Title: Acceptability and Caregiver-reported Outcomes for Young Children with ASD
Whose Parents Attended a Preventative Population-based Intervention for Anxiety: A
pilot study

Authors: Natalie L. Bischof¹, Ronald M. Rapee², Kristelle Hudry^{3,4}, Jordana K.
Bayer^{1,5,6}

Affiliations: ¹School of Psychology and Public Health, La Trobe University,
Melbourne; ²Centre for Emotional Health, Macquarie University, Sydney; ³Victorian
Autism Specific Early Learning and Care Centre, La Trobe University, Melbourne;
⁴Olga Tennison Autism Research Centre, La Trobe University, Melbourne; ⁵Murdoch
Children's Research Institute, Melbourne; ⁶Department of Paediatrics, University of
Melbourne, Melbourne; all Australia.

Correspondence: AProf Jordana Bayer, School of Psychology and Public Health La
Trobe University, Victoria, Australia, j.bayer@latrobe.edu.au, Phone + 61 3 9479
2420

Short Title: Early autism and anxiety

Word Count: Article 2,094 (Abstract 259)

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of record](#). Please cite this article as [doi:10.1002/aur.1963](https://doi.org/10.1002/aur.1963).

Keywords: Child; autism; anxiety disorders; internalising problems; prevention; early intervention

Author Manuscript

Title: Acceptability and Caregiver-reported Outcomes for Young Children with ASD Whose Parents Attended a Preventative Population-based Intervention for Anxiety: A pilot study

Abstract

This pilot study explored acceptability to parents and outcomes for children of a preventive intervention for anxiety problems in preschoolers with Autism Spectrum Disorder (ASD) who were an identified subgroup within a population-based randomised trial of the Cool Little Kids parenting group program. The population trial included 545 temperamentally inhibited preschoolers recruited across eight economically diverse areas of Melbourne, Australia. Within this sample, 26 parents reported that their child had received an ASD diagnosis. Trial measures included baseline inhibited temperament and developmental problems, post-intervention feedback on the program, and caregiver-reported child mental health outcomes (anxiety diagnoses and internalising symptoms) at one- and two-year follow-up. Sample retention for the children with ASD over two years was strong (92%). At follow-up, fewer intervention than control children with ASD had anxiety disorders after one-year (% (*n*): 25 (3) vs. 77 (10), $p = .028$) and separation anxiety symptoms after two years (M (SD): 4.22 (2.68) vs. 9.38 (5.91), $p = .017$). Similar effects favouring the intervention group were apparent across other child emotional outcome measures but without statistical significance in this small sample. Parents of the children with ASD reported that Cool Little Kids was 'quite useful' in relation to their child's anxiety but also gave feedback that they would appreciate some tailoring of program content to the context of ASD. These pilot findings suggest Cool Little Kids may be helpful for reducing comorbid anxiety in preschoolers with ASD. Further research is warranted to develop an ASD-specific adaptation which can be trialed with a larger sample of children with confirmed ASD diagnosis.

Trial registration ISRCTN30996662 <http://www.isrctn.com/ISRCTN30996662>

Lay Summary

Many children with Autism Spectrum Disorder (ASD) also have anxiety. This pilot study explored acceptability to parents and outcomes for preschoolers with ASD of a parenting group program to prevent anxiety problems. Among the sample of 26 preschoolers with ASD, we found reduced anxiety disorders and separation symptoms when their parents had received the intervention, as reported by caregivers in checklists and clinical interviews.

Parents gave feedback that the program was useful but suggested content be adapted to the context of ASD.

Autism Spectrum Disorder (ASD) is a heterogeneous lifelong condition affecting social-communication skills and behavioural flexibility. Substantial comorbidity presents with other psychopathology, with a meta-analysis of 31 studies ($n=2,121$ children and adolescents with ASD) reporting 39.6% prevalence of anxiety disorders (95%CI 29.7-49.6; van Steensel, Bogels & Perrin, 2011). A growing evidence base suggests that cognitive behavioural therapy (CBT) reduces comorbid anxiety among school-age children with ASD. For example, Chalfant, Rapee and Carroll (2007) found 71% of children no longer met diagnostic criteria for anxiety disorder following participation in an ASD-adapted *Cool Kids* intervention while all controls retained their anxiety diagnoses. More recently, a meta-analysis of eight randomised controlled trials (RCTs) of CBT for anxiety among 7-17-year-olds identified favourable effects on both clinician- and parent-rated measures ($d = .57$ & $.89$, respectively; Sukhodolsky, Bloch, Panza & Reic, 2013).

ASD diagnoses are often made during the preschool years, at which point anxiety is also often apparent (Crea, Dissanayake & Hudry, 2015; Johnson et al., 2015). However, no research has considered anxiety intervention for preschoolers with ASD. Intervention efforts for typically-developing (TD) preschoolers show promising results and *Cool Little Kids* is the most widely assessed program targeting anxiety in 3-6-year-olds (Rapee, Kennedy, Ingram, Edwards, & Sweeney, 2005). *Cool Little Kids* addresses two key risks for early anxiety – temperamental inhibition/shyness, and over-involved/protective parenting. As summarised in Table 1, carers are educated on how best to parent anxious pre-schoolers, including understanding anxiety/shyness in preschoolers, causes and risk factors for child anxiety, helpful and unhelpful responses to child anxiety, and building brave behaviours and facing fears.

