001). In addition, the counsellor serves as a source of support to enhance participant motivation, lessen the responsibilities of the participant, which in turn may enhance adherence (Castro, King et al., 2001; Corrigan, Dell, Lewis & Schmidt, 1980). We are unaware of any research that has considered the role of telephone-assisted action planning in facilitating parental PA support in general or among parents of CYD. Further research examining the role of action planning, and support for action planning, may be valuable in the development of action control interventions to improve parental PA support among parents of CYD.

### *Summary*

There are many important benefits of PA for CYD (Murphy & Carbone, 2008; Rimmer & Rowland, 2008; Ploughman, 2008; Anderson-Hanley et al., 2011). However CYD are less physically active than their typically developing peers (King et al., 2007; Rimmer & Rowland, 2008; King et al., 2003; Law et al., 2015; Johnson, 2009) and there is a need for interventions to enhance PA among CYD. Parents play an important role in child and youth PA participation as they are seen as the gate-keepers of their child's activities (Gustafson & Rhodes, 2006). Parental PA support is especially significant among CYD (Hallum, 1995; Scal, 2002; Antle et al., 2007) and there is value in developing interventions that target parental PA support (Troost et al., 2013; Rhodes & Yao, 2015). Although, many parents have strong intentions to support their children's PA participation (Antle et al., 2007), often times these intentions do not translate into parental PA support behaviours (Rhodes et al., 2013). There is a need for research to examine and understand the gap between parents' intentions and parental PA support behaviour. The M-PAC model has been applied to understand parental support for child PA (Rhodes et al., 2016), which highlights behavioural strategies such as action planning as critical for translating intentions into

behaviour (Latimer et al., 2006). However, parents may struggle to create and carryout action planning without support (Evers et al., 2012). Telephone-assisted action planning may provide the necessary support to facilitate parents' action planning for parental PA support. There is no known research examining telephone-assisted action planning as a tool to promote action planning and subsequent parental PA support among parents of CYD. Therefore the purpose of this project is to evaluate a 4-week telephone-assisted action planning intervention for promoting parental PA support among parents of CYD. A secondary purpose was to explore theoretical predictors of parental PA support behaviour and child PA participation. Guided by the TPB, M-PAC model, and previous literature in the PA domain, the following hypotheses were formulated:

- 1) The telephone-assisted group would engage in more action planning than the no-support control group.
- 2) The telephone-assisted group would report greater change in behavioural regulation of parental PA support behaviours compared to the no-support control group.
- 3) The telephone-assisted group would report greater increase in planning self-efficacy compared to the no-support control group.
- 4) The telephone-assisted group would report greater increase in parental PA support behaviour compared to the no-support control group.
- 5) Participants in the telephone-assisted group would report more child PA participation at follow-up compared to the no-support control group.

## Method

### *Participants*

Participants randomized to the experimental ( $n=28$ ) and control ( $n=29$ ) condition included mothers ( $n=51$ ; 89.5%) and fathers ( $n=6$ ; 10.5%) of CYD. As mentioned, a majority of mother participants is common among parental PA support research (Jeong et al., 2015; Rhodes et al., 2010), as mothers often represent the key respondent in family-based PA initiatives (O'Connor, Jago & Baranowski, 2009; Rhodes et al., 2010). Majority of the parents resided in Ontario ( $n=54$ ; 94.7%), were between 35-44 years of age ( $n=23$ ; 40.4%) and had a university bachelor's degree ( $n=24$ ; 42.1%). Regarding marital status, 71.9% were married ( $n=41$ ) with 15 (26.3%) participants reporting a household income between \$100,000 and \$149,000. Parents were primarily Caucasian ( $n=42$ ; 73.7%) followed by Chinese ( $n=6$ ; 10.5%), South Asian/East Indian ( $n=5$ ; 8.8%), Black ( $n=2$ ; 3.5%), Filipino ( $n=1$ ; 1.8%) and Non-White Latin American ( $n=1$ ; 1.8%). In addition, the average age of the participant's child was 12.53 ( $SD = 5.53$ ) years, which was similar to the CYD in Jeong and colleague's research (2015) in South Korea ( $M = 11.25 \pm 5.02$ ). The most common types of disabilities that affected participants' children in this research were physical and developmental disabilities, which were ranked as the most common types of disabilities among Canadian children and youth based on the Participation and Activity Limitation Survey (Statistics Canada, 2013). Sample size was calculated using power analyses for comparing two groups (experimental/control group). According to Cohen (1992), approximately 26 participants per group were needed to have 80% power ( $\alpha = .05$ ) to detect a large effect size, which was anticipated based on previous action planning intervention research in the PA domain among individuals with spinal cord injury (Latimer et al., 2006). Participants were recruited through various disability organizations, programs and services

including Special Olympics (Collingwood, ON), Learning Disabilities Association of York Region (York Region, ON), Cruisers Sports for the Physically Disabled (Brampton, ON), Ontario Track 3: Ski Association (Etobicoke, ON), and the Toronto Power Wheelchair Hockey League (Toronto, ON). Disability organizations, programs and services were contacted through email or telephone and participants were recruited by (1) posting study information within the organizations' websites; (2) posting advertisement flyers around the organizations' centres; (3) having the organization share study information within their newsletter (4) emailing or mailing study information to participants; and (5) attending events and speaking with eligible participants. Recruitment efforts were also supported by the Canadian Disability Participation Project (CDPP), a national research initiative aimed at enhancing PA participation for individuals with disabilities. Individuals were invited to participate in this study if they met the following criteria; a) were a parent of a children with a disability, b) the child was between ages of 5-30 years, c) the child had a diagnosed disability or disabilities (e.g. physical, sensory, psychological, developmental disability), d) were living within Canada, and e) the parent was proficient in both verbal and written English. The inclusion age of the child was derived by the PALS survey which identified children with disabilities as 5-14 years and youth as 15-19 years (Statistics Canada, 2013), therefore justifying the lower end of the age inclusion criteria. As mentioned in the introduction, younger adults with a disability, ages 20-30 years, often continue to require parental support throughout their adult years (Stewart et al., 2002), and therefore were also included in this study. As a token of appreciation, parents received a \$10 gift card for completing both the baseline and follow-up questionnaire. This research study has been reviewed and approved by York University's Research Ethics Boards and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines.

## Measures

Participants completed questionnaires via the online survey tool FluidSurveys. Table 2 indicates which measures were included at baseline and follow-up, and indicates the corresponding appendix letter, bolded beside each measure. A description of each measure has been provided.

Table 2

### *Baseline and Follow-up Measures*

<b>Appendix</b>	<b>Measure</b>	<b>Baseline</b>	<b>Follow-up</b>
A	Demographics	✓	
B	Attitude (Child PA)	✓	
C	Attitude (Parental Support)	✓	
D	Subjective Norm (Child PA)	✓	
E	Subjective Norm (Parental Support)	✓	
F	Perceived Behavioural Control (PBC; Child PA)	✓	
G	Perceived Behavioural Control (PBC; Parental Support)	✓	
H	Intention	✓	
I	Parental PA Support Behaviour	✓	✓
J	Behavioural Regulation of Support Behaviours	✓	✓
K	Parental PA Support Habit	✓	
L	Parental PA Support Identity	✓	
M	Planning Self-Efficacy	✓	✓
N	Child PA Participation		✓

### *M-PAC and Theory of Planned Behaviour Constructs*

Research regarding parental PA support for CYD guided by the TPB is limited, therefore it cannot be assumed that parents of typically developing children and parents of CYD hold the same attitudes, subjective norms and PBC towards their child's PA participation. Consequently 1) subjective norm (child PA); 2) subjective norm (parental support); and 3) perceived behavioural control (parental support) have been added to the M-PAC model used in this study to determine parent's beliefs about supporting PA among CYD. At the time of study development, there were no known measures for examining parental support for PA participation



among CYD based upon the tenets of the Theory of Planned Behaviour (TPB) or M-PAC model<sup>1</sup>. Therefore work was conducted as part of a related project to develop measures examining parental PA support among parents of CYD within the framework of the TPB and M-PAC model (Tanna et al., in preparation). This work consisted of two components: 1) an elicitation questionnaire to examine salient beliefs related to parental PA support among parents of CYD and subsequently 2) the development of a questionnaire to identify key predictors of parental PA support among parents of CYD. The data from the elicitation questionnaire were used to develop a questionnaire to measure constructs related to 1) child PA and 2) parental PA support among parents of CYD. A description of each measure is provided in detail below. The majority of the constructs (i.e., Appendices B – L) were measured using a 5-point Likert-type scale as outlined in the original measures (i.e., Appendices I – L) and because 7 or 10-point scales often yield data of lower quality comparatively (Revilla, Saris & Krosnick, 2013). Planning self-efficacy (Appendix M) and child PA behaviour (Appendix N) were measured on alternative scales as described below.

#### Attitude (Child PA): *Appendix B*

Beliefs about the benefits of PA for one's child (Francis et al., 2004), were measured on a 5-point Likert-type scale (1=strongly disagree, 2= disagree, 3=neutral, 4= agree, 5=strongly agree). Participants were given the following description regarding child PA: "physical activity includes active play (e.g., riding a bicycle, playing at the park), sports (e.g., soccer, basketball) and other organized physical activities (e.g., swimming, dance lessons)." Parents read and rated their agreement with nine items using the anchor: "if my child were to engage in 60-minutes of

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<sup>1</sup>Jeong et al. (2015) developed a questionnaire based on the TPB model to examine parental beliefs and intentions toward supporting PA participation among CYD of Korean descent. Although their scale demonstrated good reliability ( $\alpha=0.85$ ), this paper was not published at the time of study development.

physical activity daily, it would” followed by *1) benefit my child’s physical health; 2) help my child be social; 3) be fun for my child; 4) benefit my child’s mental health; 5) be unenjoyable for my child; 6) contribute positively to my child’s mental health; 7) help my child feel a sense of normalcy; 8) help my child develop various skills; and 9) put my child at risk for injuries and pain.* As mentioned, items 1 – 9 (including all items in Appendices B – G) were formulated based on the elicitation questionnaire and a consensus among four researchers in the field (Sunita Tanna, MSc candidate; Rebecca Bassett-Gunter, PhD; Kelly Arbour-Nicitopoulos; PhD; and Ryan Rhodes, PhD). An overall score for the construct was calculated by taking the average of all items (items 5 and 9 were reverse scored) with higher scores representing more favourable attitudes for child PA. The internal consistency for this measure was good (Cronbach’s  $\alpha = 0.86$ ).

