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Lower parent tolerance of risk in play for children with disability than typically-developing children

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Abstract

Becoming an autonomous adult includes understanding consequences associated with risks. However, the extent to which parents afford children with disability opportunities for manageable risk-taking is not known. The aim of this study was to compare parents of children with and without disability to identify any differences in promoting manageable risk-taking. Data were collected from parents of typically-developing children and parents of children with developmental disability. Two groups were matched based on parent and child chronological ages for typically-developing children and children with developmental disability. These parents completed the Tolerance of Risk in Play Scale (TRiPS), a 16-item measure of activities adults allow their children (aged 2 to 12 years) to participate in. Parents of typically-developing children were significantly more likely to answer 'yes' to six questions regarding the likelihood of them tolerating manageable risk-taking compared to parents of children with developmental disability ($p < 0.05$). The total number of tolerated risks was also significantly higher for the parents of typically-developing children (341[79%]) than the parents of children with developmental disability (247[58%]). Parents of children with a disability were less tolerant of risk-taking in play than the parents of typically-developing children.

Keywords

Coping; Playground; Special Needs; Outdoor; School; Recess

Introduction

The ability to evaluate and manage risk develop throughout childhood. These abilities are vital to a number of important functions: assessing the safety of situations, testing one's competence (Christensen & Mikkelsen, 2008), acknowledging limitations and understanding the consequences of actions (Jambor, 1995). Managing situations which have an increased likelihood of injury assists children with problem solving and social competence (Greenfield, 2004). Even when they 'fail' in a given situation, children build resilience and the skills to cope with uncertainty (Niehues et al., 2013). Thus, taking manageable risks is essential to development (Sandseter & Kennair, 2011).

Despite its importance, opportunities for manageable risk-taking in play seem to be decreasing (Hill & Bundy, 2014). In particular, parents seem to fear kidnapping or harm caused by strangers (i.e., Stranger Danger) or automobiles (Carver, Timperio, & Crawford, 2008; Faulkner, Richichi, Buliung, Fusco, & Moola, 2010). Many children must have their parents' permission to engage in activities outside of the home; therefore the activities they participate in are influenced by parents' tolerance of risk (Jago et al., 2009). For example, fear avoidance of activities such as climbing trees, walking along fallen branches, and building high forts prevent children from managing uncertainty and developing the essential skill of managing everyday risks (Brussoni, Olsen, Pike, & Sleet, 2012). A recent study has highlighted a large discrepancy between parents' knowledge of the benefits of risky play, and their confidence in actually allowing children to partake in these types of activities (Jelleyman, McPhee, Brussoni, Bundy, & Duncan, 2019). Whether this discrepancy is further amplified in children with disability is not known.

Children with disability are often viewed as less capable and, as such, may be afforded fewer opportunities for risk-taking than typically-developing children (Bundy et al., 2015). In fact, compared to typically-developing children, the risk of injury is reported to be approximately twice as high in children with disabilities, defined as both physical and cognitive disabilities in a study by Shi et al. (2015); and intellectual disability (i.e., <70 IQ) in a study by Sherrard, Tonge, and Ozanne-Smith (2001). However, it is not clear whether increased injury is due to intrinsically poorer risk assessment and other skills, lack of experience with manageable risk-taking opportunities, or both (i.e., parents protect children with intellectual disability from risk because they feel the children cannot manage risk giving the children fewer opportunities to develop new skills).

Protecting children from all risk has significant implications for their becoming competent and autonomous adults. Arguably, children with disability require many more experiences involving a modicum of risk than typically-developing children if they are to develop the skills and judgment needed to become autonomous adults. Indeed, Niehues, Bundy, Broom, and Tranter (2015) found that some parents of children with a physical disability understood the presence and importance of risk-taking in everyday life, more so than parents of typically-developing children.