[Table 1]

Two RCTs evidence the reduction of anxiety disorders among TD preschoolers via *Cool Little Kids*. Among 146 shy/inhibited 4-year-olds, Rapee and colleagues found significantly fewer anxiety diagnoses post-intervention (at age 5; 50% vs. 64% among controls, model path coefficient $-.18$, small effect; Rapee et al., 2005) and at follow-up (age 7; 40% vs. 69%; Rapee, Kennedy, Ingram, Edwards & Sweeney, 2010). In a second RCT targeting shy/inhibited preschoolers whose parents also had internalising problems ($n=71$), fewer child anxiety disorders were observed in the intervention versus control arm at post-intervention (53% vs. 93%, $\phi=.63$, large effect; Kennedy, Rapee & Edwards, 2009).

In light of the functional impact of comorbid anxiety, early childhood emergence of both ASD and inhibition, and promising findings from prevention trials with TD preschoolers, we sought to explore the potential utility of early intervention for anxiety among preschoolers with ASD. Exploiting the dataset of a population-based RCT of *Cool Little Kids* for inhibited preschoolers (Bayer et al., 2011, 2017), we identified a subgroup of children with parent-reported ASD diagnoses. We examined qualitative and quantitative feedback for those parents randomised to the intervention arm, anticipating that they would find the program acceptable to the context of raising an inhibited preschooler with ASD. Further, we explored outcomes for the preschoolers with ASD randomised to the intervention versus control group, hypothesising reduced anxiety and internalising problems at follow-up among the former group.

Method

Participants and Trial Design

As described by Beatson et al. (2014), during 2011-2012, parents of 17,661 children enrolled in their final pre-school year across eight socio-economically diverse districts of Melbourne, Australia, were sent the approach/inhibition subscale of the Short Temperament

Scale for Children (STSC; Pedlow, Sanson, Prior, & Oberklaid, 1993). Among 545 temperamentally-inhibited children who were then randomised into the *Cool Little Kids* trial, 26 were reported to have an ASD diagnosis. Post-hoc examination of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997; 2001) Prosocial Scale scores supports the likely validity of such (ASD subgroup Mdn 4.5, $n=26$ vs. remaining cohort $Mdn=7.0$, $n=515$, Mann-Whitney U, $z=4.96$, $p<.001$, $r=-0.21$, small effect; see also Russell, Steer & Golding, 2011). This yielded an ASD case ascertainment of 1:20 (4.8%) for this population-based cohort of inhibited preschoolers. Table 2 shows demographic characteristics for the ASD subgroup, alongside the remaining cohort that was representative of the local population (Beatson et al., 2014). Relative to the remaining trial cohort, the ASD subgroup included significantly greater proportions of boys and single-parent families, and a marginally lower proportion of mothers as primary caregivers (small effects). Figure 1 shows the RCT flowchart, highlighting the ASD subgroup. Parents allocated to the intervention arm – including half of the ASD subgroup – were invited to six, 90-minute parenting group sessions. The control arm of the population trial was ‘usual care’ access to available support services in the community (Bayer et al., 2017). All parents completed outcome measures pre- and immediately post-intervention (6-months), and at one- and two-year follow-up. Retention was high (including ASD subgroup: 96% at one- & 92% at two-year follow-up).

[Table 2] [Figure 1]

Measures

Acceptability measures. Parent feedback was sought regarding the intervention, via questionnaire items targeting perceived ‘usefulness’ across five domains (5-point Likert scale: ‘not at all useful’ to ‘extremely useful’): understanding preschoolers’ shyness/inhibition/anxiety; precursors of preschoolers’ anxiety; encouraging brave behaviour; reducing anxious behaviour; and changing parents’ own anxious/fearful thoughts. Open-

ended probes solicited ‘best’ and ‘worst’ aspects of the program and suggested improvements, and parents were also asked (forced-choice yes/no) whether they would recommend the program to others.

Outcome measures. Parents completed the SDQ-Australian adaptation (Goodman, 1997; 2001) as a key outcome measure at one-year follow-up. Emotional Symptoms (internalising) and Conduct Problems (externalising) were key subscales of interest, with Hawes and Dadds (2004) reporting good internal consistency, 12-month test-retest reliability, and convergent validity with teacher-ratings for both of these. Also completed at both follow-up time-points was the Children’s Moods, Fears and Worries Questionnaire (CMFWQ: Bayer, Sanson, & Hemphill, 2006), a more detailed internalising measure (34 symptoms, scored by mean across items) with excellent internal consistency and sensitivity/specificity to detect clinical-level problems (Andrijic, Bayer, & Bretherton, 2013).

