

A psychosocial analysis of parents' decisions for limiting their young child's screen time: an examination of attitudes, social norms and roles, and control perceptions

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Abstract

Objectives: Preschool-aged children spend substantial amounts of time engaged in screen-based activities. As parents have considerable control over their child's health behaviours during the younger years, it is important to understand those influences that guide parents' decisions about their child's screen time behaviours. Design: A prospective design with two waves of data collection, one week apart, was adopted. Methods: Parents (N = 207) completed a Theory of Planned Behaviour (TPB) based questionnaire, with the addition of parental role construction (i.e., parents' expectations and beliefs of responsibility for their child's behaviour) and past behaviour. A number of underlying beliefs identified in a prior pilot study were also assessed. Results: The model explained 77% (with past behaviour accounting for 5%) of the variance in intention and 50% (with past behaviour accounting for 3%) of the variance in parental decisions to limit child screen time. Attitude, subjective norms, perceived behavioural control, parental role construction, and past behaviour predicted intentions; and intentions and past behaviour predicted follow-up behaviour. Underlying screen time beliefs (e.g., increased parental distress, pressure from friends, inconvenience) were also identified as guiding parents' decisions. Conclusion: Results support the TPB and highlight the importance of beliefs for understanding parental decisions for children's screen time behaviours, as well as the addition of parental role construction. This formative research provides necessary depth of understanding of sedentary lifestyle behaviours in young children which can be adopted in future interventions to test the efficacy of the TPB mechanisms in changing parental behaviour for their child's health.

Key words: Screen Time, Theory of Planned Behaviour, Beliefs, Parents, Young Children

Sedentary behaviours, including screen time viewing, have been observed throughout the lifespan, including young children. A dose-response relation between increased sedentary behaviour and unfavourable health outcomes has been observed in children, with the evidence suggesting increased screen time is associated with unfavourable body compositions, decreased fitness, attention deficits, and lower scores on measures of psychosocial health and cognitive development (LeBlanc et al., 2012; Tremblay et al., 2011). The prevalence of poor health outcomes such as overweight and obesity has been identified across the world, with a projected increase from 4.2% in 1990 and 6.7% in 2010 to 9.1% in 2020, in children aged 2-5 years (de Onis, Blossner, & Borghi, 2010). The Department of Health (2014), Australia has recently developed guidelines relating to sedentary behaviours, recommending limiting screen time to promote health throughout the lifespan. Given that health behaviours may track across time, intervening early in a child's life is key to ensuring they have limited sedentary screen time and, thus, reduce the risk of becoming overweight or obese (Biddle, Pearson, Ross & Braithwaite, 2010).

Questioning the belief that preschool-aged children are quite active, several recent studies have found that many activities preschool-aged children engage in are, in fact, sedentary in nature and, thus, likely contributing to the low levels of physical activity and increasing prevalence of obesity in these children (Hodges, Smith, Tidwell, & Berry, 2013). This evidence has given rise to a new and emerging area of research into early childhood obesity prevention (Hesketh, & Campbell, 2010). Young children, in particular, are dependent on their parents to ensure that they participate in health promotion behaviours such as limiting their screen time (Bourdeuhuij, 1997; Golan & Crow, 2008; Hingle, O'Conner, Dave, & Baranowski, 2010). The preschool years represent a critical time when children establish health habits that may persist into adolescence and adulthood, and are generally the final years in which parents have primary control over their child's health behaviours (Hingle

et al., 2010; Hodges et al., 2013; Irwin, He, Bouck, Tucker, & Pollet, 2005). It is essential, therefore, that interventions to limit sedentary behaviour are instituted during this critical period. A recent study investigating maternal decision making for their young child's physical and sedentary behaviours found mothers' intention was related to their subsequent behaviour to engage their child in adequate physical activity and limit their screen time (Hamilton, Thompson, & White, 2013). Given the high level of control of parents during this time and the significance of this age group in the development of enduring health behaviours, it is of primary importance to understand the decision making of parents around these behaviours.

Theory of Planned Behaviour: The Model with the Addition of Parental Role Construction

The Theory of Planned Behaviour (TPB; Ajzen 1991) is a prominent decision making model in the social and health behaviour literature. The TPB specifies that behaviour is most proximally determined by an individual's intention to engage in that behaviour. Individuals' intentions are theorised to be predicted by attitudes (evaluation of the behaviour as favourable/ unfavourable), subjective norms (perceived social pressure to perform/ not perform the behaviour), and perceived behavioural control (PBC; perceived ease/ difficulty to perform the behaviour), with PBC further predicting behaviour directly. It should also be noted that past behavior is often included as an additional predictor of intentions and behaviour within the TPB. An important feature of the TPB is its suggestion that the antecedents of attitude, subjective norms, and PBC are corresponding salient behavioural, normative, and control beliefs, respectively, reflecting the underlying cognitive structure that determines an individual's intention and behaviour (Ajzen, 1991).