The benefits of engaging in manageable risk-taking, the apparent increase in “bubblewrapping” children, and the lack of clarity with regard to how parents of children with disability deal with the increased risk that their children potentially face led us to believe that comparing the risk tolerance of parents of children with and without developmental disability is worthwhile, both conceptually and pragmatically. The aim of this study was to compare parents of children with and without disability to identify any differences in promoting manageable risk-taking. We

hypothesized that parents of children with developmental disabilities will be less tolerant of risk-taking in play than parents of typically-developing children.

Materials and methods

The findings from this cross-sectional analysis include data from two iterations of the Sydney Playground Project. Iteration one of the Sydney Playground Project- ‘Popping the Bubblewrap’ and Iteration two, ‘Levelling the Playing Field’, shared an aim of improving children’s manageable risk-taking and responsibility for their actions, in children who were typically-developing and children with a developmental disability, respectively. Iteration one data were collected using an online survey distributed through various platforms. In the TRiPS survey, all parent responses included in data analysis indicated they were completing the scale on a typically-developing child. Parents from Iteration two had children enrolled in one of three Sydney-based primary schools exclusively for children with developmental disability. The first of these schools was for children with intellectual disability in the mild to moderate range and/or a diagnosis of autism spectrum disorder, and the second and third school specifically enrolled children with autism spectrum disorders. The data collected for both iterations was prior to implementation of the project intervention. From the 81 respondents in Iteration one, and 31 respondents from Iteration two, we were able to match TRiPS data based on both parent and child chronological age for 27 pairs. The matching was based on age, as the study by Hill and Bundy (2014), showed a strong correlation between TRiPS score and child age, and Toplak and Weller (2017) suggested a relationship between adult age and adversity to risk. Parent and child demographics are provided in Table 1. All children were aged 3 to 13 years.

Ethics

Written informed consent was received from all schools and all parents involved in the study. The research was performed in accordance with the ethical standards of the revised (2000) Helsinki Declaration. Ethical approval was obtained from Human Research Ethics Committee at The University of Sydney (2014/155) and the Catholic Education Office of the Archdiocese of Sydney. Both trials were registered with the Australian and New Zealand Clinical Trials Registry (ACTRN12614000549628 and ACTRN12611000089932).

Participants

Table 1 shows the demographic characteristics of the children and parents from both groups. The groups (Iteration one vs Iteration two) were matched for both parent age and child age. The majority of parents ($n=19$, 70%) were aged between 36 and 45 years and were female ($n_{iteration1}=23$, 85%; $n_{iteration2}=25$, 96%). The majority of children ($n=18$, 67%) were aged between 5 and 7 years. Most typically-developing children were female ($n=17$, 63%), whereas the majority of children with disability were male ($n_{female}=6$, 22%). The disproportionate number of males in the disability group is consistent with the overrepresentation of males among the children diagnosed with autism spectrum disorder (William et al., 2012).

[Table 1 near here]

Instrument

The Tolerance of Risk in Play Scale (TRiPS) asks parents and teachers of children aged 2 to 12 years whether they allow their children or students to engage in a series of 31 activities deemed by the test authors to be associated with a modicum of ‘risk’. Parents are instructed to think

about a particular child when responding to the activities; if they ever allow their child to engage in the activity, their answer should be ‘yes’ (e.g., Do you trust this child to play by him/herself without constant supervision?). Thus, the TRiPS scores reflect parents’ actions when they are most risk tolerant. At the end of the questionnaire parents are asked to describe a time when they allowed this same child to do something that made them feel uncomfortable and the benefits associated with allowing the child to engage in that activity. Parents also described an activity they used to do regularly as a child that may be considered ‘risky’, the benefits they gained from that activity, and whether they would allow their child to participate in the same activity. The final question asks parents to describe what they fear most for their child and why.