At two-year follow-up, parents completed the Preschool Anxiety Scale–Revised (PAS-R), a 28-item measure including subscales for social-, separation-, and generalised anxiety, and specific fears and obsessive-compulsive symptoms, with good internal consistency and construct validity (Edwards, Rapee, Kennedy, & Spence, 2010). Also completed at one- and two-year follow-up, the Child Anxiety Life Interference Scale–Pre-School Version (CALIS-P) is a 20-item measure of the effects of anxiety symptoms on child and family life, with excellent internal consistency (Kennedy et al., 2009).

Finally, parents were administered the Anxiety Disorders Interview Schedule for DSM-IV, Parent Interview Schedule (ADIS-IV-P; Silverman & Albano, 1996) at one- and two-year follow-up, by telephone with blinded interviewers. This measure included those DSM-IV anxiety disorders most relevant to preschoolers: separation anxiety disorder, social phobia, specific phobia, and generalised anxiety disorder (Cartwright-Hatton, McNicol, & Doubleday, 2006). The ADIS has been subjected to numerous reliability and validity studies

and findings indicate it has good to excellent test-retest reliability, fair to excellent interrater reliability ($K = .45-.82$), and telephone administration demonstrates validity with face-to-face interviews (Lyneham & Rapee, 2005).

Results

Given the substantial difference in sizes of the ASD subgroup and remaining cohort, between-group comparisons were conducted using non-parametric tests. As shown in Table 3, baseline socioemotional functioning indicated that the subgroup of children with ASD did not differ from the remaining cohort in inhibition/internalising symptoms but presented with slightly more behaviour problems. Among families randomised to *Cool Little Kids*, there was no significant difference in session attendance across the ASD subgroup ($Mdn=3$, $n=12$) versus remaining cohort ($Mdn=3$, $n=217$, Mann-Whitney $U=1098$, $z=.93$, $p=.355$, $r=.06$). However, Table 4 indicates that fewer parents of children with ASD attended most of the intervention sessions – one sixth attended five or six sessions versus one third of the remaining cohort.

[Table 3] [Table 4]

Table 5 presents quantitative feedback on parent-reported usefulness of the intervention, with ratings broadly similar for the ASD subgroup and remaining cohort. Most parents said they would recommend *Cool Little Kids* to others (82% of ASD subgroup; 96% of remaining cohort; $p=.10$, $\phi=.14$). Parents in both groups said *Cool Little Kids* was ‘very’ useful for encouraging brave and reducing anxious child behaviour. Parents in the ASD subgroup considered *Cool Little Kids* ‘quite useful’ across all five intervention domains. However, parents of the remaining cohort reported the intervention to be more helpful for understanding the nature of their child’s shyness than did parents of the ASD subgroup, and as slightly more helpful in techniques to diminish child anxiety.

[Insert Table 5 here]

Table 6 presents qualitative feedback from the parents of children with ASD. They most frequently described the ‘best thing’ about *Cool Little Kids* to be the opportunity to interact with other families with inhibited preschoolers, and also mentioned how the intervention skills helped them to manage their child’s shy/anxious behaviours. One third of the sample claimed *Cool Little Kids* needed no improvement (i.e., “fine as it is”), but another third proposed some tailoring of the content to the unique context of childhood ASD (i.e., “subgroups to address children with developmental delays, as strategies would likely differ”).

[Table 6]

Table 7 presents baseline characterisation data and Table 8 presents outcome data for the subgroup of children with ASD, separating those assigned to the intervention versus control group. Here, parametric analyses were conducted given balanced sample sizes. Randomisation effectively balanced the groups on child age, gender, and SDQ internalising, externalising and prosocial scores. However, there was suggestion of relatively fewer first-borns and greater inhibition among the control group. In the intervention group, fewer children with ASD had anxiety diagnoses at one-year follow-up, and fewer separation anxiety difficulties presented at two-year follow-up, with large effect sizes in both cases. These differences remained significant after controlling for baseline inhibition ($p=.049$ and $p=.019$, respectively). Similar effects favouring the intervention group were apparent across other emotional outcome measures, with medium to large effect sizes but without statistical significance in this small sample.

[Table 7] [Table 8]

Discussion

We examined the potential utility of the *Cool little Kids* group parenting program to reduce anxiety in preschoolers with ASD. The *Cool Little Kids* population trial cohort yielded sufficient cases of parent-reported ASD ($n=26$; ~5%) to allow proof-of-concept evaluation of the feasible use of this program to prevent anxiety in children with ASD. The subgroup of children with ASD had similar levels of parent-reported internalising difficulties but greater externalising difficulties than the remaining cohort of inhibited children (Ashburner, Ziviani & Rodger, 2010; Macintosh & Dissanyake, 2006). Parents of children with ASD assigned to *Cool Little Kids* attended a similar number of parenting group sessions as the remaining cohort (about half of the program) and reported finding it useful for managing child anxiety. They appreciated meeting other parents with anxious preschoolers to share stories and ideas, and learning practical skills to manage child avoidance behaviours. Nevertheless, higher usefulness ratings among parents of the remaining cohort – particularly concerning understanding preschoolers' inhibited behaviour – support some tailoring of content to address the unique aspects of anxiety in preschoolers with ASD.