Meta-analytic studies support the use of the TPB in predicting people's behaviour (e.g., Armitage & Conner, 2001; McEachan, Conner, Taylor, & Lawton, 2011). Although the

model has received considerable attention and support in the literature to date, its shortcomings and limitations have been well documented (Sniehotta, Pesseau & Araujo-Soares, 2014). Despite current criticisms, the model is a useful framework to adopt as a starting point in the pursuit of a better understanding of human behaviour (Ajzen, 2014; Armitage, 2014). The model has been utilised successfully as the basis of many studies of health behaviour and mostly for understanding individuals' decisions for their own health. Emerging research, however, suggests the model is useful for understanding individuals' decisions for others' health, including parents' decisions for their child's health (Andrews, Silk, & Eneli, 2010; Hamilton et al., 2013; Walsh, Hyde, Hamilton, & White, 2012). Furthermore, the TPB has been used as a basis for the creation of theoretically-based and empirically-driven health messages that may be used to inform future interventions to increase the likelihood of the intervention being efficacious. (Ajzen, 2014; Epton et al., 2014; French & Cooke, 2012; Hardeman et al., 2002).

In light of current criticisms of the TPB, however, it may be useful to investigate other important constructs in this context. One aspect of the TPB that has continued to be questioned is the role of subjective norms in explaining health-related behaviours. Meta-analytic research has found the subjective norm-intention relationship to be weaker than either the attitude-intention and PBC-intention relationships (Hagger, Chatzisarantis, & Biddle 2002). Researchers have questioned the conceptualization of the subjective norm construct suggesting it is inadequate and arguing that there might be other types of social influences which are more important in determining people's intentions (White, Hogg, & Terry, 2002). Roles, for example, are inextricably linked to the wider social structure as they are socially constructed by individuals within the context of their social groups and, thus, may be an important social factor in influencing parents' decisions (Hoover-Dempsey et al., 2005).

Much of the literature on parental role influence centers on Hoover-Dempsey and Sandler's model of parental involvement (Hoover-Dempsey & Sandler, 1995, 1997). According to these authors, roles are sets of expectations or beliefs held by individuals and groups for the behaviour of the individual and behaviours characteristic of its members. These beliefs guide the decisions of individuals within specific contexts as well as interpret the actions of others. Roles also reflect personal responsibility for behaviours within a context and guide actions that are appropriate in the context. These composed sets of expectations and personal responsibilities are thought to guide individuals' decisions for their own behaviour but, through reason, may also guide one's decisions for others behaviours if one is responsible for the other person, such as the parent-child relationship. Parents' role construction regarding their involvement in their child's behaviours is thought to be created in the interaction of beliefs about 1) desired child outcomes, 2) responsibility for these outcomes, 3) the perceptions of important others, and 4) parental behaviours related to those beliefs and expectations (Hoover-Dempsey, Walker, & Sandler, 2005). Thus, while subjective norms reflect the perceived social pressure to perform the behaviour and the motivational orientation for action is derived out of significant others' approval (Ajzen, 1991), parental role construction can be considered a reflection of the societal influence to the extent that the individual has internalised socially prescribed role constructions as well as internalised meanings and expectations attached to holding a particular kind of role. The motivational roots of parental role construction, therefore, derives from individuals considering the relevant responsibilities and activities of being involved as a parent with their child and are motivated by both self and social verifications to affirm their role as a parent and behave accordingly to fulfil these obligations and remain consistent with the standards attached to the role. Parental role construction, therefore, should have a direct, independent influence on parents' intentions above the components of the TPB.

Research supports the importance of role construction to parents' decisions, especially in the education domain (Hoover-Dempsey et al., 2005). More recently, parental role construction has been utilised in a number of emerging TPB studies investigating parental decision making for their child's health, including sun protection among 4-5 year olds (Thomson, White, & Hamilton, 2012) and healthy eating behaviours among 2-3 year olds (Spinks & Hamilton, under review). In both these studies, parental role construction was found to be conceptually distinct from subjective norms and for different behaviours as well as add significant variance over and above the TPB variables, thus providing preliminary evidence to satisfy the criteria proposed by O'Keefe (2002) to evaluate additional predictors in the TPB. As the behaviour of young children are dependent on their parents, it is proposed that parents who identify limiting their child's screen time as part of their parental role will have stronger intentions to do so.