#### Attitude (Parental Support): *Appendix C*

Beliefs about supporting PA for one’s child (Francis et al., 2004), were measured on a 5-point Likert-type scale (1=strongly disagree, 2= disagree, 3=neutral, 4= agree, 5=strongly agree). Participants read the following description regarding parental support, “parents can provide support to their children to help them achieve 60-minutes of physical activity each day. Providing support for your child to be physically active can be done through many different activities such as providing transportation to sport activities, playing sports with them, or encouraging them to play outside.” Parents rated their agreement with 10-items anchored by the statement “supporting my child to engage in 60-minutes of physical activity each day, would” followed by: *1) help me bond with my child; 2) allow me to watch my child improve and achieve success; 3) allow me to watch my child experience happiness, fun and feelings of normalcy; 4) allow me to be physically active while participating with my child; 5) allow me to act as a role*

*model and mentor; 6) cause me to worry about my child (e.g. safety, well-being); 7) be unenjoyable for me; 8) depend on my child's mood and emotions; 9) take time away from my other commitments such as family and work; 10) be frustrating for me.* An overall score for the construct was calculated by taking the average of all items (items 6 – 10 were reverse scored) with higher scores representing more favourable attitudes for parental support. The internal consistency for this measure was acceptable (Cronbach's  $\alpha = 0.61$ ).

#### Subjective Norm (Child PA): *Appendix D*

Beliefs about the social pressure for one's child to participate in PA (Francis et al., 2004), were measured on a 5-point Likert scale (1=strongly disagree, 2= disagree, 3=neutral, 4= agree, 5=strongly agree). Participants read the following description regarding PA, "physical activity includes active play (e.g., riding a bicycle, playing at the park), sports (e.g., soccer, basketball) and other organized physical activities (e.g., swimming, dance lessons)." Participants rated their agreement with five items anchored by: "the following people think my child should engage in 60- minutes of physical activity each day" followed by :1) *medical professionals (e.g., doctors, therapists); 2) school (e.g., teachers); 3) recreation/sports team leaders (e.g., staff, coaches); 4) disability organizations/programs; 5) family (e.g., immediate, extended, spouse).* An overall score for the construct was calculated by taking the average of all items with higher scores representing stronger subjective norm for child PA. The internal consistency for this measure was excellent (Cronbach's  $\alpha = 0.92$ ).

#### Subjective Norm (Parental Support): *Appendix E*

Beliefs about the social pressure to support one's child to participate in PA (Francis et al., 2004), were measured on a 5-point Likert scale (1=strongly disagree, 2= disagree, 3=neutral, 4= agree, 5=strongly agree). Participants were given the following description regarding parental

support, “parents can provide support to their children to help them achieve 60-minutes of physical activity each day. Providing support for your child to be physically active can be done through many different activities such as providing transportation to sport activities, playing sports with them, or encouraging them to play outside.” Participants rated their agreement with five items anchored by the statement “the following people think I should support my child engage in 60- minutes of physical activity each day” followed by: *1) medical professionals (e.g., doctors, therapists); 2) school (e.g., teachers); 3) recreation/sports team leaders (e.g., staff, coaches); 4) disability organizations/programs; 5) family (e.g., immediate, extended, spouse).* An overall score for the construct was calculated by taking the average of all items with higher scores representing stronger subjective norm for parental support. The internal consistency for this measure was excellent (Cronbach’s  $\alpha = 0.94$ ).

#### Perceived Behaviour Control (PBC) (Child PA): *Appendix F*

Beliefs about the amount of control for one’s child to participate in PA (Francis et al., 2004), were measured on a 5-point Likert-type scale (1=strongly disagree, 2= disagree, 3=neutral, 4= agree, 5=strongly agree). Participants read the following description regarding PA, “physical activity includes active play (e.g., riding a bicycle, playing at the park), sports (e.g., soccer, basketball) and other organized physical activities (e.g., swimming, dance lessons).” Parents rated their agreement with ten items anchored by the statement: “if my child really wanted to and was very motivated to engage in 60-minutes of physical activity each day, he or she could participate even if” followed by: *1) staff and/or coaches at activities/sports were not accommodating; 2) activities/sports were not accessible; 3) my child did not have extra support; 4) my child was physically restricted (e.g., pain, injured, tired); 5) the variety of activities available were limited; 6) there was a lack of proper staffing, support and supervision at*

*organized sport or physical activities; 7) my child did not have the proper equipment to participate; 8) the weather and temperature conditions were not ideal; 9) my child had limited time due to school and other commitments (e.g., medical appointments and therapy); 10) the activities were not necessarily safe for my child.* An overall score for the construct was calculated by taking the average of all items with higher scores representing stronger PBC for child PA. The internal consistency for this measure was excellent (Cronbach's  $\alpha = 0.90$ ).

#### Perceived Behavioural Control (PBC) (Parental Support): *Appendix G*

Beliefs about the amount of control to support one's child to participate in PA (Francis et al., 2004), were measured on a 5-point Likert-type scale (1=strongly disagree, 2= disagree, 3=neutral, 4= agree, 5=strongly agree). Participants were given the following description regarding parental support, "parents can provide support to their children to help them achieve 60-minutes of physical activity each day. Providing support for your child to be physically active can be done through many different activities such as providing transportation to sport activities, playing sports with them, or encouraging them to play outside." Parents rated their agreement with five items anchored by the statement "if I was really motivated and fully committed to support my child to participate in 60-minutes of physical activity each day, how confident are you that you could provide support even if" followed by: *1) the cost of enrolling your child in organized sport and physical activity was high; 2) you have limited time; 3) you experience challenges with accessibility of the sport/physical activity; 4) you have challenges finding a preferred physical activity/sport; 5) you have to find extra support for your child; 6) you have to travel a far distance to participate; 7) the weather conditions are poor; 8) your child is in a bad mood; 9) you are concerned about your child's safety; 10) you are feeling tired, frustrated, or in a bad mood.* An overall score for the construct was calculated by taking the average of all items

with higher scores representing stronger PBC for parental support. The internal consistency for this measure was excellent (Cronbach's  $\alpha = 0.89$ ).

#### Intention: *Appendix H*

As per Ajzen's (2002) recommendations, intention (i.e., perceived likelihood of providing support for one's child to participate in PA; Ajzen, 1991) was measured using two statements scored on a 5-point Likert-type scale (1=strongly disagree, 2= disagree, 3=neutral, 4= agree, 5=strongly agree). These items included, 1) *I intend to provide support to help my child participate in physical activity 60-minutes each day in the next month*; 2) *In the next month, I will try to provide support to help my child participate in physical activity 60-minutes per day*. An overall score for the construct was calculated by taking the average of all items with higher scores representing stronger intentions. The internal consistency for this measure was good (Cronbach's  $\alpha = 0.79$ ).

#### Parental PA Support Behaviour: *Appendix I*

Parental PA support behaviour was measured using a 5-point Likert-type scale (1=never/rarely, 2=about once a month, 3=1-2 times per week, 4=most days, 5=daily). Participants were asked to indicate how often they engaged in the following parental PA support behaviours in the past month: 1) *encourage my child to participate in PA or sports*; 2) *do a PA or played sports with mychild*; 3) *drive or provide transportation so my child could go to a place where he or she can do physical activities or play sports*; 4) *watched my child participate in PA or sport*; and 5) *told my child that PA is good for his or her health*. This measure was adapted from Rhodes' and colleagues (2016) study examining parental support behaviours among parents of typically developing children. Two items (i.e., 4 and 5) were added to the present study to capture additional aspects of parental PA support (Stone, Jarvis, Latimer-Cheung, Nair &

Bassett-Gunter, in submission). An overall score for the construct was calculated by taking the average of all items with higher scores representing increased parental PA support behaviours. Item 5 was removed to improve the internal consistency, which was good (Cronbach's  $\alpha = 0.76$ ). This item was removed to increase the reliability value and considering that telling your child that PA is good for their health may not reflect a supportive behaviour that parents' monitor.

#### Behavioural Regulation of Support Behaviours: *Appendix J*

Behavioural regulation of support behaviours are strategies parents may employ to provide PA support to their child (i.e., scheduling and monitoring PA sessions; Rhodes et al., 2016), and were measured using a 5-point Likert-type scale (1=never/rarely, 2=about once a month, 3=1-2 times per week, 4=most days, 5=daily). Participants indicated how often they engaged in the following behavioural regulation of support behaviours in relation to providing support for PA in the past month: *1) look for information or opportunities to get active with your child on most days of the week; 2) make a plan to ensure your child engages in PA on most days of the week; 3) keep track of the amount of PA your child is getting; and 4) make plans regarding what to do if something interfered with support your child's PA.* The following measure was adapted from Rhodes' and colleagues (2016) study examining parental support behaviours among parents of typically developing children ( $\alpha=.79$ ). Item four was added to the present study to capture coping planning, an essential component of action control adoption of behavioural regulation (Schwarzer, 2008; Sniehotta, 2009). The following item was removed from the original measure "set goals for how much PA my child will get on most days of the week" as parents may not feel comfortable setting a goal regarding the amount of PA their child should achieve given that there are no specific PA guidelines for CYD. An overall score for the construct was calculated by

taking the average of all items with higher scores representing higher behavioural regulation of support behaviours. The internal consistency for this measure was good (Cronbach's  $\alpha = 0.84$ ).

#### Parental PA Support Habit: *Appendix K*

Parental PA support habit was measured using four items on a 5-point Likert-type scale (1=strongly disagree, 2= disagree, 3=unsure, 4= agree, 5=strongly agree). Participants rated their agreement with the following questions anchored by the statement “supporting my child’s physical activity is something I...” followed by *1) do automatically; 2) do without having to consciously remember; 3) do without thinking; and 4) start doing before realizing I am doing it.* This measure was developed by Gardner, Lally and de Bruijn (2012), as a four-item automaticity subscale also known as the “Self-Report Behavioural Automaticity Index” (SRBAI) that adequately captures habitual behavioural patterns with a reliability of Cronbach’s  $\alpha$  between 0.68 to 0.9 in other samples. The adapted measure examined 4-items to assess parental PA support habit, a novel component of this study. Parental PA support habit is a primary reflexive construct of the M-PAC model (Rhodes & Yao, 2015; Rhodes & de Bruijn, 2013b) and represents parent’s routine behaviour to provide PA support executed through cues and from lowered conscious awareness (Gardner, 2015; Verplanken & Orbell, 2003). An overall score for the construct was calculated by taking the average of all items with higher scores representing stronger habit for parental PA support. The internal consistency for this measure was excellent (Cronbach’s  $\alpha = 0.94$ ).

#### Parental PA Support Identity: *Appendix L*

Parental PA support identity was measured using 3-items on a 5-point Likert-type scale (1=strongly disagree, 2= disagree, 3=unsure, 4= agree, 5=strongly agree). Participants were asked to rate their agreement with the following statements: *1) I consider myself a parent who*



*supports my child's regular physical activity; 2) When I describe myself to others, I usually include my involvement in supporting my child's physical activity; 3) Others see me as someone who is supportive of regular physical activity for my child.* An overall score for the construct was calculated by taking the average of all items with higher scores representing stronger identity for parental PA support. This measure was adapted from the Exercise Identity Scale, which is a 9-item questionnaire developed by Anderson and Cychosz (1994) used to assess the salience of an individual's identification with exercise. The adapted measure examined 3-items to assess parental support identity, a novel component of this study. Parental PA support identity is a primary reflexive construct of the M-PAC model (Rhodes & Yao, 2015; Rhodes & de Bruijn, 2013b) and represents a parent's association with a particular role, in this case providing PA support, and the expectations associated with this role (Stets & Burke, 2000) Internal consistency has proven to be good in other samples (i.e., range from 0.82 to 0.95; Anderson & Cychosz, 1994). The internal consistency for this measure was excellent (Cronbach's  $\alpha = 0.89$ ).