Follow-up data – including caregiver-report measures and an assessor-blind diagnostic interview for anxiety disorders – suggest favourable effects of *Cool Little Kids* for children with ASD. This included significantly reduced anxiety disorders and separation anxiety symptoms, along with medium to large benefits on other emotional functioning outcomes (albeit with statistical non-significance). While small sample size precludes strong conclusions regarding efficacy, positive outcomes from this proof-of-concept study warrant continuation of this research through a larger-scale trial of *Cool Little Kids* – with potential adaptation to the specific context of ASD.

A key limitation of this study was the inability to independently confirm parent-reported ASD diagnoses. However, the observed 1:20 case rate seems reasonable given the

known comorbidity of anxiety with ASD even among preschoolers (van Steensel et al., 2011). Furthermore, post-hoc examination of SDQ Prosocial Scale scores increases our confidence in the parent-reported diagnoses (see Russell, Steer & Golding, 2011). However, lack of independent appraisal means other pertinent characterisation data are lacking, including level of verbal/cognitive ability and adaptive functioning. A further limitation is our primary reliance on outcome measurement via parent report, though assessor-blinded diagnostic interviews were conducted and primary caregivers are considered the best informants on preschoolers' socio-emotional functioning (Glascoe, 1997). Nevertheless, our results are open to bias as parents cannot be blind to trial arm within parent-mediated interventions. Finally, this study did not include an evaluation of treatment fidelity.

Given that anxiety exacerbates level of impairment in individuals with ASD, early-intervention targeting this particular comorbidity seems worthwhile. *Cool Little Kids* was broadly acceptable to parents of preschoolers with ASD and potentially helpful for reducing child anxiety. Possible modifications to the intervention – for evaluation within a full-scale RCT – might include the use of ASD-specific exposure hierarchies, leveraging specific child interests, using concrete visual tactics and in-vivo practice (Chalfant et al., 2007; Moree & Davis, 2010; Sukhodolsky et al., 2013), and strategies to manage elevated externalising behaviour problems that present among inhibited preschoolers with ASD.

Acknowledgements

This research was supported by Australian National Health and Medical Research Council (NHMRC) Project Grant 607302 and by the Victorian Government's Operational Infrastructure Support Program. We thank preschool services and families in the Victorian cities of Banyule, Boroondara, Frankston, Kingston, Knox, Maroondah, Whitehorse and

Wyndham who took part in the study. The authors declare that there is no conflict of interest (Dr ***** is an author of the Cool Little Kids intervention manual, but receives no royalties).

References

- Andrijic, V., Bayer, J., & Bretherton, L. (2013). Validity of the Children's Moods, Fears and Worries Questionnaire in a clinical setting. *Child & Adolescent Mental Health*, 18(1), 11-17. doi:10.1111/j.1475-3588.2012.00655.x
- Ashburner, J., Ziviani, J., & Rodger, S. (2010). Surviving in the mainstream: Capacity of children with autism spectrum disorders to perform academically and regulate their emotions and behaviour at school. *Research in Autism Spectrum Disorders*, 4(1), 18-27. doi:10.1016/j.rasd.2009.07.002
- Bayer, J.K., Beatson, R., Bretherton, L., Hiscock, H., Wake, M., Gilbertson, T., Mihalopoulos, C., Prendergast, L.A. & Rapee, R.M. (2017). Translational delivery of Cool Little Kids to prevent child internalising problems: randomised controlled trial, *Australian & New Zealand Journal of Psychiatry*, Onlinefirst doi: 10.1177/0004867417726582
- Bayer, J. K., Rapee, R. M., Hiscock, H., Ukoumunne, O. C., Mihalopoulos, C., Clifford, S., & Wake, M. (2011). The Cool Little Kids randomised controlled trial: Population-level early prevention for anxiety disorders. *BMC Public Health*, 11(1), 11. doi:10.1186/1471-2458-11-11
- Bayer, J. K., Sanson, A. V., & Hemphill, S. A. (2006). Children's moods, fears, and worries: Development of an early childhood parent questionnaire. *Journal of Emotional & Behavioural Disorders*, 14(1), 41-49. doi:10.1177/1063426606 0140010401
- Beatson, R., Bayer, J.K., Perry, A., Mathers, M., Hiscock, H., Wake, M., Beasley, K. & Rapee, R.M. (2014). Community screening for preschool child inhibition to offer the