Theory of Planned Behaviour: Behavioural, Normative, and Control Beliefs

In addition to adopting the TPB with the additional construct of parental role construction to better understand parents' decisions to limit their child's screen time, the model can be used to develop theoretically- and empirically-based health messages that are relevant to the target group. According to the TPB, the attitude, subjective norm, and PBC constructs typically measure global or direct measures that summarize sets of personal, social, and volitional beliefs, referred to as behavioural (advantages/disadvantages), normative (social approval/disapproval), and control beliefs (inhibitors/motivators), respectively (Ajzen, 1991; Fishbein & Ajzen, 1975). Belief elicitation has been suggested to be a strength of the TPB (Ajzen, 2011, 2014); however, previous empirical testing often avoids expending sufficient effort in the formative research process of salient belief identification for a given target behaviour and focuses attention on measuring the three more direct global factors (attitudes, subjective norm, PBC) considered antecedent to intentions

and behaviour (Ajzen, 2014; Chan et al., 2015). These higher level global factors, however, are merely summative states of more fundamental lower-level elements (i.e., beliefs) and, therefore, the action of behaviour change is at the belief level rather than at the summative level. Accordingly, the optimal point for influencing these high level constructs is at the level of the beliefs from which they are composed and, consequently, identified as the key targets for TPB-based interventions focused on behaviour change (Ajzen, 2014; Hardeman et al., 2002).

A growing number of studies have shown efficacy in applying the TPB belief-based approach to examine the key beliefs underpinning health behaviours (Cowie & Hamilton, 2014; Epton et al., 2014; French & Cooke, 2012; Hamilton & White, 2011; Masser, White, Hamilton, & McKimmie, 2012) and, specifically, parental decision making for their child's health (Hamilton, Daniels, Murray, White, & Walsh, 2011; Hamilton, Hatzis, Kavanagh, & White, 2014). Targeting beliefs reflects the typical means by which intervention designers can change behaviour based on the theory (Fishbein & Ajzen, 2011). Formative research on beliefs, therefore, is necessary for depth of understanding of the behaviour in a given population as well as to test the efficacy of the TPB mechanisms in changing behaviour, although researchers seldom conduct this necessary formative work (Ajzen, 2014; Epton et al., 2014). Given the important role beliefs play in guiding decision making, the current study sought to investigate the key beliefs underpinning parents' decisions for their child's screen time behaviour.

The Current Study

The aim of the current study was to investigate the decision making process of, and the beliefs underpinning, parents' decisions to ensure that their child's screen time is limited according to the guidelines developed by the Department of Health (2014), Australia. In addition, the research examined the theoretical efficacy of the inclusion of parental role

construction in the TPB. The study targeted parents who had a child aged 2 to 5 years as research shows that the pre-school years are critical in children developing their own health behaviours and are the final years in which parents have the most control over their child's health behaviours. The study will also build on previous work that has provided preliminary evidence of factors that may influence parents' decisions about their young child's screen time behaviours (Hamilton et al., 2013) but was limited in understanding the mechanisms by which these factors guide parents' decisions given the focus on only mothers' decisions and on children aged 4-5 years.

It was hypothesized, following the specifications of the TPB (Ajzen, 1991) as well as findings from Thomson et al. (2012), that parents' intention to limit their child's screen time will be associated with attitudes, subjective norms, PBC (H1), and the additional variable of parental role construction (H2). It was hypothesised also that parents' decisions (behaviour) to limit their child's screen time will be associated with intentions and PBC (H3), and that past behaviour will be associated with both intentions and behaviour (H4). In addition, this study seeks to investigate the beliefs that underpin parental decision making for their child's screen time behaviours, which can form the targets for future intervention studies.

Method

Participants

The sample comprised 207 Australian parents; 138 mothers ($M = 36.43$ years; $SD = 5.04$, 66.7%) and 69 fathers ($M = 36.33$ years; $SD = 6.5$) who had at least one child aged between 2 and 5 years who usually resided in the same household as the parent. When responding to questionnaire items, parents were instructed to consider the oldest child aged between 2 and 5 years. Parents were independent, with only one partner from each couple completing the questionnaire. Almost all parents were married (96%), and just over half were employed full time (50%). One week later, 152 (73.4%; 64.5% [$M = 36.34$ years; $SD = 5.40$]

mothers and 26.08% [$M = 35.37$ years; $SD = 6.55$] fathers) of the parents took part in the follow-up questionnaire. Participants were recruited via online (e.g., parenting websites), face-to-face (e.g., swim schools), and through their child's day care facility (long day care, kindergarten). A prize draw was offered (to win one of three AUD\$150 supermarket gift cards) upon completion of both questionnaires.