#### Planning Self-Efficacy: *Appendix M*

An adapted measure was used to reflect parent's self-efficacy to plan for PA support. Participants were asked to rate their confidence from 1 (not at all) to 7 (very) in their ability to create a detailed plan (what, where, when) to support their child's PA participation for *1, 2 and 3 times a week over the next month*. This measure has shown excellent reliability within samples of individuals with disabilities ( $\alpha=.85$ ; Arbour & Martin Ginis, 2004; Latimer et al., 2006; Arbour-Nicitopoulos, Martin Ginis, Latimer, 2009). An overall score for the construct was calculated by taking the average of all items with higher scores representing higher confidence for planning self-efficacy. The internal consistency for this measure was excellent (Cronbach's  $\alpha = 0.93$ ).

#### Child PA Participation: *Appendix N*

Child PA participation was measured using a single item, “over the past month, on how many days per week was your child physically active for a total of at least 60-minutes per day?” The response format allowed parents to answer from *0 to 7 days per week*. Although there are currently no guidelines to suggest how much PA CYD should be accumulating, Maher and colleagues (2014) suggest CYD should accumulate daily PA. This recommendation came from their pedometer-based PA intervention among children and youth with cerebral palsy. This measure has been previously used to measure parent-perceived PA with a study examining parent support of child PA behaviour among typically developing children (Rhodes et al., 2013). This single item measure was fixed to 40% reliability which is a typical estimate for this type of self-report measure (Booth et al., 2003).

### *Procedure*

Of the 63 individuals recruited and screened for eligibility, 57 participants were eligible to participate and were required to provide consent prior to completing the baseline questionnaire. Participants were then randomized into either the control ( $n=29$ ) or experimental condition ( $n=28$ ) using an online research randomizer ([www.randomizer.org](http://www.randomizer.org)). Following the randomization procedure, both groups were emailed a PDF package with information on how to participate in the action planning intervention which included an informational cover page (Appendix Q), PA guide (Appendix R), parental support guide (Appendix S), sample calendar with instructions (Appendix T), sample logbook with instructions (Appendix U), parent resources (Appendix V), blank calendar (Appendix W), and blank logbook (Appendix X).

### *No-Support Control Group (Received Action Planning Materials via Email, No Support):*

After completing the baseline questionnaire (week 1), participants were emailed the PDF package. The researcher was available to answer any questions via telephone and/or email,

however the researcher would only provide information regarding what types of activities could be included in their calendar. At week 3, the researcher emailed participants requesting their completed logbooks (if applicable), and another blank 2-week calendar and logbook for the remaining 2-weeks of the intervention. At the end of week 4, participants were contacted via email requesting their completed logbooks (if applicable). At that time participants received a link to the online follow-up questionnaire, which after completed, would conclude their participation in this research study.

*Experimental Group (Received Action Planning Materials via Email, Support via Telephone):*

After completing the baseline questionnaire (week 1), participants were emailed the PDF package, (which they were asked to have available during the telephone call) and were asked to coordinate a date and time to participate in the telephone-assisted action planning session. During the telephone support session, the researcher began by reviewing the definition and examples of PA and parental PA support found within the PDF parental support guide (see Appendix S and Appendix T respectively). The following description was provided regarding PA, “the benefits of physical activity are endless for children and youth with disabilities. Being active daily can help children and youth with disabilities to improve their health, do better in school, improve their fitness, grow stronger, have fun playing with friends, feel happier and much more. Physical activity can include sports, active play such as riding a bicycle or playing at the park and other organized physical activities such as swimming and dance lessons.” The following description was provided regarding parental support, “parents can provide support to their children to help them achieve 60-minutes of physical activity each day. Providing support for physical activity can be done many different ways such as providing transportation to and from activities, participating in physical activities and/or sports with your child, enrolling your

child in physical activities and/or sports).” Using the parental support guide (Appendix T) and with the help of the researcher, participants created a calendar in which they planned three support behaviours per week, for the next 2-weeks. The researcher filled out the calendar for participants as they specified what, where and when they would carry out the behaviour (see Appendix U for an example). Participants were then provided with a definition and examples of coping planning (see Appendix U). The following description was provided regarding coping planning, “sometimes things come up in your schedule (e.g., work, family, motivation, personal factors, other commitments) making it difficult to stick to your plans. If you create a plan to overcome these challenges just in case something comes up, then you are more likely to stick to your goals.” Using the sample calendar with instructions (Appendix U) and with the help of the researcher, participants chose three situations that may interfere with their plans to provide PA support and three coping plans indicating how they would overcome these challenges (i.e., if we can’t go for a walk because it is raining, then we will walk indoors at the YMCA; see Appendix U for more examples). The researcher filled out this portion for participants as they specified their coping plans for the next 2-weeks. The researcher then addressed any questions and/or concerns before scheduling their final telephone call. Participants were subsequently emailed their personalized calendar showing their action plans for the next 2-weeks along with a blank 2-week logbook to self-monitor their parental PA support behaviours. The logbook had space for participants to detail what, where and when they carried out the parental PA support behaviour and a blank space to include any additional notes such as any challenges and/or barriers they may have experienced. Two weeks after the telephone session, the researcher contacted the participants via telephone to request their completed logbooks (via email) and to help them update their action plans for the remaining 2-weeks of the intervention. At the end of week 4,

participants were contacted via email requesting their completed logbooks and received a link to online follow-up questionnaire, which after completed, would conclude their participation in this research study. Other planning interventions have used a 4-week follow-up time period including a family PA planning intervention among parents and their children (Rhodes et al., 2010) and predicting changes in planning behaviour and PA among adults (Mistry et al., 2015a). A similar protocol was used to promote PA among individuals with spinal cord injury in which a randomized clinical trial found that those individuals who formed action plans, engaged in more PA compared to those that did not (Latimer et al., 2006).

## Results

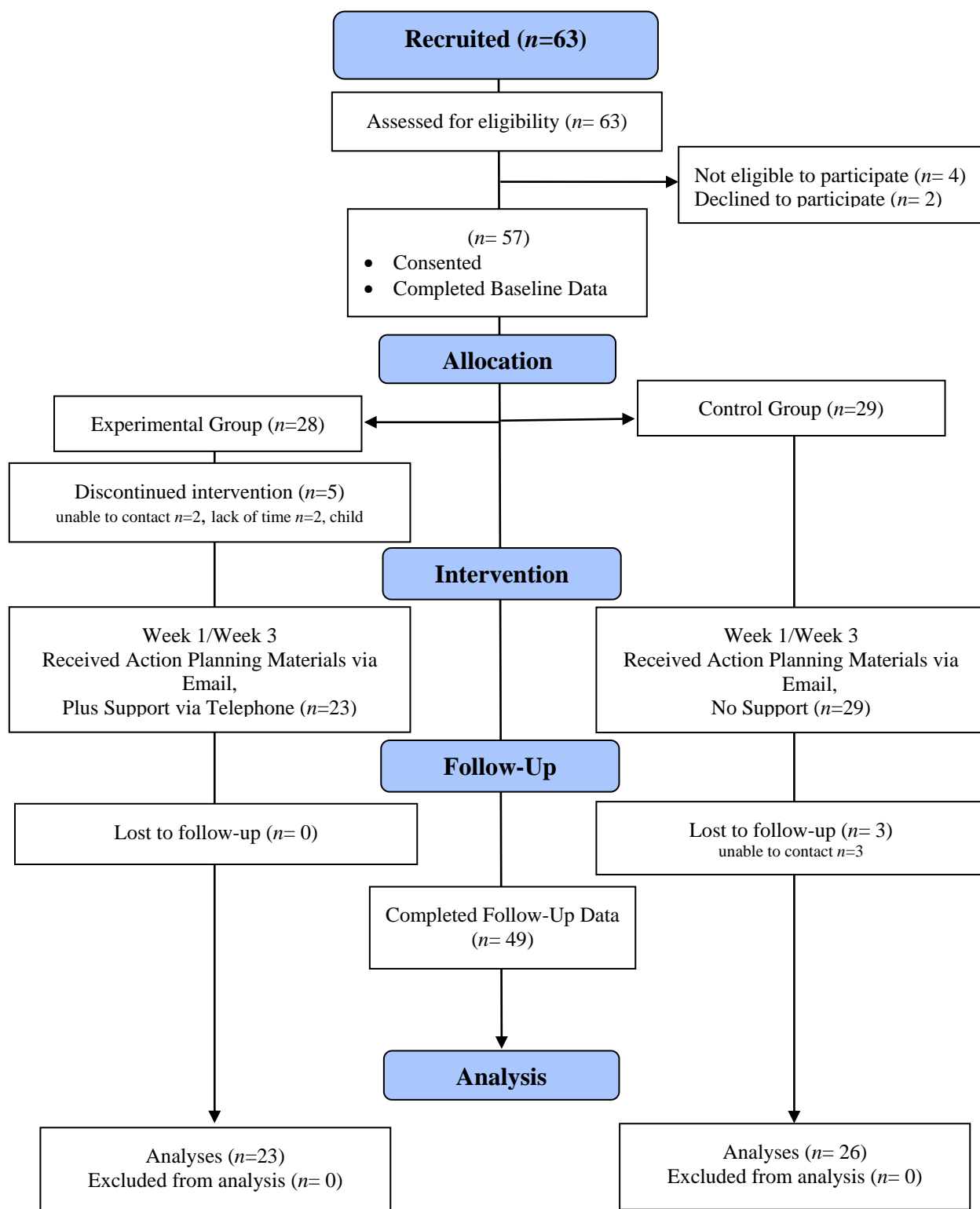
### *Descriptive Statistics*

A total of 57 participants were randomized into the experimental (telephone-assisted action planning,  $n=28$ ) and control conditions (no support,  $n=29$ ). In the experimental condition, five participants withdrew their participation prior to the start of the intervention (unable to contact,  $n=2$ ; lack of time,  $n=2$ ; child was ill,  $n=1$ ), whereas three participants were lost to follow-up in the control condition. Therefore a total of 49 participants were included in the final analyses (experimental,  $n=23$ ; control,  $n=26$ ; see Figure 1). Chi-square analyses found no between-group differences in baseline demographic characteristics of the participants who withdrew from the intervention compared to the 49 individuals included in the final sample ( $p > 0.05$ ). Chi-square analyses also showed no between-group differences for baseline demographic characteristics between the experimental and control groups ( $p > 0.05$ ; see Table 3). A one-way analysis of variance (ANOVA) found no significant group differences for child's age between all participants (i.e., including drop outs) ( $M = 12.53 \pm 5.53$ ;  $n=57$ ) and control group participants ( $M = 12.88 \pm 6.29$ ;  $n=26$ ), or experimental group participants ( $M = 12.52 \pm 4.85$ ;  $n=23$ ).