- ‘Cool Little Kids’ anxiety prevention program. *Infant & Child Development*, 23, 650–661. DOI: 10.1002/icd.1863
- Cartwright-Hatton, S., McNicol, K., & Doubleday, E. (2006). Anxiety in a neglected population: Prevalence of anxiety disorders in pre-adolescent children. *Clinical Psychology Review*, 26(7), 817-833. doi:10.1016/j.cpr.2005.12.002
- Chalfant, A. M., Rapee, R., & Carroll, L. (2007). Treating anxiety disorders in children with high functioning autism spectrum disorders: A controlled trial. *Journal of Autism and Developmental Disorders*, 37(10), 1842-1857. doi:10.1007/s10803-006-0318-4
- Crea, K., Dissanayake, C., & Hudry, K. (2016). Proband mental health difficulties and parental stress predict mental health in toddlers at high-risk of autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 46, 3242-3257. doi: 10.1007/s10803-016-2861-y.
- Edwards, S. L., Rapee, R. M., Kennedy, S. J., & Spence, S. H. (2010). The assessment of anxiety symptoms in pre-school-aged children: The revised pre-school anxiety scale. *Journal of Clinical Child & Adolescent Psychology*, 39(3), 400-409. doi:10.1080/15374411003691701
- Glascoe, F. P. (1997). *Parents' Evaluations of Developmental Status: A method for detecting and addressing developmental and behavioural problems in children*. Nashville, TN: Ellsworth & Vandermeer Press Ltd.
- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry*, 38(5), 581-583. doi: 10.1111/j.1469-7610.1997.tb01545.x
- Goodman, R. (2001). Psychometric properties of the Strengths and Difficulties Questionnaire. *Journal of the American Academy of Child & Adolescent Psychiatry*, 40(11), 1337–1345. doi:10.1097/00004583-200111000-00015

- Hawes, D. J., & Dadds, M. R. (2004). Australian data and psychometric properties of the Strengths and Difficulties Questionnaire. *Australian & New Zealand Journal of Psychiatry*, 38(8), 644-651. doi:10.1111/j.1440-1614.2004.01427.x
- Johnson, C. R., DeMand, A., & Shui, A. (2015). Relationships between anxiety and sleep and feeding in young children with ASD. *Journal of Developmental & Physical Disabilities*, 27(3), 359-373. doi:10.1007/s10882-015-9419-3
- Lynham, H. J., & Rapee, R. M. (2005). Agreement between telephone and in-person delivery of a structured interview for anxiety disorders in children. *Journal of the American Academy of Child & Adolescent Psychiatry*, 44(3), 274-282. doi.org/10.1097/00004583-200503000-00012
- Kennedy, S. J., Rapee, R. M., & Edwards, S. L. (2009). A selective intervention program for inhibited pre-school-aged children of parents with anxiety disorder: Effects on current anxiety disorders and temperament. *Journal of the American Academy of Child & Adolescent Psychiatry*, 48(6), 602-609. doi:10.1097/CHI.0b013e31819f6fa9
- Macintosh, K., & Dissanayake, C. (2006). Social skills and problem behaviours in school aged children with high-functioning autism and Asperger's disorder. *Journal of Autism & Developmental Disorders*, 36(8), 1065-1076. doi:10.1007/s10803-006-0139-5
- Moree, B. N., & Davis, T. E. (2010). Cognitive-behavioural therapy for anxiety in children diagnosed with autism spectrum disorders: Modification trends. *Research in Autism Spectrum Disorders*, 4(3), 346-354. doi:10.1016/j.rasd.2009.10.015
- Pedlow, R., Sanson, A., Prior, M., & Oberklaid, F. (1993). Stability of maternally reported temperament from infancy to 8 years. *Developmental Psychology*, 29(6), 998-1007. Retrieved from <http://dx.doi.org/10.1037/0012-1649.29.6.998>
- Rapee, R. M., Kennedy, S. J., Ingram, M., Edwards, S. L., & Sweeney, L. (2005). Prevention

- and early intervention of anxiety disorders in inhibited pre-school children. *Journal of Consulting & Clinical Psychology*, 73(3), 488-497. doi:10.1037/0022-006X.73.3.488
- Rapee, R.M., Kennedy, S., Ingram, M., Edwards, S. & Sweeney, L. (2010). Altering the trajectory of anxiety in at-risk young children. *American Journal of Psychiatry*, 167, 1518-1525. doi: 10.1176/appi.ajp.2010.09111619
- Russell, G., Steer, C. & Golding, J. (2011). Social and demographic factors that influence the diagnosis of autistic spectrum disorders. *Social Psychiatry and Psychiatric Epidemiology*, 24, 1283-1293.
- Silverman, W. K., & Albano, A. M. (1996). *The Anxiety Disorders Interview Schedule for Children-IV (Child and Parent versions)*. San Antonio, Texas: Psychological Corporation.
- Sukhodolsky, D. G., Bloch, M. H., Panza, K. E., & Reichow, B. (2013). Cognitive-behavioural therapy for anxiety in children with high-functioning autism: A meta-analysis. *Pediatrics*, 132(5), e1341-e1350. doi:10.1542/peds.2013-1193
- van Steensel, F. J. A., Bogels, S. M., & Perrin, S. (2011). Anxiety disorders in children and adolescents with autistic spectrum disorders: A meta-analysis. *Clinical Child & Family Psychology Review*, 14(3), 302-317. doi:10.1007/s10567-011-0097-0

Table 1.
Strategies of the Cool Little Kids parenting program (Rapee et al., 2005)

Encourage bravery	Manage anxiety	Reduce parent distress (if applicable)
Let child be exposed to natural daily stress.	Gradual exposure to situations that elicit child distress.	Cognitive restructuring, for example:
Reward child for bravery (rather than for displays of distress).	Talk calmly about situation before. Take child to ‘small’ version of situation eliciting distress (e.g. two young children playing quietly).	My child needs to learn to cope with challenging situations to be happy. I feel for my child when they are upset, but I know they’ll be ok.
Show child brave behaviour yourself.	Gently support child while adjusting to distress and becoming calm. Don’t punish child for being afraid (only makes more fearful).	It’s better to teach my child social skills with calm guidance, not by pushing them.
	Practise with ‘bigger’ version of situation (e.g. a larger group of noisy playing children).	Most challenging situations don’t harm children, some exposure can even be protective.