Design and Procedure

The current study was part of a larger project investigating factors which influence parental decision making for their child's physical and sedentary-related activities. The study was approved by University Human Research Ethics Committee. The study adopted a prospective-correlational design with a one week follow-up. Parents completed the main questionnaire either on-line or paper-based which comprised the standard TPB items, in addition to measures of parental role construction and past behaviour. Behavioural, normative, and control beliefs were also measured. To reduce recall bias, follow-up behaviour was assessed one week later. A follow-up telephone call was conducted to measure the decisions parents had made regarding their child's screen time behaviours during the previous week.

Measures

TPB and the addition of parental role construction. The TPB variables were assessed using guidelines as specified by Ajzen (1991). The target behaviour of screen time was defined according to guidelines developed by the Department of Health (2014) for children aged 2 to 5 years. Appropriate screen time was defined as no more than 1 hour per day spent sitting and watching television, DVDs, or using computer and electronic games. The wording for the target behaviour of screen time for the items below refers to "my child's screen time is limited to less than one hour per day in the next week".

Intention. Three items assessed the strength of intention; “I intend to ensure that [target behaviour], “I plan to ensure that [target behaviour]”, and “I expect that I will ensure that [target behaviour]”; scored [1] *strongly disagree* to [7] *strongly agree*). The scale was reliable with an alpha coefficient of $\alpha = .95$.

Attitude. Three items measured parents’ attitudes; “For me to ensure that [target behaviour] would be “*unfavourable - favourable; bad –good; valuable – worthless*”, scored [1] to [7]. The attitude scale was reliable with an alpha coefficient of $\alpha = .92$.

Subjective Norms. Subjective norms were measured using three items; “Most people who are important to me think that I should ensure that [target behaviour]”, “Those people who are important to me think that I should ensure that [target behaviour]”, and “The people in my life whose opinions I value would approve of me ensuring that [target behaviour]”; scored [1] *strongly disagree* to [7] *strongly agree*. The subjective norm scale was reliable with an alpha coefficient of $\alpha = .89$.

Perceived Behavioural Control. PBC was measured using four items per target behaviour; “It is mostly up to me whether [target behaviour]”, “I have complete control over whether [target behaviour]”, “It would be easy for me to ensure that [target behaviour]”, and “I am confident that I could ensure that [target behaviour]”; scored [1] *strongly disagree* to [7] *strongly agree*. The PBC scale was reliable with an alpha coefficient $\alpha = .81$.

Parental Role Construction. Two items adapted from Green and Hoover-Dempsey (2007) were used to measure parental role construction (i.e., parents’ expectations and beliefs of responsibility for their child’s behaviour); “I believe it is my responsibility as a parent to ensure that [target behaviour]” and “It is an important part of my role as a parent to ensure that [target behaviour]”; scored [1] *strongly disagree* to [7] *strongly agree*. The parental role construction scale items were significantly correlated, $r = .90, p < .001$.

Past Behaviour. Three items were included to measure past behaviour in the previous week; “In the last week, to what extent did you ensure that your child’s screen time was limited to less than one hour per day”, “How often, in the last week, did you ensure that your child’s screen time was limited to less than one hour per day”, and “In the last week, on how many days did you ensure that your child’s screen time was limited to less than one hour per day”; scored [1] *not at all* to [7] *a large extent*. The past behaviour scale was reliable for screen time behaviours with an alpha coefficient of $\alpha = .92$.

TPB and behavioural, normative, and control beliefs. All belief-based items were measured by assessing the modal salient beliefs elicited from a prior qualitative study (Hamilton et al., 2014). See Table 3 for a full listing of the beliefs.

Behavioural Beliefs. Behavioural beliefs were measured by assessing the ten beliefs elicited from the prior qualitative study. Participants were asked to rate how likely the costs (i.e. “Increase parent distress”), and benefits (i.e. “Improve my child’s mental wellbeing”) would result if they performed the target behaviour. Responses ranged from [1] *extremely unlikely* to [7] *extremely likely*.

Normative Beliefs. Normative beliefs were measured using the normative beliefs relating to five socially relevant individuals or groups (i.e. “Friends”, “Childcare/school staff”) obtained in the qualitative study. Participants were asked to rate how likely these individuals or groups were to think they should perform the target behaviours, with responses ranging from [1] *extremely unlikely* to [7] *extremely likely*.

Control Beliefs. Control beliefs were assessed by the 11 control beliefs elicited from the qualitative study. Participants were asked to rate how likely internal and external factors (e.g. “Inactive natured child”) were to prevent or discourage them from performing the target behaviour, scored from [1] *extremely unlikely* to [7] *extremely likely*.

Reported Behaviour. One week later, parents reported their decisions (behaviour) for their child in the previous week using two items; “In the past week, to what extent did you ensure that your child’s screen time was limited to less than one hour per day?” and “How often, in the last week, did you ensure that your child’s screen time was limited to less than one hour per day?”; scored [1] *not at all* to [7] *a large extent*. The follow-up behaviour scale items were highly correlated, $r = .94, p < .001$.