Rasch analysis of Iteration one of TRiPS, developed for parents of typically-developing children, revealed excellent evidence for internal construct validity (goodness of fit statistics within an acceptable range for all items) and reliability (person separation 2.63; reliability index= 0.87) and near perfect correlation with child age (Hill & Bundy, 2014). The TRiPS underwent a modification between Iterations one and two of the Sydney Playground Project. Using current literature, several questions were re-worded or altered to make them more realistic for all primary-school aged children. As such, only 16 items that were not modified from the original to the second version of the TRiPS were utilized in this analysis.

Analysis

The closed responses for each of the 16 questions were analyzed by calculating the frequency and percentages of ‘yes’ answers for each question. Pearson’s *chi square* analysis was used to compare associations between groups. Frequency of occurrence of responses to the two open-ended questions (i.e., ‘describe a time when you allowed this child to do something that made

you feel uncomfortable’ and ‘describe what you fear most for this child and why’) was established as follows. Two authors (KB and JS) independently coded the responses for ‘describe a time when you allowed this child to do something that made you feel uncomfortable’ into four categories (unlikely risk of injury, risk of minor injury, risk of moderate injury, and risk of major injury) and for ‘describe what you fear most for this child and why’ into three categories (i.e., psychosocial harm, being physically hurt by another and being physically hurt through the child’s own actions). The categories were decided by authors KB and JS. Classification by each researcher was completed separately and, when there was a discrepancy, the final categorization was decided upon mutually. Pearson’s *chi square* analysis, performed using IBM SPSS Statistics 22, was used to investigate the likelihood that the observed distributions were due to chance. Significance was set at $p \leq 0.05$.

Results

Table 2 shows the difference in responses to the 16 TRiPS questions between parents of typically-developing children and parents of children with disability. As seen in the table, parents of typically-developing children were more tolerant of six risky behaviors and parents of children with disability were more tolerant of two different risky behaviors. The mean number of total ‘yes’ responses was also higher for the parents of typically-developing children than for parents of children with disability (341 [79%] vs. 247 [58%]).

[Table 2 near here]

Describe when your child did something that made you feel uncomfortable

The number of responses in each of the four categories (unlikely risk of injury, risk of minor injury, risk of moderate injury, and risk of major injury) is outlined in Table 3. The distribution of responses across the categories was significantly different between the groups ($\chi^2=17.30$, $p=0.001$). The incidences that made parents of children with disability feel most uncomfortable were classified as *unlikely risk of injury* (e.g., ‘*attending camp*’, ‘*allowing him to swim underwater when he takes a longer time to resurface*’, and ‘*swinging high*’). On the other hand, parents of typically-developing children were more likely to feel uncomfortable with activities classified *minor risk of injury* (e.g., ‘*swimming in the backyard pool temporarily unsupervised*’ and ‘*climbing a tree high off the ground*’). When we asked parents how their children benefited from activities that made them feel uncomfortable; the most common responses from parents of both typically-developing children and children with disability were ‘confidence’ and ‘independence’.

[Table 3 near here]

What do you fear most for your child?

The number of responses in each category (i.e., psychosocial harm, being physically hurt by another and being physically hurt through the child’s own actions) is outlined in Table 4. The distribution of parent responses between the categories differed significantly between the two groups ($\chi^2=13.64$, $p=0.001$). Parents of typically-developing children were more likely to describe incidents in which their child was hurt due to the actions or judgments of another: getting hit by a car, ‘*people drive too fast in urban areas and are not concentrating*’ or many examples of being kidnapped (e.g., ‘*being taken away by someone*’ and ‘*being put into a risky situation by another person*’). On the other hand, the parents of children with disability were

more likely to attribute negative outcomes to their child's actions or judgments: '*stranger danger, he has no idea of safety*', '*wandering off- no understanding of potential repercussions of doing that*', and '*be hit by a car for not paying attention*'.