Table 4 contains the means and standard deviations for all adapted TPB and M-PAC model constructs and planning self-efficacy. Data were inspected for violations of statistical assumptions (Kleinbaum, Kupper, Nizam, & Muller, 2008). Distributions of each variable were examined for skewness and kurtosis; values for all variables were within an acceptable range of  $\pm 2$  (George and Mallery, 2001).

Two outliers (Z-score  $\geq 3$  standard deviations; Schiffler, 1988) were identified for attitude (child PA) and one outlier for subjective norm (parental support); these scores were lowered to reduce the impact of the value. One-way ANOVAs were calculated to compare groups on each

baseline variable within the TPB and M-PAC model and planning self-efficacy. There were no significant between- group differences on any baseline variables except subjective norm (child PA;  $F(2,54) = 3.358, p = .042$ ). A Tukey post-hoc test revealed that subjective norm (child PA) was significantly lower in the control condition ( $M = 3.79 \pm 0.885, p = 0.039$ ) compared to the experimental condition ( $M = 4.34 \pm 0.551$ ). There were no statistically significant differences between the drop-outs and control group ( $p = 0.34$ ) or the drop-outs and experimental group ( $p = 0.93$ ).



*Figure 1.* CONSORT flow diagram of participants' progress through each stage of the telephone-assisted action planning randomized controlled trial.



Table 3  
*Participant Baseline Demographic Characteristics*

Variable	All participants enrolled (n=57)		Participants included in the analyses (n=49)			
			Control (n=26)		Experimental (n=23)	
	n	%	n	%	n	%
<b>Parent Gender</b>						
Male	6	10.5	3	11.5	3	13.0
Female	51	89.5	23	88.5	20	87.0
<b>Parent Age</b>						
25-34	19	33.3	9	34.6	7	30.4
35-44	23	40.4	10	38.5	10	43.5
45-54	11	19.3	6	23.1	4	17.4
55-64	4	7.0	1	3.8	2	8.7
<b>Parent Education<sup>a</sup></b>						
Less than high school/ high school	3	5.3	1	3.8	1	4.3
Some college (no degree)	4	7.0	1	3.8	1	4.3
College degree	15	26.3	8	30.8	4	17.4
University (Bachelor degree)	24	42.1	11	42.3	11	47.8
University (Masters degree)	7	12.3	3	11.5	4	17.4
University (Doctorate degree/MD)	2	5.3	2	7.6	1	4.3
<b>Marital Status</b>						
Single	6	10.5	2	7.7	3	13.0
Married/Common-Law	44	77.2	21	80.7	16	69.6
Divorced	4	7.0	2	7.7	2	8.7
Other	3	5.3	1	3.8	1	4.3
<b>Household Income</b>						
≤ \$35,000 - \$49, 999	12	21	7	26.9	3	13
\$50,000- \$64,999	7	12.3	4	15.4	3	13.0
\$65,000- \$74,999	2	3.5	1	3.8	1	4.3
\$75,000- \$99,999	6	10.5	3	11.5	1	4.3
\$100,000- \$149,999	15	26.3	6	23.1	6	26.1
\$150, 000 +	7	12.3	3	11.5	4	17.4
Do not wish to report	8	14.0	2	7.7	5	21.7
<b>Child Disability Type<sup>b</sup></b>						
Physical	19	33.3	10	38.5	8	34.8
Psychological	3	5.3	1	3.8	2	8.7
Developmental	22	38.6	10	38.5	10	43.5
Multiple	9	15.8	3	11.5	2	8.7
Other	3	5.3	1	3.8	1	4.3
<b>Child Gender</b>						
Male	43	75.4	21	80.8	15	65.2
Female	14	24.6	5	19.2	8	34.8

*Note.* <sup>a</sup>1 missing case. <sup>b</sup> 1 missing case. Chi-square and Fisher's exact tests found no significant group differences for any categorical variables.

Table 4

*Participant Baseline TPB, Planning Self-Efficacy and M-PAC Model Variables*

Variable	All participants enrolled (n=57)				Participants included in the analyses (n=49)							
					Control (n=26)				Experimental (n=23)			
	M	SD	Skewness	Kurtosis	M	SD	Skewness	Kurtosis	M	SD	Skewness	Kurtosis
<b>TPB</b>												
<b>Constructs</b>												
A (Child PA)	4.06	0.45	-0.18	-0.60	4.01	0.53	-0.29	-1.07	4.10	0.39	0.39	-0.01
A (Parental Support)	3.94	0.45	0.15	0.76	3.87	0.49	0.15	-0.66	4.00	0.37	-0.07	-0.19
±SN (Child PA)	4.08	0.78	-0.66	0.32	3.79*	0.89	-0.37	-0.11	4.34*	0.55	-0.27	-0.29
SN (Parental Support)	3.82	0.89	-0.49	0.46	3.59	0.88	-0.69	1.96	3.96	0.87	-0.41	-0.55
PBC (Child PA)	2.52	0.89	0.47	-0.46	2.60	0.99	0.46	-0.41	2.33	0.83	0.67	-0.44
PBC (Parental Support) <sup>a</sup>	2.99	0.88	0.15	-0.75	2.84 <sup>ac</sup>	0.93	0.48	-0.64	3.12 <sup>ac</sup>	0.81	-0.56	-0.63
Intention <sup>b</sup>	3.85	0.99	-0.92	0.36	3.75 <sup>bc</sup>	1.10	-0.94	0.34	4.07 <sup>bc</sup>	0.79	-0.88	1.24
<b>Planning Self-Efficacy<sup>c</sup></b>	5.03	1.59	-0.59	-0.26	4.95 <sup>cc</sup>	1.79	-0.70	0.01	5.48 <sup>ce</sup>	1.37	-0.71	-0.81

## M-PAC Constructs

BR of Parental PA Support Behaviours <sup>d</sup>	2.87	1.12	0.05	-0.70	2.94 <sup>dc</sup>	1.12	-0.09	-0.35	3.02 <sup>de</sup>	1.19	-0.05	-1.07
Parental PA Support Habit <sup>e</sup>	3.94	1.08	-1.17	0.75	4.00 <sup>ec</sup>	0.945	-1.08	0.65	3.97	1.12	-1.18	0.97
Parental PA Support Identity <sup>f</sup>	3.65	1.16	-0.77	0.01	3.69 <sup>fc</sup>	1.15	-0.51	-0.39	3.81	1.13	-1.23	1.57
Parental PA Support Behaviour <sup>g</sup>	3.34	0.07	-0.17	0.02	3.45 <sup>gc</sup>	0.73	0.13	0.41	3.38 <sup>ge</sup>	0.68	-0.89	0.49

*Note.* PA = physical activity. A = attitude. SN = subjective norm. PBC = perceived behavioural control. BR = Behavioural Regulation  
*Note.* Possible scale range (TPB constructs/parental PA support habit/parental PA support identity): 1 (strongly disagree) – 5 (strongly agree)

*Note.* Possible scale range (planning self-efficacy): 1 (not at all) – 7 (very)

*Note.* Possible scale range (behaviour regulation of parental PA support behaviours/parental PA support behaviours): 1 (never/rarely) – 5 (daily)

*Note.* <sup>a</sup>2 missing cases (<sup>ac</sup> 1 missing case; <sup>ae</sup> 1 missing case). <sup>b</sup> 4 missing cases (<sup>bc</sup> 2 missing cases; <sup>be</sup> 1 missing case). <sup>c</sup> 5 missing cases (<sup>cc</sup> 1 missing case; <sup>ce</sup> 3 missing cases). <sup>d</sup> 3 missing cases (<sup>dc</sup> 1 missing case; <sup>de</sup> 1 missing case). <sup>e</sup> 2 missing cases (<sup>ec</sup> 2 missing cases). <sup>f</sup> 3 missing cases (<sup>fc</sup> 2 missing cases). <sup>g</sup> 2 missing cases (<sup>gc</sup> 1 missing case; <sup>ge</sup> 1 missing case).

\*  $p < 0.05$ .

‡ There was a statistically significant difference between groups as determined by the one-way ANOVA ( $F(2,54) = 3.358, p = .042$ ). A Tukey post-hoc test revealed that subjective norm (child PA) was significantly lower for the control condition ( $M = 3.79 \pm 0.885, p = 0.039$ ) compared to the experimental condition ( $M = 4.34 \pm 0.551$ ). There were no statistically significant differences between the drop-out and control group ( $p = 0.343$ ) or the drop-out and experimental group ( $p = 0.928$ ).

### *Purpose #1 – Hypotheses Testing*

Table 9 displays the outcome of each hypothesis test.

*Hypothesis 1: The telephone-assisted group would engage in more action planning than the no-support control group.*

Results of a chi-square analysis demonstrated a significant relationship between condition and the frequency of action planning,  $X^2 (1, N = 49) = 32.51, p = < 0.001$  (see Table 5). The effect size for this finding, Phi, was large at 0.815. All participants (100%) in the experimental condition engaged in action planning, compared to only 19.2% of participants in the control condition. Therefore hypothesis 1 was supported as the experimental group engaged in more action planning than the control group.

Table 5

#### *Frequency of Action Planning by Condition*

Action Planning	Control (n=26)		Experimental (n=23)	
	n	%	n	%
Yes	5	19.2	23***	100
No	21	80.8	0	0

\*\*\*  $p = < 0.0001$

#### *Hypotheses 2-4: Identifying Covariates*

Prior to testing hypotheses 2-4, it was important to determine which variables should be included as covariates in the analyses. Covariates within an analysis of covariance (ANCOVA) include those variables that are correlated with the dependent variable and are uncorrelated with any other independent variable (Tabachnick & Fidell, 2001). A bivariate correlation analysis identified potential covariates as those baseline variables (e.g., TPB, M-PAC, planning self-efficacy) significantly correlated with the dependent variable (e.g., behavioural regulation of support behaviours, planning self-efficacy and parental PA support behaviour). The identified covariates were tested for the two assumptions regarding ANCOVAs to ensure 1) independence of the covariate and treatment effect; and 2) homogeneity of regression slopes (Field, 2005). Table 6 shows the results of the repeated measures ANCOVAs for hypotheses 2-4, adjusted for the appropriate covariate for each dependent variable tested.

*Hypothesis 2: The telephone-assisted group would report greater change in behavioural regulation of parental PA support behaviours compared to the no-support control group.*

The following covariates were identified for behavioural regulation of PA support behaviours: 1) intention; 2) subjective norm (parental support); 3) parental PA support habit; 4) planning self-efficacy; and 5) parental PA support identity. Repeated measures ANCOVAs showed a significant time x condition interaction for behavioural regulation of parental PA support behaviours ( $F(1,36) = 4.14, p = .049, \eta^2 = 0.1$ ). There were no statistically significant main treatment effects for time or condition on behavioural regulation of parental PA support behaviours. Therefore hypothesis 2 was supported as parents in the experimental condition increased their behavioural regulation of PA support behaviours more than parents in the control condition.