Results

A hierarchical multiple regression analysis was conducted to examine parents’ intentions for their child’s screen time behaviours. Standard TPB variables (attitude, subjective norms, and PBC) were entered at Step 1; parental role construction was entered at Step 2; and past behaviour was entered at Step 3. An additional hierarchical multiple regression analysis was conducted to examine parents’ screen time decisions (behaviour) for their child with intentions and PBC entered at Step 1, and past behaviour entered at Step 2. Means, standard deviations and correlations are shown in Table 1. Parents in the current study ensured that their child’s screen time was limited to a moderate degree, with a mean score 4.18 ($SD=1.79$). As displayed in Table 1, subjective norms were the strongest correlate to intentions, with intentions emerging as the strongest correlate to behaviour.

Associations with Intentions

For parents’ intentions to ensure that their child’s screen time was limited to less than one hour each day, the Step 1 TPB variables of attitude, subjective norms, and PBC accounted for 69% (adjusted $R^2 = .687$) of the variance in intentions, $F(3, 196) = 144.35, p < .001$, with attitude ($t[197] = 5.50, p < .001$), subjective norms ($t[197] = 5.78, p < .001$) and PBC ($t[197] = 7.38, p < .001$) revealed as significant determinants. In Step 2, parental role construction accounted for an additional 4% of the variance in intentions, $Fchange(4, 196) = 24.64, p < .001$. All variables contributed significantly to the model in Step 2; attitude ($t[197]$

= 3.99, $p < .001$), subjective norms ($t[197] = 4.43$, $p < .001$), PBC ($t[197] = 6.48$, $p < .001$), and parental role construction ($t[197] = 4.96$, $p < .001$). In Step 3, past behaviour accounted for an additional 5% of the variance in intentions, $F_{change}(5, 196) = 41.89$, $p < .001$. In the final model, all variables remained significant; attitude ($t[197] = 3.68$, $p < .001$), subjective norms ($t[197] = 4.73$, $p < .001$), PBC ($t[197] = 3.07$, $p = .002$), parental role construction ($t[197] = 4.39$, $p < .001$), and past behaviour ($t[197] = 6.47$, $p < .001$). Refer to Table 2.

Associations with Behaviour

For parents' behaviour to ensure that their child's screen time was limited to less than 1 hour each day, in Step 1 behavioural intention and PBC accounted for 47% (adjusted $R^2 = .46$) of the variance in behaviour, $F(2, 147) = 64.31$, $p < .001$. Intention ($t[148] = 7.18$, $p < .001$), but not PBC, contributed significantly to the model. In Step 2, past behaviour accounted for an additional 3% of the variance in behaviour, $F_{change}(3, 147) = 9.00$, $p < .001$. In the final model, intention ($t[148] = 4.59$, $p < .001$) and past behaviour ($t[148] = 3.00$, $p = .003$) were significant. Refer to Table 2.

Key TPB Belief-based Analysis of Intentions and Behaviour

To identify the key beliefs underlying parental decision making, similar procedures to those outlined by von Haeften, Fishbein, Kasprzyk, and Montano (2001) were utilised. First, pearson product-moment correlation matrixes identified the beliefs that significantly correlated with intentions and behaviour. Secondly, within each belief-based measure, the significant key beliefs were entered into a multiple regression analysis to identify those beliefs that make independent contributions to intention and behaviour. Finally, key beliefs were examined to identify the percentage of participants who fully or strongly held each belief (see Table 4) to indicate effective intervention targets (Hornik & Woolf, 1999).

Bivariate correlations revealed nine of ten behavioural beliefs ($r = -.17$ to $.42$), all five normative beliefs ($r = .16$ to $.59$), and three of 11 control beliefs ($r = -.15$ to $-.21$) were

significantly correlated with intention (see Table 3). Multiple regression analyses on the significant behavioural beliefs on intention identified ‘improve my child’s mental wellbeing’ ($\beta = .41$), ‘increase parent distress’ ($\beta = -.27$), and ‘promote healthy habits in my child’ ($\beta = .21$) as significant. Multiple regression analyses also identified two normative beliefs, ‘spouse/partner’ ($\beta = .43$) and ‘friends’ ($\beta = .26$); and one control belief, ‘lack of time’ ($\beta = -.21$), as significantly related to intention. Refer to Table 4.

Bivariate correlations revealed nine of 10 behavioural beliefs ($r = -.17$ to $.42$), all five normative beliefs ($r = .16$ to $.43$), and seven of 11 control beliefs ($r = -.16$ to $-.30$) were significantly correlated with behaviour (see Table 3). Multiple regression analyses on the significant behavioural beliefs on behaviour identified ‘improve my child’s mental wellbeing’ ($\beta = .41$) and ‘increase parent distress’ ($\beta = -.23$) as significant. Multiple regression analyses also identified two normative beliefs, ‘spouse/partner’ ($\beta = .30$) and ‘friends’ ($\beta = .25$); and one control belief, ‘inconvenience’ ($\beta = -.30$), as significantly related to behaviour. Refer to Table 4.