[Table 4 near here]

Twenty-four parents of typically-developing children and 18 parents of children with disability responded to the question: 'Can you think of something you used to do regularly as a child that may be considered "risky"'? Common examples were: '*riding around the local streets completely unsupervised*' and '*playing by creeks in the bush with friends.*' When asked what they gained from doing these activities, parents of both groups of children reported similar benefits, the most common being independence, a sense of freedom and fun. When asked whether they would let their own child do that, 67% of the parents of typically-developing children and 39% of parents of children with a disability responded 'yes.'

Discussion

In comparing tolerance of risk in play of parents of typically-developing children and children with developmental disabilities, we found that tolerance of risk in play was significantly lower for parents of children with a disability than parents of typically-developing children. We identified that parents of children with a disability were more likely to report fears associated with activities that had an 'unlikely risk of injury', whereas parents of typically-developing children were more likely to report fears associated with activities from which there was a relatively minor risk of physical injury. Interestingly, while both groups listed similar fears (e.g., stranger danger and kidnapping), the language of the responses differed. Parents of typically-

developing children seemed to fear events resulting from the actions or judgments of others, whereas parents of children with disability feared events resulting from their children's actions.

Parents of typically-developing children tolerated six activities listed on the TRiPS more readily than parents of children with a disability. These activities primarily involved a risk of falling associated with climbing trees, jumping down from high walls or going head first down a slide. Most of the parents of typically-developing children said they would allow their children to do these activities. A large proportion of parents of children with disability (60-80%) said they would allow their child to go down a slide head first or climb a tree within reach. However, only a little more than a third of parents said they would allow their child with a disability to balance on a log 2 meters above the ground, even though their child would be within reach. Even smaller percentages (15-20%) said they would allow their child to jump from a surface 3 to 4 meters high or play fight with sticks.

To reiterate a point made previously, the risk of injury is approximately twice as high in children with intellectual disabilities as typically-developing children, with falls being a major cause of injury (Sherrard et al., 2001; Shi et al., 2015). These statistics coupled with our findings about the nature of activities that parents fear most, may reflect the motor planning and coordination difficulties often characteristic of children with autism or intellectual disability (Fournier, Hass, Naik, Lodha, & Cauraugh, 2010). These findings bring into question whether injuries may be due, at least in part, to children with developmental disability being excluded from manageable risk-taking opportunities, thereby impeding the development of essential skills in risk assessment and management as well as in motor skill. Previous work from our group has shown that teachers of children with disability typically deal with 'uncertainty' on the playground by displaying protectionist behaviours such as stepping-in and interrupting play, thereby limiting the

opportunity for children with disability to navigate risky play situations themselves (Spencer et al., 2016).

Interestingly, parents of children with disability were more tolerant of rough and tumble play than parents of typically-developing children. The higher tolerance of rough and tumble play may be due to the propensity for children with autism (the primary diagnosis for most children included in this study), to engage in this tactile- and proprioceptive-rich form of play (e.g., tickling and wrestling). Indeed, when parents were completing the TRiPS they may have been thinking about themselves playing rough and tumble with their children, rather than peer-to-peer interaction (St George & Freeman, 2017). In our experience typically-developing children are just as likely to engage in rough and tumble with other children as with adults. While rough and tumble is considered to be a very prosocial type of play (Pellegrini & Smith, 1998), parents often seem to fear that a child will get hurt or something in the environment will be damaged. The lower tolerance of risk by parents of typically-developing children may also reflect the finding that parents of typically-developing children are more concerned about their children being hurt by others, as opposed to harming themselves, as parents of children with a disability indicated. Parents were also more likely to allow their child with a disability to continue playing after the child got a scrape. Perhaps this reflects a greater incidence of falling and minor injuries in children with disability than typically-developing children.

Parents of children with disability said they did not tolerate play fighting with sticks. Parents of children with disability, who also were much more likely than parents of typically-developing children to worry that their children's actions or judgments would result in injury, may draw the line at play fighting with sticks. Indeed, there may be a fear that their children will not

understand the need to take sufficient care or how to calibrate force and hit gently, resulting in a stick becoming a weapon rather than a toy.