*Hypothesis 3: The telephone-assisted group would report greater increase in planning self-efficacy compared to the no-support control group.*

The following covariates were identified for planning self-efficacy: 1) intention; and 2) subjective norm (parental support). Hypothesis 3 was not supported as there was no significant time x condition interaction found for planning self-efficacy ( $F(1,38) = 2.31, p = 0.14; \eta^2=0.1$ ). Exploratory post hoc analyses found that planning self-efficacy decreased among the control group (baseline:  $M=5.11, SE= 0.31$ ; follow-up:  $M=4.46, SE= 0.37$ ), whereas planning self-efficacy remained stable for the experimental group (baseline:  $M=5.17, SE= 0.36$ ; follow-up:  $M=5.38, SE= 0.43$ ). However, there were no statistically significant main treatment effects for time or condition on planning self-efficacy. Therefore there was no difference between the experimental and control condition on planning self-efficacy at follow-up.

*Hypothesis 4: The telephone-assisted group would report greater increase in parental PA support behaviour compared to the no-support control group.*

The following covariates were identified for parental PA support behaviour: 1) intention; 2) parental PA support habit; and 3) planning self-efficacy. There were no statistically significant main treatment effects for time or condition on parental PA support behaviour. Hypothesis 4 was not supported as there was no significant difference for change in parental PA support behaviour between the experimental condition and control condition ( $F(1,38) = 0.72, p = 0.40; \eta^2=0.02$ ).

Table 6

*Results of Repeated Measures ANCOVA of Dependent Variables by Time and Condition*

Group	Baseline <i>M</i> (SD)	Follow-up <i>M</i> (SD)	Time x Condition Adjusted <i>M</i> (SE)		Time <i>F</i> (partial $\eta^2$ ); p- value	Condition <i>F</i> (partial $\eta^2$ ); p- value	Time x Condition <i>F</i> (partial $\eta^2$ ); p- value
			Time 1	Time 2			
<b>Behavioural Regulation of Parental PA Support Behaviours</b>							
Experimental ( <i>n</i> =19)	3.02 (1.19)	3.34 (1.05)	2.78 (0.25) <sup>a</sup>	3.54 (0.21) <sup>a</sup>	<i>F</i> (1,36) = .79 = .79 <i>p</i> = 0.38	<i>F</i> (1, 36) = 0.54 (0.00); <i>p</i> = 0.82	<i>F</i> (1, 36) = 4.14 (0.10); <i>p</i> = 0.05 *
Control ( <i>n</i> =24)	2.94 (1.12)	3.04 (0.95)	3.02 (0.22) <sup>a</sup>	3.16 (0.18) <sup>a</sup>			
<b>Planning Self-Efficacy</b>							
Experimental ( <i>n</i> =18)	5.48 (1.37)	5.53 (1.18)	5.17 (0.36) <sup>b</sup>	5.38 (0.43) <sup>b</sup>	<i>F</i> (1,38) = 0.35 (0.01); <i>p</i> = 0.56	<i>F</i> (1,38) = 1.18 (0.03); <i>p</i> = 0.28	<i>F</i> (1,38) = 2.31 (0.06); <i>p</i> = 0.14
Control ( <i>n</i> =24)	4.95 (1.79)	4.09 (2.08)	5.11 (0.31) <sup>b</sup>	4.46 (0.37) <sup>b</sup>			
<b>Parental PA Support Behaviour</b>							
Experimental ( <i>n</i> =19)	3.38 (0.68)	3.55 (0.59)	3.24 (0.16) <sup>c</sup>	3.37 (0.13) <sup>c</sup>	<i>F</i> (1,38) = 3.01 (0.01); <i>p</i> = 0.59	<i>F</i> (1,38) = 0.96 (0.25); <i>p</i> = 0.33	<i>F</i> (1,38) = 0.72 (0.02); <i>p</i> = 0.40
Control ( <i>n</i> =24)	3.45 (0.73)	3.29 (0.77)	3.49 (0.14) <sup>c</sup>	3.42 (0.11) <sup>c</sup>			

*Note.* Possible scale range (behaviour regulation of PA support behaviours/parental PA support behaviours): 1 (never/rarely) – 5 (daily)

*Note.* Possible scale range (planning self-efficacy): 1 (not at all) – 7 (very)

\* *p* < .05

<sup>a</sup> Adjusted for intentions, subjective norm (parental support), parental PA support habit, planning self-efficacy and parental PA support identity

<sup>b</sup> Adjusted for intentions and subjective norm (parental support)

<sup>c</sup> Adjusted for intentions, parental PA support habit and planning self-efficacy

*Hypothesis 5: Participants in the telephone-assisted group would report more child PA participation at follow-up compared to the no-support control group.*

Table 7 shows the results of a one-way ANOVA to determine if participants in the experimental group reported more child PA participation at follow-up compared to the control group. There were no significant differences between the experimental and control group in child PA participation ( $F(1, 47) = 0.41, p = 0.52$ ), therefore hypothesis 5 was not supported.

Table 7

*Results of a one-way ANOVA of Child PA Participation by Condition*

Group	<i>M</i> (SD)	<i>F</i> (partial $\eta^2$ )
Experimental ( $n=23$ )	3.96 (1.36)	$F(1,47) = 0.41(0.09)$
Control ( $n=26$ )	3.65 (1.85)	

\*  $p < .05$

*Note.* Possible scale range: 0-7 days per week



*Purpose #2 – Exploring Theoretical Predictors of Parental PA Support and Child PA participation.*

For each model, a correlation analysis identified potential variables to include in the regression as those baseline variables (e.g., TPB, M-PAC, planning self-efficacy) significantly correlated with the dependent variables (e.g., follow-up parental PA support behaviour and child PA participation). The identified variables were tested for the following assumptions regarding the linear regression model: 1) linear relationship; 2) multivariate normality; 3) no or little multicollinearity; 4) no auto-correlation; and 5) homoscedasticity (Statistics Solutions, 2016). A stepwise linear regression analysis determined which variable best predicted each dependent variable: a) follow-up parental PA support behaviour and b) child PA participation. Separate two-stage hierarchical regression analyses were conducted to analyze each dependent variable (see Table 8).

For the model predicting parental PA support behaviour, baseline parental PA support behaviour (step one) and planning self-efficacy (step two) were entered as predictors. Both baseline parental PA support behaviour ( $\beta=0.35$ ;  $p=0.02$ ) and planning self-efficacy ( $\beta=0.31$ ;  $p=0.02$ ) were significant predictors of follow-up parental PA support behaviour. The final model was significant and explained 18% of the variance in follow-up parental PA support behaviour ( $\beta=0.43$ ;  $p=0.002$ ).

For the model predicting child PA participation, subjective norm (child PA; step one) and intention (step two) were entered as predictors. Both subjective norm (child PA;  $\beta=0.48$ ;  $p=0.01$ ) and intention ( $\beta=0.32$ ;  $p=0.02$ ) were significant predictors of child PA participation. The final model was significant and explained 12% of the variance in child PA participation ( $\beta=0.38$ ;  $p=0.01$ ).

Table 8

*Hierarchical Regression Analyses Examining Predictors of a) Follow-up Parental PA Support Behaviour and b) Child PA Participation*

	Baseline Predictors	R	R <sup>2</sup>	R <sup>2</sup> adj	ΔR <sup>2</sup>	β; p-value
<b>Follow-up Parental PA Support Behaviour</b>						
1	Baseline Parental PA Support Behaviour	0.35	0.12	0.10	0.12	0.35; <i>p</i> =0.02*
2	Baseline Parental PA Support Behaviour	0.55	0.30	0.27	0.18	0.31; <i>p</i> =0.02*
	Planning Self-Efficacy					0.43; <i>p</i> =0.002**
<b>Child PA Participation</b>						
1	Subjective norm (Child PA)	0.48	0.23	0.22	0.23	0.48; <i>p</i> =0.01*
2	Subjective norm (Child PA)	0.59	0.35	0.32	0.12	0.32; <i>p</i> =0.02*
	Intention					0.38; <i>p</i> =0.01**

*Note.* \* *p*< .05. \*\**p*<.01.

*Note.* Possible scale range (parental PA support behaviour): 1 (never/rarely) – 5 (daily)

*Note.* Possible scale range: 1-7 days per week

Table 9

*Results of Hypotheses Testing*

	Hypothesis	Result
1	The telephone-assisted group would engage in more action planning than the no-support control group	Supported
2	The telephone-assisted group would report greater change in behavioural regulation of parental PA support behaviours compared to the no-support control group	Supported
3	The telephone-assisted group would report greater increase in planning self-efficacy compared to the no-support control group	Not Supported
4	The telephone-assisted group would report greater increase in parental PA support behaviour compared to the no-support control group	Not Supported
5	Participants in the telephone-assisted group would report more child PA participation at follow-up compared to the no-support control group	Not Supported

## Discussion

The purpose of this thesis was to examine the role of telephone-assisted action planning to promote parental PA support among parents of CYD. Guided by the Theory of Planned Behaviour (TPB; Ajzen, 1991) and the multi-process action control model (M-PAC; Rhodes & Yao, 2015; Rhodes & de Bruijn, 2013b), the experiment considered the effects of formulating action plans for promoting parental PA support. To our knowledge, this is the first study to investigate action planning, specifically telephone-assisted action planning, for promoting parental PA support among parents of CYD. A secondary purpose was to explore theoretical predictors of parental PA support behaviour and PA participation among CYD.

With regards to TPB and M-PAC model variables, overall parents had relatively strong attitudes and subjective norms regarding child PA and supporting their child's PA participation. However, compared to attitude and subjective norm, PBC was rated lower for both child PA and parental support. In addition, parents had strong intentions to provide PA support suggesting that although parents of CYD have positive attitudes towards their child's PA participation and want to support their children, they may be inhibited by low PBC. This idea is supported by previous parental PA support research among parents of typically developing children (Rhodes et al., 2013; Rhodes et al., 2016).