Discussion

The current study is one of the first to apply a formative approach, adopting a sound theoretical framework (i.e., the TPB) with the inclusion of an additional construct known to impact on parents’ decisions (i.e., parental role construction), to the understanding of parents’ decision making for limiting their child’s screen time behaviours. As hypothesised, attitudes, subjective norms, and PBC significantly predicted parents’ intentions (supporting H1), as did the additional variable of parental role construction (supporting H2). Parents’ intentions, but not their PBC, was directly related to their reported decisions at follow-up (partially supporting H3). In addition, past behaviour significantly predicted both intentions and behaviour (H4). The final model explained 77% of the variance in intentions and 50%

variance in behaviour. A range of key beliefs were also identified as being associated with parents' intentions and behaviour in this context.

Theory of Planned Behaviour and Parental Role Construction

In accordance with prior research, intentions emerged as the proximal determinant of behaviour, with intentions significantly related to attitudes, subjective norms, and PBC.

While attitude emerged as being strongly related to parents' intentions to limit their child's screen time behaviour, subjective norms emerged as the most influential TPB variable. The empirical evidence has shown the subjective norm-intention relationship to be less reliable than the attitude-intention relationship. Prior research, however, suggests that decision making for another person offers a unique circumstance in which the perceived social pressure from others is an important factor for parents making decisions for their child's health (Hamilton et al. 2012, 2013). Other research has also found that parents are seen as responsible for their child's health behaviours, thus reinforcing parents' perceived social pressure from others (Andrews et al., 2010). Strong moral imperatives about parenting may make parents especially sensitive to this pressure.

While PBC was significantly related to parents' intentions to limit their child's screen time, PBC failed to reach significance in explaining actual behaviour. In a study of maternal decision making for children's screen time, it was suggested that mothers may overestimate or underestimate their level of control over limiting screen time, given that this behaviour is passive in nature and, as a consequence, difficult to monitor (Hamilton et al., 2013). Ajzen (1991) suggests that the strength of the PBC construct is related to the degree to which perceived control reflects actual control. Thus, parents may perceive a high level of control given that they can determine when screen time is turned on or off; however, it may be difficult for parents to continually monitor their child's screen time and, as such, measuring PBC may be inaccurate due to parents' misrepresentations of their perceptions of control.

In addition to the TPB constructs being associated with parents' decisions, parental role construction is an emerging construct that has been applied to a number of parental decision making behaviours (Hoover-Dempsey & Sandler, 1997; Spinks & Hamilton, under review, Thompson et al., 2012) and, in the current study, added unique explanatory variance to parent's intentions to limit their child's screen time. The significance of parental role construction reflects the extent to which parents identify with limiting their child's screen time, as part of their responsibility as a parent (Hoover-Dempsey, & Sandler, 1997). These findings provide continued support for the potential importance of this construct in the context of parental decision making for limiting children's screen time. In addition, parental role construction as well as the TPB constructs remained significant with the inclusion of past behaviour. In fact, the strength of parents' intentions to limit their child's screen time outweighed past behaviour in explaining actual behaviour, highlighting the importance of these more modifiable psychosocial factors in future intervention programs and suggesting past actions may be less stable across time. For example, parents may have different competing demands at different points in time which may impact on their decisions to allow their child more or less screen time.

Theory of Planned Behaviour and Key Beliefs

The current study identified a number of behavioural, normative, and control beliefs that made independent contributions to screen time intentions and behaviours. Currently, there is a scant body of research into parental beliefs which underlie decision making for their young child's health behaviours, and this knowledge gap may hinder the effectiveness of interventions targeting health behaviours of young children. Interventions targeting the beliefs underpinning the TPB constructs may be more effective than those that do not, as belief change can be specifically linked to intention and behavioural change (Fishbein & Ajzen, 2011, Epton et al., 2014).

The behavioural beliefs identified in the current study indicate that parental decisions regarding their child's screen time involve the evaluation of positive and negative outcomes. Parents identified 'improve my child's mental wellbeing' and 'promote healthy habits in my child' as relevant for their decisions in this context. These findings are similar to a study of physical activity beliefs in an adult sample where health benefits are a salient advantage to practicing health enhancing behaviours (Rhodes, Blanchard, Courneya, & Plotnikoff, 2009). Additionally, 'increasing parental distress' was identified as a negative consequence unique to parents when considering limiting their child's screen time. Parents may use screen time activities to complete other tasks (i.e., cooking dinner) and, without such distractions or entertainment for their child, undertaking these other commitments would be difficult, thus adding stress and increasing their distress (Ginsburg, 2007). Persuading parents to consider the more positive outcomes of limiting screen time behaviours in young children may help to outweigh the negative perceptions and help to challenge parents' beliefs toward screen time use (Gallagher & Updegraff, 2012). In addition, providing strategies to balance tasks and limiting screen time (i.e., engaging children in cooking which might also assist in nutritional knowledge) may assist in reducing the potential for parental distress.