When parents of children with disability reported activities in which their child had engaged and that had made them uncomfortable, they chose scenarios that had lower risk of injury (e.g., attending camp and swimming underwater). These parents reported these activities as standout incidents that had made them feel uncomfortable. This may suggest that their children had fewer opportunities to experience low levels of risk. On the other hand, parents of typically-developing children reported activities involving a greater (although still relatively minor) risk of injury (e.g., climbing high up trees or on roofs) that made them feel uncomfortable. Although the degree of risk associated with the activities reported differed between the two groups, both groups acknowledged that their children gained confidence and independence from participating in these ‘risky’ activities; demonstrating the parents awareness of the developmental benefits of participating in ‘risky play’.

What parents fear most for their children has previously been categorized into two main themes: ‘Stranger Danger’ and ‘Road Safety’ (Carver et al., 2008; Faulkner et al., 2010). Parents in both groups listed related fears. However, parents of typically-developing children were more fearful of situations beyond the child’s control for a potential injury, whereas parents of children with a disability were more likely to attribute injury to the child (or their impairment). The reason for this is unclear. Future research should investigate whether parents of typically-developing children feel that their children always exercise good judgment and use optimum skills; thus assuming any accidents must be someone else’s fault, and similarly, whether parents of children with disability assume that because of disability their lacks judgement and skills, thus attributing any accidents to be the child’s fault.

Unlike Niehues et al. (2015), we did not find that parents of children with disability were more accepting of the need for their children to practice taking manageable risks. Perhaps this was due to the relatively young age of most of the children; three quarters of our sample were under the age of 8 years whereas Niehues' sample had a much greater age range (5-17 years) and also included children with physical disability. Parents of older children with autism and mild-to-moderate intellectual disabilities may be more focused on the steps required to promote their children's ultimate independence, including learning to cope with potentially risky situations. If that is the case, then it befits professionals working with families of children with disability to assist parents to identify the benefits of, and develop strategies for, promoting manageable risk-taking in early childhood (Niehues et al., 2016). Allowing, indeed promoting, risk-taking in all children, but particularly children with disability, is understandably difficult. Having the assistance of professionals could make it easier.

Parents were asked to describe an activity they did as children that they considered 'risky'. As expected, the answers were similar between both groups of parents. The majority of descriptions involved activities that were independent of adult supervision. When asked if they would allow their child to participate in the same activity, nearly double the number of parents of typically-developing children stated they would let their child participate in those same activities compared with the parents of children with disability. Almost 40% of parents of children with disability indicated that they would allow their children to participate in the same risky activities they did as a child. This again suggests that parents of children with a disability see the benefits of manageable risk-taking in play and are willing to encourage this type of play. Even so, many of the parents expressed discomfort at allowing their children to engage in activities with

relatively low risk again highlighting the need for interventions that promote tolerance of manageable risk-taking in children's play.

Manageable risk-taking is necessary to developing both resilience (by bouncing back from 'failures') and independence (by learning *one's own* limits and abilities) (Niehues et al., 2015).

Failure to allow manageable risk-taking is likely to limit children's opportunities to participate in numerous life situations—not only play. These limits, in turn, may interfere with social inclusion and the development of key personal skills. Parental monitoring was previously thought to be the best way to increase child safety (Shimshoni et al., 2015). However, excessive monitoring and greater parental control associated with reduced tolerance of risk, has been reported to have detrimental effects on self-esteem, autonomy, and parent-child relationships (Soenens, Park, Vansteenkiste, & Mouratidis, 2012).