### *Support for Action Planning*

Although action planning holds promise as a tool to facilitate parental PA support (Rhodes et al., 2013; Rhodes et al., 2016), the results from this study suggest that parents may require support to create action plans to enhance adherence and effectiveness. All participants in the experimental group engaged in action planning compared to a small portion of participants in the control group. This supported the hypothesis that the telephone-assisted group would engage in

more action planning compared to the no-support control group. Support for action planning, specifically telephone support, can facilitate and sustain action planning among parents of CYD. It is likely that having telephone support lessened the responsibilities of the participants. It is speculated that the participants' perception of control of creating action plans was enhanced as the telephone support eliminated several factors that may have impeded their ability to engage in this behaviour. These factors could include barriers and challenges parents of CYD experience when providing PA support such as limited time or feeling too tired (Tanna et al., in preparation) to read an action planning manual and create action plans themselves. Having additional support to action plan also contributed to increased behavioural regulation of support behaviours which was shown in the telephone- assisted compared to the no-support control group. Therefore having telephone-assisted support for action planning enables parents to develop their behaviour regulation skills, which is crucial especially if these skills (i.e., action planning, coping planning, self-monitoring) are novel to the participant and therefore they may require support to develop. Previous research in the PA domain has found that participants engaged in significantly more action planning when they received telephone support (Evers et al., 2012; Kwasnicka, Presseau, White & Sniehotta, 2013; Green et al., 2002). Further, these action plans can be more effective (i.e., greater adherence) than those developed by the individual alone. In the current study, although a small portion of the control group engaged in action planning without support from the researcher (i.e.,  $n = 5$ ; 19.2%), it is important to note that three of these five participants sought help from the researcher. Specifically, these three participants contacted the researcher regarding how to create an action planning calendar and inquiring which parental PA support behaviours they should include. This demonstrates the importance and necessity of providing support to guide parents on the effective development of an action plan. Further, the telephone

intervention with the researcher became a source of social support by developing a connection with the participant. Participants often expressed other barriers and challenges they experienced while working to provide PA support for their CYD. These barriers and challenges are in-line with previous research, such as costs associated with enrolling their child in activities, challenges with accessibility, finding the ‘right’ activity, finding extra support for their child, travelling far distances to participate, whether their child is in a bad mood and concerns regarding their child’s safety (Tanna et al., in preparation). It is expected that long-term use of action planning may increase parents’ confidence to action plan (i.e., planning self-efficacy) and therefore enhance their behaviour regulation skills which can potentially lead to increased parental PA support behaviours. It seems that parents of CYD may find telephone support for action planning valuable as they may lack motivation to develop an action plan on their own or may struggle to develop an action plan without support. Researchers and interventionists (e.g., practice and policy) that aim to employ action planning to facilitate parental PA support among parents of CYD should consider the value of telephone support for action planning.

#### *Behavioural Regulation of Support Behaviours*

In support of our hypothesis, participants in the experimental condition significantly increased their behavioural regulation of PA support behaviours whereas participants in the control condition did not. Indeed, parents in the experimental condition reported increases in behavioural regulations skills including action planning, coping planning and self-monitoring their behaviour following the action planning intervention. These findings suggest that telephone-assisted action planning, which is a behavioural regulation strategy, is a useful tool to increase behavioural regulation of PA support behaviours among parents of CYD. Within the PA domain, the development of behavioural regulation skills has been found to be the strongest

tactic to enact behaviour change (Conn et al., 2011; Michie et al., 2009; Rhodes & Pfaeffli, 2010). The findings of the current study add to the scant existing literature which has found that PA interventions should target parents' PBC over supporting their child's PA participation (Rhodes et al., 2013; Rhodes et al., 2016). In addition, there is some evidence that increasing parents' self-regulatory abilities regarding planning may be valuable (Rhodes et al., 2010; Rhodes et al., 2016). Specifically, Rhodes and colleagues' (2010) suggest that "family PA is dependent upon the planning and regulatory capabilities of the parents and if these can be improved, subsequent increases in PA will follow." As such, the increased behavioural regulation of PA support behaviours observed following the intervention is promising and suggests that action planning could be valuable in supporting PA among CYD. Although parental PA support behaviours per se did not differ between the experimental and control group in the present study, this null finding may be due to the fact that behaviour regulation skills such as action planning require time and practice before they result in behaviour change (Rhodes et al., 2013; Rhodes et al., 2016). In addition, repeated exposure of a behaviour, in this case behavioural regulation of PA support behaviours such as action planning, are expected to build stronger behavioural regulation skills, and one's habit and identity toward the behaviour (de Bruijn et al., 2012; Kaushal & Rhodes, 2015). Accordingly, the duration (i.e., four weeks) and frequency (i.e., two telephone support sessions) of the current intervention may have been insufficient to translate improvements in behavioural regulation skills into increased parental PA support behaviour per se. However, the increased behavioural regulation of PA support behaviours among parents in the experimental condition suggest there is value in telephone supported action planning to enhance parents' behavioural regulation.

#### *Planning Self-Efficacy*

As mentioned, within the current study, planning self-efficacy encompassed an individual's confidence to plan for parental PA support behaviours. Although there was no statistically significant time by group interactions, a small-medium sized interaction was noted. Exploratory post hoc analyses found that planning self-efficacy decreased among the control group whereas planning self-efficacy remained stable for the experimental group.

It is possible that some of the individuals in the control group attempted to create an action plan without support and found that it was quite difficult, leading to decreased self-efficacy. Telephone-assisted action planning may offer a buffer against decreased planning self-efficacy that may be experienced by some individuals who attempt action planning without support. This premise aligns with the finding that three individuals in the control group requested help from the researcher in creating action plans. A PA action planning intervention among people with disabilities (i.e., spinal cord injury) found that those participants who formed action plans over the telephone with the help of the interventionist had greater confidence to schedule PA (i.e., scheduling self-efficacy) compared with participants in the control condition (Latimer et al., 2006). Repeated exposure to action planning may contribute to increased planning self-efficacy (e.g., via mastery experiences). The design of the current study (e.g., duration and frequency of support) may not have allowed parents an opportunity to experience mastery and subsequent increases in self-efficacy. Future research should employ interventions with greater duration and intensity to further understand the value of supported action planning interventions for parents of CYD.

#### *Parental PA Support Behaviour and Child PA Participation*

Parental PA support behaviour and child PA participation did not differ between the experimental or control groups. However when observing the main effect for condition, there



was a tendency for the experimental group to have higher parental PA support behaviours than the control group as indicated by the medium effect size for these variables (Cohen, 1992). The non-significant trend for this interaction might have been significant with a larger sample or a more intensive intervention

Overall, possible implications of the results should be considered. Within this sample, parents had strong positive attitudes regarding PA participation and supporting PA participation among their CYD. However they had low PBC, which may have made it challenging for parents to enact parental PA support behaviours. It has been suggested that PBC plays an important role in translating parents' intentions into support behaviour (Rhodes et al., 2013). Behaviour regulation strategies, such as action planning, have been shown to increase PBC leading to behaviour change (Rhodes & Yao, 2015; Rhodes & de Bruijn, 2013b). Thus, while the intervention was not successful in changing parental PA support behaviour per se, it was successful in increasing behavioural regulation strategies and possibly protecting planning self-efficacy, which may be important antecedents of parental PA support behaviour. This pilot work warrants investigation of a telephone-supported action planning intervention with greater intensity (i.e., longer duration and more frequent support), which may allow for observed changes in parental PA support behaviour and subsequent changes in child PA participation.

#### *Exploring Theoretical Predictors of Parental PA Support Behaviour and Child PA Participation*

Baseline parental PA support behaviour and planning self-efficacy were both found to predict follow-up parental PA support behaviour. These findings are consistent with other research in the PA domain which emphasizes the important role of past behaviour (Hagger, Chatzisarantis & Biddle, 2001; Hagger, Chatzisarantis & Biddle, 2002a; Sniehotta, Schwarzer & Scholz, 2005b) and self-efficacy (Latimer et al., 2006; Arbour & Martin Ginis, 2004; Sniehotta,

2009; Arbour-Nicitopoulos et al., 2009; Sniehotta, Scholz & Schwarzer, 2005a) within the PA domain. In fact, Sniehotta (2005a) suggested that heightened self-efficacy can promote action planning for PA, which may extend to the promotion of action planning for parental PA support. Interventions should focus on improving participants' self-efficacy for action planning and to foster behaviour regulation skills. The results of the current study highlight the importance of action planning, and specifically repetition of this behaviour, in building one's planning self-efficacy, which predicts parental PA support behaviours. Overall, these findings contribute to our understanding of the TPB and M-PAC model as frameworks for understanding parental PA support among parents of CYD as past behaviour and self-efficacy are important additions to these models (Hagger et al., 2002a). Pragmatically, these findings highlight the importance of developing action planning interventions that support planning self-efficacy as it was the strongest predictor of parental PA support behaviour. Future research should examine strategies that optimize the development of parents' self-efficacy for action planning.

Intention and subjective norm (child PA) were significant predictors of child PA participation. Consistent with previous research, intention is the strongest predictor of parental PA support behaviour among parents of CYD (Jeong et al., 2015). Within the TPB framework, intention and PBC are typically the best predictors of behaviour (Bandura, 1994), with subjective norm playing a modest role in predicting intention rather than behaviour (Bandura, 1994). Conversely, Jeong and colleagues (2015) found that subjective norm was also a good predictor, however for intention as opposed to parental PA support behaviour, suggesting that parents of CYD are highly influenced by the opinions of others regarding their child's PA participation. The role of important others (i.e., medical professionals, school staff, recreation/sports team leaders, disability organizations/programs, family) may be important in facilitating PA among

CYD. Parents who perceive that important others have positive attitudes regarding child PA may also find support from them to facilitate their child's PA participation. It has been suggested that the presence of supportive relationships *for parents* is related to child PA participation (King et al., 2003). Future research should further examine the role of supportive others (i.e., not parents) in supporting PA among CYD.

It was surprising that PBC was not a significant predictor of parental PA support or child PA participation given that it is one of the strongest predictors of behaviour within the PA domain (McEachan et al., 2011; Hagger et al., 2002b; Rhodes & Courneya, 2003; Armitage, 2005; Jackson et al., 2003; Norman & Smith 1995). A possible explanation for this finding could be that parents PBC reflected perceptions of barriers to child PA that were perceived to be beyond the volition of parents with CYD such as knowledge of instructors, quality of programs, accessibility, financial assistance and child activity preference.

#### *Limitations and Future Research Directions*

Although this was the first study to explore action planning for parental PA support among parents of CYD, and included a randomized controlled design, there are some limitations that warrant mention. Firstly, the study sample was relatively small, which limited the ability to detect small effects. Secondly, the intervention design was relatively short (i.e., four weeks) and infrequent (i.e., two telephone support sessions) to determine the full potential and long-term effects of telephone-assisted action planning. However, this pilot work warrants further investigation of a longer and more intensive, including a longer follow-up period, telephone-assisted action planning interventions for parents of CYD. Child PA participation was only measured at follow-up and used a single item self-report question. Future studies could benefit from an objective measure of child PA participation. Thirdly, the sample was primarily well-

educated, high-income, married, Caucasian- mothers who were recruited primarily through disability PA and sport organizations. One should be cautious about generalizing the findings among all parents of CYD. With regard to exploring theoretical predictors of parental PA support behaviour and child PA participation among parents of CYD, future research is necessary to understand how best to support planning self-efficacy with particular attention to the role of important others. Of note, the intervention was well-received and parents enjoyed engaging in the telephone-assisted action planning.

### *Conclusions*

The current study employed the first ever randomized, controlled investigation of telephone-assisted action planning for promoting parental PA support among parents of CYD. The results demonstrated that although action planning is a useful tool to enhance behavioural regulation of PA support behaviours, telephone support for action planning may be valuable to help parents in creating action plans and to assist parents in translating intentions into parental PA support behaviour. Although telephone-based programs may be expensive and require more staff than self-administered action planning, this additional support may be crucial for parents of CYD. Disability organizations, programs and services should consider having additional support for parents in supporting PA among their CYD as this could be a valuable strategy in helping parents develop their behavioural regulation for parental PA support behaviours.