Normative beliefs were also identified as an important consideration for parents' decision making. Parents identified that the views of their spouse or partner, as well as their friends, were considered when making decisions about limiting their child's screen time. As stated previously, subjective norms were a particularly salient influence on parents' intentions. Given that people are influenced by others according to the extent to which they value their opinions, it is not surprising that a parent's spouse/partner or friend would emerge as important normative influences. To enhance parents' adherence to the screen time guidelines, highlighting the approval of spouses/partners and friends may serve to assist and reinforce performing this behaviour. Specifically, prior research suggests that parental social

supports that provide feedback on performance form a key component in intervention strategies targeting health promotion behaviours (Michie, Abraham, Wittington, McAteer, & Gupta, 2009).

Control beliefs involve parents' perceptions of whether limiting their child's screen time will be difficult or easy, as well as their ability to enact this behaviour due to perceived resources, skills, and opportunities to do so (Ajzen, 1991). Parents identified a lack of time and inconvenience as barriers to limiting their child's screen time for intentions and behaviour, respectively. Prior research into exercise beliefs indicates that this perception of limited time appears to mitigate the relationship between parents' good intentions, and their actual behaviour (Hamilton & White, 2010). Thus, due to a lack of time and inconvenience of limiting screen time, particularly when it may be perceived as facilitating the completion of other tasks, parents may require additional support and strategies to increase their control over performing this behaviour. Such strategies could include the formation of specific goals related to an individual's situation, which have been found to be successful in health promotion interventions (Michie et al., 2009).

Limitations

The current study is not without limitations. The majority of the sample was recruited from sources which promote health enhancing behaviours (e.g., swim schools) and, thus, may have yielded a sample who were health conscious. In addition, the sample comprised of mostly Caucasians and individuals in partnered relationships, thus potentially limiting generalisability. Finally, to avoid recall bias, there was only a 1-week follow-up between data collection points and, as such, the likelihood of intention predicting behavior may be governed by the individual's cognitive decision making processes that strive for consistency in their beliefs.

Conclusions

The current research is among the first of recent investigations to tackle the important childhood health behaviour of limiting screen time using a sound and systematic theoretical approach. Overall, the findings of the current study provide useful insights into the psychosocial factors influencing parents' decisions for their child's screen time use, and identified a number of key beliefs which can inform future intervention studies to test the efficacy of the TPB mechanisms in changing behaviour. While national recommendations are provided to guide parents in limiting their child's screen time, these findings show the importance of going beyond simple knowledge transmission to support and enhance parents' ability to limit this behaviour. Through both the identification of the factors influencing parents' decisions and their underlying beliefs, interventions can target the benefits, assist to mitigate the costs and barriers to performance, and utilise the support of others to test the efficacy of these mechanisms in increasing parents' ability to limit their child's screen time behaviours.

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Table 1

Descriptive Analysis for the Target Behaviour of Child Screen Time: Bivariate Correlations, Means, and Standard Deviations

Variable	1	2	3	4	5	6	7
1. Attitude	-						
2. Subjective norms	.66***	-					
3. Perceived Behavioural Control	.48***	.59***	-				
4. Parental Role Construction	.63***	.64***	.54***	-			
5. Past Behaviour	.47***	.49***	.66***	.53***	-		
6. Intention	.70***	.74***	.69***	.73***	.73***	-	
7. Behaviour	.48***	.53***	.54***	.51***	.64***	.69***	-
Mean	5.90	4.93	4.73	5.27	3.66	4.53	4.18
SD	1.23	1.45	1.41	1.81	1.97	1.64	1.79

Note. All constructs were measured on 7-point scales. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2

Hierarchical Regression Analyses of Parents' Intention and Behaviour for Child Screen Time