Despite our belief in the importance of manageable risk-taking in play, it would be remiss not to acknowledge that there are specific instances, social or environmental contexts, or individual children, requiring careful monitoring to reduce risk. For example, a child who is known to regularly run across the street in front of cars may need to play in a fenced area. It was outside the scope of this study to investigate the legitimacy of our participants' risk tolerance. However, to address this question, our group is currently investigating the decision-making process of caregivers during children's play, which is also explored in the systematic review by Sterman et al. (2016). Previous research has indicated that part of parental restriction of children's risk-taking relates to conflicts parents experience- on the one hand appreciating the value of risky outdoor play to their own childhood, but on the other hand believing, likely inaccurately, that modern urban environments are too unsafe for these experiences (Kernan & Devine, 2010; Niehues et al., 2015).

Limitations

A limitation of this study is the small sample size. A larger sample may have decreased the likelihood of a Type II error. Diversity within factors, such as socioeconomic status, gender, degree of intellectual impairment that may influence risk tolerance was not recorded as parents completed the TRiPS anonymously. As such, the sample population could be different from the target population and could represent selection bias. The higher rate of children with autism could also represent selection bias, in that two schools selected in the study were specifically for children with autism spectrum disorder. While the groups were matched on two factors (child *and* parent age), we cannot assume that children with and without disability of the same chronological age are also equivalent developmentally. Finally, the present study is cross sectional and therefore it is not possible to establish whether the observed results indicate true cause and effect.

Conclusion

Parents of children with a disability may limit the opportunities of their children for taking manageable risks, thus unintentionally affecting their opportunities to become competent and autonomous adults. There is a need for helping parents re-evaluate the benefits of risk and develop strategies for helping all children take manageable risks. The findings from this study will help guide future research in establishing the benefits of increasing risk tolerance in play of parents of children with disability. Professionals are encouraged to engage in risk-reframing exercises with parents of children with a disability, thereby promoting children's autonomy.

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Disclosure statement

The authors report no conflicts of interest.

References

- Brussoni, M., Olsen, L. L., Pike, I., & Sleet, D. A. (2012). Risky Play and Children's Safety: Balancing Priorities for Optimal Child Development. *International Journal of Environmental Research and Public Health*, 9(9), 3134.
- Bundy, A. C., Wyver, S., Beetham, K. S., Ragen, J., Naughton, G., Tranter, P., . . . Sterman, J. (2015). The Sydney playground project- levelling the playing field: a cluster trial of a primary school-based intervention aiming to promote manageable risk-taking in children with disability. *BMC Public Health*, 15(1), 1125. doi:10.1186/s12889-015-2452-4
- Carver, A., Timperio, A., & Crawford, D. (2008). Playing it safe: The influence of neighbourhood safety on children's physical activity—A review. *Health and Place*, 14(2), 217-227. doi:10.1016/j.healthplace.2007.06.004
- Christensen, P., & Mikkelsen, M. R. (2008). Jumping off and being careful: Children's strategies of risk management in everyday life. *Sociology of Health and Illness*, 30(1), 112-130. doi:10.1111/j.1467-9566.2007.01046.x
- Faulkner, G. E. J., Richichi, V., Buliung, R. N., Fusco, C., & Moola, F. (2010). What's "quickest and easiest?": parental decision making about school trip mode. *International Journal of Behavioral Nutrition and Physical Activity*, 7(1), 62-62. doi:10.1186/1479-5868-7-62
- Greenfield, C. (2004). 'Can run, play on bikes, jump the zoom slide, and play on the swings' : exploring the value of outdoor play. *Australian Journal of Early Childhood*, 29(2), 1-5.
- Hill, A., & Bundy, A. C. (2014). Reliability and validity of a new instrument to measure tolerance of everyday risk for children. *Child: Care, Health and Development*, 40(1), 68-76.