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Please ensure you are the only parent in your household completing this study. Please provide the following information about yourself:

1. Are you male or female?

- ☐ Male  
☐ Female

- ☐ Other  
☐ Prefer not to answer

2. How old are you?

- ☐ Under 18  
☐ 18 to 24  
☐ 25-34  
☐ 35-44

- ☐ 45-54  
☐ 55-64  
☐ 65 or above  
☐ Prefer not to answer

3. Please provide the following information about your family:

a) How many children do you have? \_\_\_\_\_

b) Please fill in the chart below only for your child/children with disabilities that fall between 5 and 30 years. Please enter the age of your child, followed by their sex (i.e. *child age: 7; sex: female: enter 7 female*).

Child 1 \_\_\_\_\_  
Child 2 \_\_\_\_\_  
Child 3 \_\_\_\_\_  
Child 4 \_\_\_\_\_  
Child 5 \_\_\_\_\_

4. Is English your first language?

- ☐ Yes  
☐ No

A member of a visible minority/racialized group in Canada is someone (other than an Aboriginal Person) who self-identifies as non-white in colour or non-Caucasian in racial origin, regardless of birthplace or citizenship. Members of ethnic or national groups (such as Portuguese, Italian, Greek, etc.) are not considered to be racially visible unless they also meet the criteria above.

5. Are you a member of a visible minority group in Canada?

- ☐ Yes  
☐ No

If **YES** please check all responses that apply:

☐ Black (e.g., African American,  
Canadian, Caribbean)

☐ Chinese

- ☐ Filipino
- ☐ Japanese
- ☐ Korean
- ☐ Indigenous person from outside North America
- ☐ South Asian/East Indian
- ☐ South East Asian

- ☐ Non-White West Asian (e.g., Iranian, Lebanese, Afghan)
- ☐ Non-White North African (e.g., Egyptian, Libyan)
- ☐ Arab
- ☐ Non-White Latin American
- ☐ Other (please specify):  
\_\_\_\_\_

An Aboriginal Person is a North American Indian, Métis or Inuit, or a member of a North American First Nation. An Aboriginal Person may be a treaty status or a non-status, registered or non-registered Indian.

6. Are you an Aboriginal Person?

- ☐ Yes
- ☐ No

7. What is your highest level of education?

- ☐ Less than high school
- ☐ High school
- ☐ Some college (no degree)
- ☐ College degree
- ☐ Some university
- ☐ University – Bachelor-level Degree (BA, BSc, etc.)

- ☐ University – Master-level degree (MS, MA, etc.)
- ☐ University – Doctorate-level degree (Ph.D.)
- ☐ University – Professional Post-Graduate (M.D., etc.)

8. What is your marital status?

- ☐ Single
- ☐ Common-law
- ☐ Married
- ☐ Divorced
- ☐ Other
- ☐ Do not wish to specify

9. How many individuals contribute to your household income? \_\_\_\_\_

10. What is your household income?

- ☐ \$35,000 or less.
- ☐ \$35,000 - \$49,999
- ☐ \$50,000 - \$64,999
- ☐ \$65,000 - \$74,999
- ☐ \$75,000 - \$99,999
- ☐ \$100,000 - \$149,999
- ☐ \$150,000 or more
- ☐ Do not wish to report

Please think about your child between 5-30 years with a disability while answering the following questions. If you have more than one child with a disability, please answer these questions thinking about your child with a disability who will celebrate his/her birthday next.

1. Please describe the nature of your child's disability\_\_\_\_\_
2. Age of your child with a disability?\_\_\_\_\_
3. Sex of child with disability?  
☐ Male ☐ Other  
☐ Female ☐ Prefer not to answer
4. Does your child with a disability use a mobility device?  
☐ Yes  
☐ No
  - a. If you answered **YES** to the previous question, please choose any aids or devices that your child typically uses (check all that apply).  
☐ Cane  
☐ Walker  
☐ Crutches  
☐ Wheelchair: ☐Manual OR ☐Electric  
☐ Other \_\_\_\_\_
5. Does your child with a disability need assistance communicating?  
☐ Yes  
☐ No
  - a. If you answered **YES** to the previous question, please tell us how your child primarily communicates?  
☐ Verbally  
☐ With gestures  
☐ With pictures  
☐ Other \_\_\_\_\_

Please think about your child between 5-30 years with a disability while answering the following questions. If you have more than one child with a disability, please answer these questions thinking about your child with a disability who will celebrate his/her birthday next.

Physical activity includes active play (e.g., riding a bicycle, playing at the park), sports (e.g., soccer, basketball) and other organized physical activities (e.g., swimming, dance lessons).

If my child were to engage in 60- minutes of physical activity daily, it would:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Benefit my child's physical health					
Help my child be social					
Be fun for my child					
Benefit my child's mental health					
Be unenjoyable for my child					
Contribute positively to my child's mental health					
Help my child feel a sense of normalcy					
Help my child develop various skills					
Put my child at risk for injuries and pain					

Please think about your child between 5-30 years with a disability while answering the following questions. If you have more than one child with a disability, please answer these questions thinking about your child with a disability who will celebrate his/her birthday next.

Parents can provide support to their children to help them achieve 60-minutes of physical activity each day. Providing support for your child to be physically active can be done through many different activities such as providing transportation to sport activities, playing sports with them, or encouraging them to play outside.

Supporting my child to engage in 60-minutes of physical activity each day, would:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Help me bond with my child					
Allow me to watch my child improve and achieve success					
Allow me to watch my child experience happiness, fun and feelings of normalcy					
Allow me to be physically active while participating with my child					
Allow me to act as a role model and mentor for my child					
Cause me to worry about my child (e.g. safety, well-being)					
Be unenjoyable for me					
Depend on my child's mood and emotions					
Take time away from my other commitments such as family and work					
Be frustrating for me					

Please think about your child between 5-30 years with a disability while answering the following questions. If you have more than one child with a disability, please answer these questions thinking about your child with a disability who will celebrate his/her birthday next.

Physical activity includes active play (e.g., riding a bicycle, playing at the park), sports (e.g., soccer, basketball) and other organized physical activities (e.g., swimming, dance lessons).

The following people think my child should engage in 60-minutes of physical activity each day:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Medical professionals (e.g., doctors, therapists)					
School (e.g., teachers)					
Recreation/Sports team leaders (e.g., staff, coaches)					
Disability organizations/programs					
Family (e.g., immediate, extended, spouse)					



Please think about your child between 5-30 years with a disability while answering the following questions. If you have more than one child with a disability, please answer these questions thinking about your child with a disability who will celebrate his/her birthday next.

Parents can provide support to their children to help them achieve 60-minutes of physical activity each day. Providing support for your child to be physically active can be done through many different activities such as providing transportation to sport activities, playing sports with them, or encouraging them to play outside.

The following people think I should support my child engage in 60-minutes of physical activity each day:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Medical professionals (e.g., doctors, therapists)					
School (e.g., teachers)					
Recreation/Sports team leaders (e.g., staff, coaches)					
Disability organizations/programs					
Family (e.g., immediate, extended, spouse)					

Please think about your child between 5-30 years with a disability while answering the following questions. If you have more than one child with a disability, please answer these questions thinking about your child with a disability who will celebrate his/her birthday next.

Physical activity includes active play (e.g., riding a bicycle, playing at the park), sports (e.g., soccer, basketball) and other organized physical activities (e.g., swimming, dance lessons).

If my child really wanted to and was very motivated to engage in 60-minutes of physical activity each day, he or she could participate even if:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Staff and/or coaches at activities/sports were not accommodating					
Activities/sports were not accessible					
My child did not have extra support					
My child was physically restricted (e.g., pain, injured, tired)					
The variety of activities available were limited					
There was a lack of proper staffing, support and supervision at organized sport or physical activities					
My child did not have the proper equipment to participate					
The weather and temperature conditions were not ideal					
My child had limited time due to school and other commitments (e.g., medical appointments and therapy)					
The activities were not necessarily safe for my child					

Please think about your child between 5-30 years with a disability while answering the following questions.

Parents can provide support to their children to help them achieve 60-minutes of physical activity each day. Providing support for physically active can be done through many different activities such as providing transportation to sport activities, playing sports with them, or encouraging them to play outside.

If you were really motivated and fully committed to support your child to participate in 60-minutes of physical activity each day, how confident are you that you could provide support even if:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The cost of enrolling your child in organized sport and physical activity was high					
You have limited time					
You experience challenges with accessibility of the sport/physical activity					
You have challenges finding a preferred physical activity/sport					
You have to find extra support for your child					
You have to travel a far distance to participate					
The weather conditions are poor					
Your child is in a bad mood					
You are concerned about your child's safety					
You are feeling tired, frustrated, or in a bad mood					

Please think about your child between 5-30 years with a disability while answering the following questions. If you have more than one child with a disability, please answer these questions thinking about your child with a disability who will celebrate his/her birthday next.

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
I intend to provide support to help my child participate in physical activity 60-minutes each day in the next month.					
In the next month, I will try to provide support to help my child participate in physical activity 60-minutes each day.					

Please think about your child between 5-30 years with a disability while answering the following questions. If you have more than one child with a disability, please answer these questions thinking about your child with a disability who will celebrate his/her birthday next.

In the past month, how often did you:

	Never/rarely	About once a month	1-2 times per week	Most days	Daily
Encourage your child to do physical activity or sport					
Do a physical activity or played sports with your child					
Drive or provide transportation so your child could go to a place where he or she can do physical activities or play sports?					
Watched your child participate in physical activity or sport?					
Told your child that physical activity is good for his or her health?					

Please think about your child between 5-30 years with a disability while answering the following questions. If you have more than one child with a disability, please answer these questions thinking about your child with a disability who will celebrate his/her birthday next.

In the past month, how often did you:

	Never/rarely	About once a month	1-2 times per week	Most days	Daily
Look for information or opportunities to get active with your child on most days of the week					
Make a plan to ensure that your child engages in physical activity on most days of the week					
Keep track of the amount of physical activity your child is getting					
Made plans regarding what to do if something interfered with my support of my child's physical activity					

Please think about your child between 5-30 years with a disability while answering the following questions. If you have more than one child with a disability, please answer these questions thinking about your child with a disability who will celebrate his/her birthday next.

Supporting my child's physical activity is something ....

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
I do automatically					
I do without having to consciously remember					
I do without thinking					
I start doing before I realize I am doing it					

Please think about your child between 5-30 years with a disability while answering the following questions. If you have more than one child with a disability, please answer these questions thinking about your child with a disability who will celebrate his/her birthday next.

Supporting my child's physical activity is something ....

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
I consider myself a parent who supports my child's regular physical activity					
When I describe myself to others, I usually include my involvement in supporting my child's physical activity					
Others see me as someone who is supportive of regular physical activity for my child					



Assuming you were motivated to do so, how confident are you that you can create a detailed plan (what, where, when) to support your child's physical activity participation over the next month?