Intention	$\beta_{\text{step 1}}$ (95% CI)	$\beta_{\text{step 2}}$ (95% CI)	$\beta_{\text{step 3}}$ (95% CI)
Step 1			
Attitude	.292*** (.249, .527)	.210*** (.141, .418)	.177*** (.109, .362)
Subjective Norms	.330*** (.241, .491)	.249*** (.154, .400)	.241*** (.156, .380)
PBC	.366*** (.308, .532)	.311*** (.249, .466)	.154** (.063, .290)
Step 2			
Parental Role Construction		.262*** (.144, .334)	.213*** (.107, .281)
Step 3			
Past Behaviour			.308*** (.175, .328)
ΔR^2	.69	.04	.05
ΔF	144.35***	24.64***	41.89***
Adj. R^2	.69	.72	.77
Model F	144.35***	127.69***	132.28***
Behaviour			
Step 1			
Intention	.605*** (.497, .874)	.447*** (.288, .724)	
PBC	.109 (-.074, .356)	.026 (-.187, .254)	
Step 2			
Past Behaviour		.285** (.088, .430)	
ΔR^2	.47	.03	
ΔF	64.31***	9.00**	
Adj. R^2	.46	.49	
Model F	64.31***	48.24***	

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3

Means and Standard Deviations of Behavioural, Normative and Control Beliefs and Correlations with Parents' Intention and Behaviour for Child Screen Time

Beliefs	<i>M</i>	<i>SD</i>	Intention <i>r</i>	Behaviour <i>r</i>
Behavioural Beliefs				
Promote my child's creativity	5.16	1.66	.38***	.38**
Improve my child's mental wellbeing	5.11	1.66	.42***	.42**
Improve my child's social skills	5.27	1.64	.37***	.37**
Improve my child's behaviour	4.86	1.75	.38***	.38**
Promote family interactions	5.46	1.61	.36***	.36**
Promote healthy habits in my child	5.42	1.57	.39***	.39***
Increase parent-child confrontations	4.01	2.05	-.11	-.11
Increase whining behaviour in my child	3.93	1.99	-.17*	-.17*
Interfere with my other commitments	3.21	1.86	-.18*	-.18*
Increase parent distress	3.19	1.85	-.24**	-.24**
Normative Beliefs				
Spouse/partner	4.60	2.12	.59***	.43***
Other family members	4.64	1.82	.50***	.42***
Friends	4.22	1.70	.52***	.43***
Childcare/school staff	5.22	1.80	.29***	.27**
Healthcare professionals	5.48	1.88	.16*	.16*
Control Beliefs				
Lack of time	3.24	1.93	-.21**	-.27**
Need for parent own time	3.89	2.05	-.15*	-.22**
Inconvenience	3.38	1.93	-.17*	-.30***
Lack of support	3.00	1.84	-.11	-.18*
Lack of access to resources/parks	2.35	1.77	-.05	-.16*
Poor weather	3.26	1.90	-.05	-.01
Inactive natured child	2.64	1.86	-.06	.25**
Child illness/injury	3.34	1.96	-.05	-.06
Parent illness/injury	3.33	1.91	-.12	-.12
Parent tiredness	3.67	1.88	-.09	-.19*
Parent fatigue	3.16	1.84	-.03	-.06

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 4

Summary of the Multiple Regression Analyses Identifying the Key Parental Belief Targets for Child Screen Time.

Key beliefs	β (95% CI)	R ²	df	F	% fully accepting the belief ^a	% strongly accepting the belief ^b	Both
Intention							
Behavioural beliefs		.43	3, 198	49.92***			
Improve my child's mental wellbeing	.41*** (.244, .598)				27%	19%	46%
Increase parent distress	-.27*** (-.336, -.147)				24%	21%	45%
Promote healthy habits in my child	.21* (.022, .419)				30%	26%	56%
Normative beliefs		.39	2, 198	63.14***			
Spouse/partner	.43*** (.227, .441)				27%	16%	43%
Friends	.26*** (.122, .388)				9%	14%	24%
Control beliefs		.04	1, 200	9.08**			
Lack of time	-.21** (-.293, -.061)				27%	18%	45%
Behaviour							
Behavioural beliefs		.23	2, 148	21.77***			
Improve my child's mental wellbeing	.41*** (.305, .628)				27%	19%	46%
Increase parent distress	-.23** (-.363, -.083)				24%	21%	45%
Normative beliefs		.24	2, 147	23.41***			
Spouse/partner	.30** (.108, .407)				27%	156%	43%
Friends	.25** (.086, .464)				9%	14%	24%
Control beliefs		.09	1, 150	15.23***			
Inconvenience	-.30*** (-.435, -.142)				25%	16%	41%

* $p < .05$, ** $p < .01$, *** $p < .001$

^aScale measured on a 7-point scale (1=extremely unlikely, 7=extremely likely), with a score of 6 indicating strongly accepting the belief for positively worded items, and a score of 2 indicating strongly accepting the belief for negatively worded items.

^bScale measured on a 7-point scale (1=extremely unlikely, 7=extremely likely), with a score of 7 indicating fully accepting the belief for positively worded items, and a score of 1 indicating fully accepting the belief for negatively worded items.