<i>Child Characterisation</i>	ASD	Remaining Cohort	U/χ^2	p	ES
Age (years), <i>Mdn</i> (<i>n</i>): at baseline	4.7 (26)	4.6 (515)	6359.00	.666	-0.02
at one-year follow-up	5.9 (25)	5.7 (462)	5195.00	.397	-0.04
at two-year follow-up	6.7 (24)	6.7 (436)	4781.50	.477	-0.03
First born, % (<i>n</i>)	57.7 (15)	50.9 (262)	1.14	.497	0.05
Male, % (<i>n</i>)	73.1 (19)	50.7 (261)	4.12	.042	-0.10
SDQ prosocial, <i>Mdn</i> (<i>n</i>)	4.5 (26)	7.0 (515)	2878.50	<.001	0.21
<i>Baseline Family Characterisation</i>					
Father's age (years), <i>Mdn</i> (<i>n</i>)	38.4 (22)	39.3 (473)	5128.00	.909	-0.01
Mother's age (years), <i>Mdn</i> (<i>n</i>)	37.2 (26)	37.7 (509)	6495.50	.874	-0.01
Relationship status, % (<i>n</i>)			6.22	.045	0.12
Married/cohabiting	84.6 (22)	92.4 (476)			
Separated/divorced	7.7 (2)	6.2 (32)			
Single/widowed	7.7 (2)	1.4 (7)			

Primary caregiver (mother), % (<i>n</i>)	87.5 (21)	93.6 (423)	5.31	.070	0.12
Highest level of education, % (<i>n</i>)			1.30	.521	0.05
Did not complete high school	8.0 (2)	11.7 (60)			
Completed high school	32.0 (8)	22.7 (116)			
Completed tertiary degree	60.0 (15)	65.6 (336)			
Household income (optional item) \$AUD per annum, % (<i>n</i>)			.346	.326	0.09
<\$25,000	9.5 (2)	4.4 (19)			
\$25,000 to \$51,900	19.0 (4)	12.7 (55)			
\$52,000 to \$88,400	9.5 (2)	23.4 (101)			
>\$88,400	61.9 (13)	59.5 (257)			
Immigrant status ¹				.756	.03
Both parents born locally, % (<i>n</i>)	68.2 (15)	60.2 (289)			
One parent born abroad, % (<i>n</i>)	18.2 (4)	22.9 (110)			
Both parents born abroad, % (<i>n</i>)	13.6 (3)	16.9 (81)			

Note. All percent are valid percent.

ES = Effect Size (Cohen’s *r* for *U*: small .1, medium .3, large .5) (*phi* for χ^2 : small .10, medium .30, large .50)

¹Locally (ASD vs. remaining cohort): Australia/New Zealand (73% vs. 72%). Abroad: America (5% vs. 2%), UK (14% vs. 6%), Europe (5% vs. 4%), Africa (0% vs. 2%), Asia pacific (5% vs. 11%), India region (0% vs. 3%), Middle East (0% vs. 2%).

Table 3
Socioemotional Functioning of Inhibited Preschoolers: Subgroup with Autism Spectrum Disorder (ASD) and Remaining Cohort

Variable	ASD	Remaining Cohort	<i>U</i>	<i>z</i>	<i>p</i>	<i>r</i>
	(<i>n</i> =26)	(<i>n</i> =515)				
	<i>Mdn</i>	<i>Mdn</i>				
	<i>M (SD)</i>	<i>M (SD)</i>				
STSC inhibition	33.00	34.00	6576.50	-0.15	.878	-0.01
	34.27 (2.88)	34.16 (2.76)				
SDQ emotional (internalising)	5.00	4.00	5629.50	-1.38	.167	-0.06
	4.62 (1.88)	4.10 (2.19)				
SDQ conduct (externalising)	2.50	1.00	4504.50	-2.89	.004	-0.12
	2.38 (1.30)	1.67 (1.54)				

STSC = Short Temperament Scale for Children; SDQ = Strengths and Difficulties Questionnaire

ES = Effect Size (Cohen’s *r* for *U*: small .1, medium .3, large .5)

Table 4
Parent Attendance at the Cool Little Kids Intervention

	Parenting Groups							Most of program
	None	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	(5+ sessions)
ASD, % (<i>n</i>)	25 (3)	58 (7)	50 (6)	42 (5)	50 (6)	33 (4)	25 (3)	17 (2)
Remaining Cohort, % (<i>n</i>)	20 (43)	69 (149)	68 (147)	51 (111)	50 (108)	37 (80)	38 (82)	35 (75)

Note. All percent are valid percent. Parent feedback questionnaire (*n*=12 Autism Spectrum Disorder, *n*=217 typically developing)