- Jago, R., Thompson, J. L., Page, A. S., Brockman, R., Cartwright, K., & Fox, K. R. (2009).
Licence to be active: parental concerns and 10-11-year-old children's ability to be
independently physically active. *Journal of Public Health*, 31(4), 472-477.
doi:10.1093/pubmed/fdp053
- Jambor, T. (1995). *Coordinating the Elusive Playground Triad: Managing Children's Risk-Taking Behavior, (While) Facilitating Optimal Challenge Opportunities, (within) a Safe Environment*. Paper presented at the International Conference on Playground Safety, Pennsylvania State University, University Park, Pennsylvania.
- Jelleyman, C., McPhee, J., Brussoni, M., Bundy, A., & Duncan, S. (2019). A cross-sectional description of parental perceptions and practices related to risky play and independent mobility in children: The New Zealand state of play survey. *International Journal of Environmental Research and Public Health*, 16(2), <xocs:firstpage xmlns:xocs=""/>.
doi:10.3390/ijerph16020262
- Kernan, M., & Devine, D. (2010). Being Confined within? Constructions of the Good Childhood and Outdoor Play in Early Childhood Education and Care Settings in Ireland. *Children & Society*, 24(5), 371-385. doi:10.1111/j.1099-0860.2009.00249.x
- Niehues, A. N., Bundy, A., Broom, A., & Tranter, P. (2015). Parents' Perceptions of Risk and the Influence on Children's Everyday Activities. *Journal of Child and Family Studies*, 24(3), 809. doi:10.1007/s10826-013-9891-2
- Niehues, A. N., Bundy, A., Broom, A., Tranter, P., Ragen, J., & Engelen, L. (2013). Everyday uncertainties: reframing perceptions of risk in outdoor free play. *Journal of Adventure Education and Outdoor Learning*, 13(3), 223.

- Sandseter, E. B. H., & Kennair, L. E. O. (2011). Children's risky play from an evolutionary perspective: The Anti-phobic effects of thrilling experiences. *Evolutionary Psychology*, 9(2), 257-284. doi:10.1177/147470491100900212
- Sherrard, J., Tonge, B. J., & Ozanne-Smith, J. (2001). Injury in young people with intellectual disability: descriptive epidemiology. *Injury prevention : Journal of the International Society for Child and Adolescent Injury Prevention*, 7(1), 56-61. doi:10.1136/ip.7.1.56
- Shi, X., Shi, J., Wheeler, K. K., Stallones, L., Ameratunga, S., Shakespeare, T., . . . Xiang, H. (2015). Unintentional injuries in children with disabilities: a systematic review and meta-analysis. *Injury Epidemiology*, 2(1), 1-13. doi:10.1186/s40621-015-0053-4
- Shimshoni, Y., Farah, H., Lotan, T., Grimberg, E., Dritter, O., Musicant, O., . . . Omer, H. (2015). Effects of parental vigilant care and feedback on novice driver risk. *Journal Of Adolescence*, 38, 69-80. doi:10.1016/j.adolescence.2014.11.002
- Soenens, B., Park, S.-Y., Vansteenkiste, M., & Mouratidis, A. (2012). Perceived parental psychological control and adolescent depressive experiences: A cross-cultural study with Belgian and South-Korean adolescents. *Journal of Adolescence*, 35(2), 261-272. doi:10.1016/j.adolescence.2011.05.001
- Spencer, G., Bundy, A., Wyver, S., Villeneuve, M., Tranter, P., Beetham, K., . . . Naughton, G. (2016). Uncertainty in the school playground: shifting rationalities and teachers' sense-making in the management of risks for children with disabilities. *Health, Risk & Society*, 18(5-6), 301-317. doi:10.1080/13698575.2016.1238447
- Sterman, J., Naughton, G., Villeneuve, M., Froude, E., Wyver, S., Beetham, K., Bundy, A. (2016). Adult decision making on outdoor play for children with disabilities: A

systematic review of qualitative studies. *Journal of Developmental and Physical Disabilities*, 28(6), 931-957. doi: 10.1007/s10882-016-9517-x

William, M., Chilvers, R., Chowdhury, U., Salter, G., Seigal, A., & Skuse, D. (2012). Sex Differences in Autism Spectrum Disorder: Evidence from a Large Sample of Children and Adolescents. *Journal of Autism and Developmental Disorders*, 42(7), 1304-1313. doi:10.1007/s10803-011-1356-0