	Not at all						Very
1. Once per week?	1	2	3	4	5	6	7
2. Twice per week?	1	2	3	4	5	6	7
3. Three times per week?	1	2	3	4	5	6	7

Please think about your child between 5-30 years with a disability while answering the following questions. Physical activity includes active play (e.g., riding a bicycle, playing at the park), sports (e.g., soccer, basketball) and other organized physical activities (e.g., swimming, dance lessons).

Over the past month, on how many days per week was your child to be more physically active for a total of at least 60-minutes per day?

- ☐ 0 days per week
- ☐ 1 day per week
- ☐ 2 days per week
- ☐ 3 days per week
- ☐ 4 days per week
- ☐ 5 days per week
- ☐ 6 days per week
- ☐ 7 days per week

**Date:** February 2016

**Study Name:** A Telephone-Assisted Action Planning Intervention to Promote Parental Support for Physical Activity among Children and Youth with Disabilities.

**Researchers:**

Sunita Tanna, MSc Candidate  
York University  
Kinesiology & Health Science  
416-736-2100 x22297  
[sunitat@yorku.ca](mailto:sunitat@yorku.ca)

Rebecca Bassett-Gunter, PhD  
York University  
Kinesiology & Health Science  
416-736-2100 x22072  
[rgunter@yorku.ca](mailto:rgunter@yorku.ca)

Kelly Arbour-Nicitopoulos, PhD  
University of Toronto  
Kinesiology & Physical Education  
416-978-2725  
[kelly.arbour@utoronto.ca](mailto:kelly.arbour@utoronto.ca)

Ryan E. Rhodes, PhD  
University of Victoria  
Behavioural Medicine  
205-721-8384  
[rhodes@uvic.ca](mailto:rhodes@uvic.ca)

**Purpose of the Research:** The primary purpose of this research is to determine whether forming action plans facilitate the translation of intentions into action such that parental support for their child's physical activity results in an increase in supportive behaviours. The secondary purpose of this research is to examine whether forming action plans for parental physical activity support results in increased physical activity participation among their child.

**What you will be asked to do in the Research:** You will be asked to complete two online questionnaires and possibly two telephone interviews over the course of one-month. The total time commitment to participate will be approximately 60-minutes. As a token of appreciation, we will send you one \$10 gift card for completing the study.

**Risks and Discomforts:** We do not foresee any risks or discomfort from your participation in the research.

**Benefits of the Research and Benefits to You:** The information gained from this research will help to build a better understanding of the value of action planning as a tool to help parents translate intentions into support behaviours for physical activity among children and youth with disabilities. This information may lead to the development of self-regulatory resources such as an action planning calendar and logbook and provide information to assist with the development of programs and policies regarding physical activity among children and youth with disabilities.

**Voluntary Participation:** Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer will not influence the nature of your relationship with York University either now, or in the future.

**Withdrawal from the Study:** You can stop participating in the study at any time, for any reason, if you so decide. If you decide to stop participating, you will still be eligible to be entered into the draw for agreeing to be in the project. Your decision to stop participating, or to refuse to answer particular questions, will not affect your relationship with the researchers, York University, or any other group associated with this project. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible.

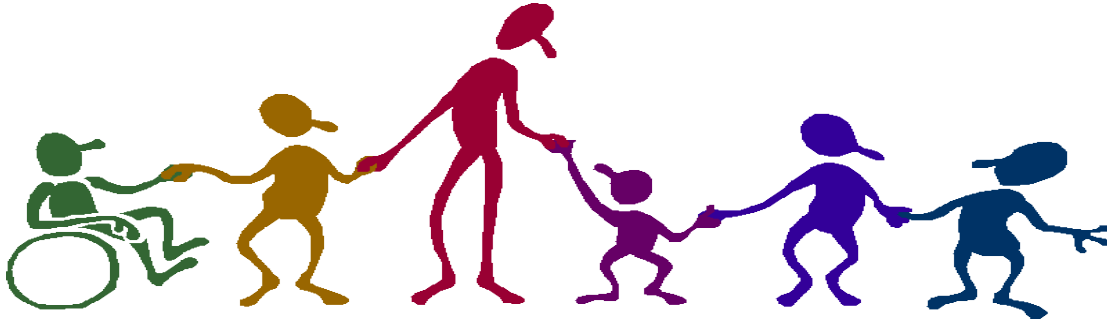
**Confidentiality:** All information you supply during the research will be held in confidence. Your name or any information that can be identified with you will not appear in any report or publication of the research. Data will be collected using a secure online data collection system. Your data will be safely stored on a password protected system and only research staff will have access to this information. After study completion, the data will be stored on a password protected computer, which will be locked in the Dr. Bassett-Gunter's research office. The data will be stored for a minimum of 7 years after data publication and then will be destroyed. Confidentiality will be provided to the fullest extent possible by law.

**Questions about the Research?** If you have questions about the research in general or about your role in the study, please feel free to contact Dr. Bassett-Gunter either by telephone at (416) 736-2100, extension 22072 or by e-mail [rgunter@yorku.ca](mailto:rgunter@yorku.ca). This research has been reviewed and approved by the Human Participants Review Sub-Committee, York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5<sup>th</sup> Floor, York Research Tower, York University (telephone 416-736-5914 or e-mail [ore@yorku.ca](mailto:ore@yorku.ca)).

**Legal Rights and Signatures:** I consent to participate in *An Action Planning Intervention to Investigate Parental Support for Physical Activity among Children and Youth with Disabilities* conducted by *Rebecca Bassett-Gunter*. I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form. By clicking the "I consent" below, I indicate my consent.

# **PARENTS**

## **NEEDED FOR RESEARCH STUDY**



The School of Kinesiology and Health Science at York University is conducting a study to understand the role of parents in supporting physical activity among children and youth with disabilities.

This study involves completing online questionnaires and possibly telephone interviews. Participants will receive a **\$10 gift card** as a token of appreciation.

**Eligible participants** must have a child (age 5-30 years) with a **disability** (e.g. physical, sensory, psychological, development disability).

To participate in this study, please scan the QR code or visit:

**[http://fluidsurveys.com/s/AP\\_baseline/](http://fluidsurveys.com/s/AP_baseline/)**

For more information or if you have any questions and/or concerns, please contact: **[sunitat@yorku.ca](mailto:sunitat@yorku.ca)**





Thank you for your participation in York University's research study!  
This package includes a few tools to help with your participation.

The package includes:

1. **Physical Activity Guide:** This guide includes the benefits of children and youth engaging in daily physical activity and what physical activity includes.
2. **Parental Support Guide:** This guide includes ideas how you can provide support for your child to be physically active. *Please use this guide to help you plan for 3 days per week you would like to support your child's physical activity participation.*
3. **Sample Calendar:** Please use this sample calendar to help you make your own schedule.
4. **Calendar Instructions:** Everything you need to know to create your calendar is here!
5. **Sample Logbook:** Please use this sample logbook to help you fill out your own.
6. **Logbook Instructions:** Everything you need to know to fill out your logbook is here!
7. **Parent Resources:** Here are some Canadian Disability Organizations you can check out for more information.

I have also sent you a blank calendar and a blank logbook: please use these word document templates to help you create and keep track of your plans!

If you have questions or concerns, please contact:

Sunita Tanna  
416-736- 2100 ext. 22297  
sunitat@yorku.ca

## ***Physical Activity Guide***

The benefits of **physical activity** are endless for children and youth with disabilities. Being active daily can help children and youth with disabilities:

- ✓ **Improve their health**
- ✓ **Do better in school**
- ✓ **Improve their fitness**
- ✓ **Grow stronger**
- ✓ **Have fun playing with friends**
- ✓ **Feel happier**
- ✓ **Maintain a healthy body weight**
- ✓ **Learn new skills**
- ✓ **Improve their self-confidence**
- ✓ **Decrease chances of developing diseases**
- ✓ **Improve their physical functioning**
- ✓ **Increase their feelings of social inclusion**

### **Physical Activity** includes:

**Active Play** (e.g., riding a bicycle, playing at the park, playing in the snow)



**Sports** (e.g., soccer, wheelchair basketball)



**Organized Physical Activities** (e.g., swimming, dance lessons)



## Parental Support Guide

**Parents can provide support to their children to help them achieve 60-minutes of physical activity each day. Providing support for physical activity can be done many different ways!**

Below are some ideas on how you can provide support for your child to be physically active. Remember, there are many other ways you can provide support, these are just a few examples to get you started.

*Please use the following ideas to help you create your weekly plans of providing 3 days of support per week towards your child's physical activity participation.*

**Providing transportation to and from physical activities and/or sports**



**Offer to participate in physical activities and/or sports with your child**



**Providing money for participation in physical activities and/or sports**



**Actively participate in the activity with your child**



**Enrolling your child in physical activities and/or sports**



**Watching your child participate in physical activities and/or sports**



**Buy equipment/clothing for your child to participating in physical activities and/or sports**



**Encouraging your child to participate in physical activities, sports and/or play outside**



**Praise your child for participating in physical activities and/or sports**



**Discuss the importance of being physically active and/or participating in sports**



**Discuss how to be active and participate in physical activities and/or sports**





## Sample Calendar

February/March 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
The details for each activity are presented in the following order: <b>1. What</b> <b>2. When</b> <b>3. Where</b>  Plan at least <b>3</b> sources of support <b>per week</b> , for the <b>next two-weeks</b> ( <i>refer to parent support guide</i> ). Use your logbook to help you keep track!		16	17	18	19	20 <b>Start your Logbook!</b>  <b>At the end of 2-weeks, you will be contacted to return your logbook via email</b>
21	22 <b>1.</b> Drive Luke to sledge hockey practice <b>2.</b> 7pm <b>3.</b> Crosby Arena	23	24 <b>1.</b> Watch Luke play wheelchair basketball <b>2.</b> 6pm <b>3.</b> Vaughan Center	25	26	27 <b>1.</b> Go for a family walk <b>2.</b> 10 am <b>3.</b> Wood’s Trail
28	29 <b>1.</b> Drive Luke to sledge hockey practice <b>2.</b> 7pm <b>3.</b> Crosby Arena	1	2 <b>1.</b> Sign Luke up for swimming <b>2.</b> 8pm <b>3.</b> Laptop at home	3	4 <b>1.</b> Buy Luke new gloves for sledge hockey <b>2.</b> 6pm <b>3.</b> Canadian Tire	<b>Please remember to keep your logbook updated</b>  <b>We will be in contact with you shortly!</b>
<div><div><b>JUST IN CASE:</b> <div><div>1. I don’t have time to watch Luke</div><div>2. I am feeling tired to go to Canadian Tire</div><div>3. The weather is bad for a family walk</div></div></div><div><b>IF:</b></div><div><b>THEN/ will:</b> <div><div>1. Ask him how his practice went</div><div>2. Reschedule for the next day</div><div>3. Go to the YMCA track</div></div></div></div>						