Table 5

Parents' Quantitative Feedback on the Cool Little Kids Intervention

	ASD		Remaining Cohort					
	(n=12)		(n=217)					
Intervention usefulness for understanding... ¹	<i>Mdn</i>	<i>n</i>	<i>Mdn</i>	<i>n</i>	<i>U</i>	<i>z</i>	<i>p</i>	<i>r</i>
	<i>M (SD)</i>		<i>M (SD)</i>					
Young children’s shyness/anxiety/inhibition	3	11	4	204	526.00	3.11	.002	0.21
	2.91 (0.70)		3.82 (1.02)					
What leads to problematic anxiety developing	3	11	4	203	739.50	1.97	.049	0.14
	3.18 (0.98)		3.77 (1.01)					
How to encourage brave child behaviour	4	11	4	203	704.00	2.19	.029	0.15
	3.45 (0.69)		3.98 (1.00)					
How to reduce anxious child behaviour	4	11	4	203	722.00	2.07	.038	0.14
	3.27 (0.91)		3.89 (0.99)					

How to change own anxious/fearful thoughts	3	11	4	202	878.00	1.21	.226	0.08
	3.18 (0.98)		3.54 (1.13)					

¹ 1 = ‘not at all useful’; 2 = ‘a little useful’; 3 = ‘quite useful’; 4 = ‘very useful’; 5 = ‘extremely useful’.

ES = Effect Size (Cohen’s *r* for *U*: small .1, medium .3, large .5)

Table 6.

Qualitative Feedback on Cool Little Kids from Parents of Children with Autism Spectrum Disorder (n=12)

What was the ‘best thing’ about this parenting program?

Interaction and sharing with parents having similar experiences (62%, 8 parents)

“Being with other parents going through the same thing”

“Sharing ideas with other participants when working on similar issues – it was invaluable”

“Meeting other parents in similar situations”

“Everybody on same level... same age kids... sharing stories with parents who have similar issues... able to openly talk and laugh”

“Some of the strategies shared by other parents... validating what we already do”

“Listening to other people’s experiences”   “Interaction with other parents”

“Time to think... discuss child’s anxious behaviour in a group with similar issues”

Learning Cool Little Kids parenting skills (38%, 5 parents)

“Learning some techniques for avoidance issues”

“I could use some of the suggestions with my child with ASD”

“Discussing the content in the booklet with the group”

“Understanding the effect of jumping in too soon”

Other miscellaneous (15%, 2 parents)

“Very flexible with family commitments”   “Perspective”

What was the ‘worst thing’ about this parenting program?

Nothing (38%, 5 parents)

“Was nothing I disliked... it was long enough... nothing really... it was well run”

Left blank (nothing implied)

Challenging feelings evoked at times (31%, 4 parents)

“More a personal thing – feeling different as a parent of kids with special needs”

“Maybe hearing some of the other parents stories/experiences + that they are not getting the professional support required, or not seeing the
Red flags for possible disorders, etc.”

“Could be quite confronting and upsetting at times”

“Upsetting to talk about child’s issues & harder for me to do than I had expected... I was very drained & upset after 1st session”

Convenience issues (23%, 3 parents)

“The time (in the evening)”   “Finding it’s location at the start, got very lost”

“The sessions were only offered for 1 night [in the week]”

Other miscellaneous (23%, 3 parents)

“Not all parents attended after the first session. They received the booklet and didn’t attend any other session”

“That I feel I was always answering the questions”

“That the lady running the group doesn’t have a personal experience”

What would make this parenting program better?

Clinician breadth of experience (38%, 5 parents)

“Sub groups to address children with developmental delays as strategies would likely differ”

“More one to one time with the professional to discuss specific issue and get advice”

“The person running the group has personal experience so they can relate to us better; having the ‘why’ of anxiety levels etc...wasn’t appropriate, we all know why they start, we have to be helped in prevention + dealing with it when it arrises (sic.)”

“Although our leader was very good + knowledgable (sic.), it would be good to also have a leader that has first-hand experience (a parent) - just my personal view. Not a reflection of the quality of the leader at all”

“If you could match up families with similar children/situations. In our group there was an extremely wide range of the degree of shyness/anxiety. So not everyone needed to focus on the same things”

Nothing (38%, 5 parents)

“Nothing. I’d leave as is”

Left blank (nothing implied)

Convenience issues (15%, 2 parents)

“Different time”   “Maybe having more than 1 session [time] a week available”

Other miscellaneous (8%, 1 parent)

“Less reading through manual, more group exercises & discussion”

Table 7

Baseline Comparability of Children with Autism Spectrum Disorder assigned to Intervention versus Control Groups