Table 1. Parent and child characteristics

Parent age in years	Matched groups	
≤20	1 (4%)	
26-30	1 (4%)	
31-35	2 (7%)	
36-40	7 (26%)	
41-45	12 (44%)	
46-50	2 (7%)	
51-55	1 (4%)	
≥56	1 (4%)	
Child (years)		
3-4	3 (11%)	
5-7	18 (67%)	
8-10	4 (15%)	
11-13	1 (4%)	
Gender	TDC	CWD
Parent- Female	23 (85%)	25 (96%)^
Child- Female	17 (63%)	6 (22%)

TDC= Typically-developing children; CWD=

Children with disability. ^Only 26 responses.

Table 2. Difference in responses to TRiPS items between groups

Question	TDC (n=27) (n [yes], %)	CWD (n=27) (n [yes], %)	χ^2	P value
Do you trust this child to play by him/herself without constant supervision?	8 (30)	15 (56)	3.71	0.05
Do you allow this child to play chase with other children?	27 (100)	25 (93)	2.08	0.15
Do you let this child go head first down a slippery dip/slide?	26 (96)	16 (61)*	9.73	<0.01
Do you allow this child to continue playing after s/he gets a scrape?	22 (81)	27 (81)	5.51	0.02
Would you let this child climb a tree within your reach?	27 (100)	22 (81)	5.51	0.02
Do you allow this child to play-fight with sticks?	27 (100)	6 (22)	34.36	<0.001
Do you allow this child to engage in rough and tumble play?	12 (44)	24 (89)	12.00	<0.01
Would you let this child jump down from a height of 3-4 meters?	26 (96)	4 (15)	36.30	<0.001
Would you let this child swim in the ocean close to the shore while you were watching from the beach?	15 (56)	9 (35)*	2.34	0.13
Would you allow this child to play on equipment if you thought there was the potential s/he may break a bone?	18 (67)	12 (46)*	2.27	0.13
Do you allow this child to play-fight, testing who is strongest?	20 (74)	13 (52) [#]	2.73	0.10
Do you wait to see how well this child manages challenges before getting involved?	27 (100)	24 (89)	3.18	0.08

Would you let this child climb as high as s/he wanted in a tree?	16 (59)	9 (33)	3.65	0.06
Would you let this child balance on a fallen tree or other narrow surface two meters above the ground?	19 (70)	10 (37)	6.03	0.01
Do you encourage this child to take some risks if it means having fun during play?	27 (100)	25 (93)	2.08	0.15
Would you allow this child to climb a tree beyond your reach?	24 (89)	11 (41)	13.72	<0.001
Total of “yes” responses	341 (79%)	247 (58%)^		

TDC= Typically-developing children; CWD=Children with disability. χ^2 = chi square; *= out of 26 responses, # = out of 25 responses, ^ = out of 427 responses. Answers in bold indicate a significantly greater number of “yes” responses than the other group.

Table 3. An example of when a child did something to make you feel uncomfortable?

Category	TDC (n=23) (n [yes], %)	CWD (n=19) (n [yes], %)
Unlikely risk of injury	1, 4%	12, 63%
Minor injury	16, 70%	6, 32%
Moderate injury	5, 22%	1, 5%
Major injury	1, 4%	0, 0%
χ^2, p value	17.30, 0.001	

TDC= Typically-developing children; CWD= Children with disability; χ^2 = chi square

Table 4. What do you fear most for your child?

Category	TDC (n=24) (n [yes], %)	CWD (n=23) (n [yes], %)
Psychosocial harm	4, 17%	5, 22%
Being physically hurt by others	14, 58%	2, 9%
Being physically hurt because of own actions	6, 25%	16, 70%
χ^2, p value	13.64, 0.001	

TDC= Typically-developing children; CWD= Children with disability; χ^2 = chi square