	Intervention (<i>n</i> =13)	Control (<i>n</i> =13)	<i>t</i>	<i>p</i>	Mean diff.	95% CI	<i>d</i>
Age (years), <i>M</i> (<i>SD</i>)	4.75 (0.37)	4.66 (0.70)	0.39	.702	-0.08	-0.54, 0.37	0.16
First born, % (<i>n</i>)	76.90 (10)	38.50 (5)					
Male, % (<i>n</i>)	69.20 (9)	76.90 (10)					
STSC inhibition, <i>M</i> (<i>SD</i>)	33.23 (2.46)	35.31 (2.98)	1.94	.064	2.08	-0.13, 4.29	0.79
SDQ emotional (internalising), <i>M</i> (<i>SD</i>)	4.62 (1.98)	4.62 (1.85)	0.00	1.00	0.00	-1.55, 1.55	0.00
SDQ conduct (externalising), <i>M</i> (<i>SD</i>)	2.23 (1.48)	2.54 (1.13)	0.60	.557	0.31	-0.76, 1.37	0.24
SDQ prosocial, <i>M</i> (<i>SD</i>)	4.38 (2.18)	4.31 (2.90)	0.08	.940	-0.08	-2.15, 2.00	0.03

STSC = Short Temperament Scale for Children; SDQ = Strengths and Difficulties Questionnaire. Chi-square contingency statistics not computed for categorical variables due to expected cell sizes < 5.

ES = Effect Size (Cohen's *d* for *t*: small .20, medium .50, large .80)

Table 8

Intervention Outcomes for Children with Autism Spectrum Disorder

	Intervention	Control	t/χ^2	p	M diff	95% CI	ES
<i>One-year Follow-Up</i>	<i>n=12</i>	<i>n=13</i>					
Age (years), M (SD)	5.93 (0.42)	5.75 (0.69)	0.80	.430	0.19	-0.67, 0.29	0.33
Anxiety dis. % (n) [*]	25 (3)	77 (10)	4.82	.028			0.52
Internalising symptoms							
CMFWQ, M (SD)	2.44 (0.39)	2.69 (0.53)	1.37	.186	0.25	-0.13, 0.64	0.54
SDQ ¹ , M (SD)	2.78 (2.05)	3.46 (2.47)	0.68	.503	0.68	-1.41, 2.77	0.30
Life interference (CALIS ²)							
Child, M (SD)	14.78 (8.58)	19.59 (9.46)	1.20	.245	4.81	-3.59, 13.22	0.53
Family, M (SD)	12.56 (9.25)	15.88 (10.26)	0.77	.453	3.33	-5.76, 12.41	0.34
<i>Two-year Follow-Up</i>	<i>n=11</i>	<i>n=13</i>					
Age (years), M (SD)	6.84 (0.40)	6.70 (0.71)	0.59	.560	0.14	-0.64, 0.36	0.25
Anxiety disord. % (n)	36 (4)	77 (10)	2.54	.111			0.41
Anxiety (PAS-R ²)	36.78 (18.77)	57.10 (25.48)	2.01	.058	20.33	-0.80, 41.46	0.91
Separation, M (SD)	4.22 (2.68)	9.38 (5.91)	2.67	.017	5.15	1.07, 9.23	1.12
Fears, M (SD)	9.44 (7.52)	17.33 (9.88)	2.00	.061	7.89	-0.38, 16.16	0.90
Social, M (SD)	10.78 (6.55)	14.17 (6.86)	1.14	.268	3.39	-2.82, 9.60	0.51
General., M (SD)	12.33 (5.10)	16.25 (6.61)	1.48	.156	3.92	-1.64, 9.47	0.66
Internalising symptoms							
CMFWQ, M (SD)	2.59 (0.36)	2.93 (0.73)	1.40	.177	0.34	-0.17, 0.84	0.59
Life interference (CALIS ²)							
Child, M (SD)	13.86 (6.28)	19.78 (12.28)	1.32	.204	5.92	-3.49, 15.33	0.61
Family, M (SD)	11.19 (6.90)	16.50 (9.57)	1.41	.175	5.31	-2.58, 13.19	0.64

CMFWQ = Children's Moods Fears and Worries Questionnaire; SDQ = Strengths and Difficulties

Questionnaire; PAS-R = Preschool Anxiety Scale Revised; CALIS = Child Anxiety Life Interference Scale;

ES = Effect Size (Cohen's d for t : small .20, medium .50, large .80) (ϕ for χ^2 : small .10, medium .30, large .50)

* Note. Anxiety disorders: Intervention Group $n=11$ only (1 missing ADIS interview)

¹ Intervention $n=9$, Control $n=13$

² Intervention $n=9$, Control $n=12$

Figure 1. Participant flowchart for the trial (Subgroup with *Autism Spectrum Disorder* [ASD] and remaining cohort).

Author Manuscript

manuscript

Minerva Access is the Institutional Repository of The University of Melbourne

Author/s:

Bischof, NL;Rapee, RM;Hudry, K;Bayer, JK

Title:

Acceptability and caregiver-reported outcomes for young children with autism spectrum disorder whose parents attended a preventative population-based intervention for anxiety: A pilot study

Date:

2018-08-01

Citation:

Bischof, N. L., Rapee, R. M., Hudry, K. & Bayer, J. K. (2018). Acceptability and caregiver-reported outcomes for young children with autism spectrum disorder whose parents attended a preventative population-based intervention for anxiety: A pilot study. *AUTISM RESEARCH*, 11 (8), pp.1166-1174. <https://doi.org/10.1002/aur.1963>.

Persistent Link:

<http://hdl.handle.net/11343/283961>