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Children diagnosed with autism spectrum disorder (ASD) are characterized by difficulties in the areas of social communication and repetitive and restricted behaviors. In addition to these difficulties, anxiety is the most common co-occurring mental health problem faced by children on the autism spectrum (Simonoff et al., 2008). Estimates indicate that 40% of children with autism meet diagnostic criteria for at least one anxiety disorder (van Steensel et al., 2011). Anxiety among children with ASD has been associated with more significant externalizing difficulties, aggression, and social avoidance (Lecavalier et al., 2014). Children with both autism and anxiety present with extra difficulties, and research suggests that the total costs for caring for an individual with autism and anxiety may be up to four times higher than for individuals with autism alone (van Steensel et al., 2013).

Cognitive-behavioral therapy (CBT) has accrued a high level of evidence as an effective treatment in reducing child anxiety in children with ASD. A recent meta-analysis indicated that CBT yielded a moderate effect size regarding a reduction in child anxiety (Perihan et al., 2020). Other reviews have indicated that CBT is effective in reducing clinician and parent reports of child anxiety, as well as child self-reports (Sukhodolsky et al., 2013). Although it is clear that CBT is effective in alleviating anxiety difficulties, questions still persist as to the optimal treatment format and the respective contribution of parents being involved in the treatment. Interestingly, Perihan et al. (2020) reported that studies that included parent treatment components were associated with greater therapeutic gains than those treatments that included only children.

A further approach to either child-focused interventions or parent and child work is the delivery of CBT-based material to parents. This parent-led approach is based on etiological models that highlight the reciprocal role that parents may have in the maintenance of child anxiety (Hudson & Rapee, 2004). Research indicates that such parent-led approaches are effective in reducing child anxiety among neurotypical children (Cartwright-Hatton et al., 2011). It is only relatively recently that the use of parent-led approaches has been used for children with autism. Byrne and colleagues (2022) reported on a pilot program of the From Timid to Tiger anxiety management program (Cartwright-Hatton et al., 2010) that consisted of 21 parents. Findings

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Evaluation of Telehealth Delivery of Group Parent-Led Cognitive-Behavioral Therapy During COVID-19: A Pilot Study

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Abstract

The COVID-19 pandemic has led to governments around the world imposing varying levels of restrictions and lockdowns leading to home confinement and closure of schools. Children with autism spectrum disorder (ASD) and their families may be particularly susceptible to increased anxiety. A growing evidence base has developed for parent-led cognitive-behavioral therapy (CBT) for child anxiety disorders. The current pilot study aimed to evaluate the preliminary clinical utility (acceptability, feasibility, and efficacy) of a parent-led CBT program in Dublin, Ireland, through an online format. Parents of nine children completed the program. The child did not participate in any part of the online program. Acceptability was strong, and although technical issues were problematic at times, all families completed the program. Preliminary efficacy analysis is mixed, with significant reductions on youth anxiety as measured by clinician-administered questionnaire but no reduction in parent-report measures. Findings suggest that the online program is acceptance, feasible, and effective.

Keywords

autism spectrum disorder, parenting, cognitive-behavioral therapy, online therapy

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indicated significant reductions in both parent and clinician reports of child anxiety symptoms. Thirty-eight percent of children were free of their primary anxiety diagnosis at treatment end, and this increased to 57% when measured at 3-month follow-up. Positive gains were also found regarding parents’ ability to manage their child’s anxiety without accommodating to it. Another feasibility and acceptability study (Rodgers et al., 2017) consisting of 11 parents reported on the effectiveness of an intervention group in reducing intolerance of uncertainty (IU). Findings indicated that parents reported significant reductions in terms of parent-reported child anxiety, parent self-report IU, and general mental health, with effect sizes in the moderate to large range. The above findings suggest that parent-led approaches for children with autism, anxiety, and related symptoms may be an effective treatment format.

The COVID-19 pandemic and the significant restrictions aimed at curtailing the spread of the virus have fundamentally changed how clinicians can deliver psychological treatments. Services, health care providers, and families of children with autism have had to adapt to this ever changing scenario. Families of children with autism may be particularly susceptible to the additional challenges imposed upon them as a result of the pandemic. Increased uncertainty, disruptions to routine, and school closures are all stressors that disproportionately affect families of children with ASD (Lee, 2020). Telehealth approaches, defined here as the remote delivery of psychotherapy or assessment through videoconferencing, have come to the fore during the pandemic. Before COVID-19, telehealth approaches had been used successfully in helping families access both assessment and therapeutic supports (Knutsen et al., 2016). Telehealth has also been found to be a potentially useful format for families of children with ASD during the pandemic in helping maintain access to services and supports (Murphy et al., 2021). Limited research to date has looked at the use of telehealth as a means of delivering anxiety-focused intervention to families and children. One feasibility study of 33 families found preliminary effectiveness for the Facing Your Fears program, which was run online, but issues regarding usability of technology were found to have an impact on sessions (Hepburn et al., 2016). Specifically, technical issues that involved the families losing the internet connection and not being able to reconnect were impediments that had to be circumvented.

The Health Service Executive in Dublin, Ireland, has previously run a number of parent-led CBT programs based on the From Timid to Tiger program but has had to reconfigure the intervention to an online format due to pandemic-related restrictions. The purpose of the present study was to evaluate the preliminary clinical utility (efficacy and feasibility) of the parent-led From Timid to Tiger program through an online format (Cisco Webex) to address anxiety symptoms in children with ASD. The study reports on child characteristics (IQ and ASD symptomology), parent-report outcome measures of child anxiety, and a number of feasibility measures. We operationalized feasibility by parent satisfaction measures, attendance and attrition rates, and issues regarding internet connectivity and the impact of this on the group.

Method

Participants

Twelve families were contacted about the possibility of attending the program. These families had previously indicated a willingness to engage in therapeutic support due to their child’s anxiety. Nine families were recruited into the study over a 4- to 6-week period. Nine children (six male, three female, M age = 8.89) met the inclusion criteria of (a) confirmed diagnosis of ASD from the Autism Diagnostic Observation Schedule–2nd Edition (ADOS-2; Lord et al., 2012), the Autism Diagnostic Interview–Revised (ADI-R; Rutter et al., 2003), or diagnosis by psychiatrist (b) between 4 and 12 years of age; (c) parent had sufficient English to participate in the group; and (d) parent reporting high levels of anxiety as measured by the Pediatric Anxiety Rating Scale (PARS; Research Units of Pediatric Psychopharmacology [RUPPs], 2002). One of the children was waiting for an autism assessment. Participants’ intellectual functioning ranged from mild intellectual disability to the average range (two children with Full Scale IQ [FSIQ] in the mild intellectual disability range, four children with FSIQ in the borderline to low average range, and three children in the average range of ability). Children were accessing services through the local School Age Team in Dublin that provides multidisciplinary assessment and intervention for children presenting with complex developmental needs.

Intervention

The From Timid to Tiger program (Cartwright-Hatton et al., 2010) is a parent-led CBT group intervention for parents of children struggling with anxiety. The program is parent-only, and the child does not participate in the group. Research indicates that the program is an effective intervention in reducing anxiety with children with ASD (Byrne et al., 2022). Each session lasted 2 hr. Sessions focused on providing parents with knowledge about child anxiety and appropriate behavioral management strategies for dealing with both externalizing and internalizing difficulties. The first hour involved check-in and review of homework. The second hour focused on new material based on CBT anxiety management principles.

Exposure plays a key role in the intervention. Fear hierarchies are devised and parents, with the help of therapist, are encouraged to implement these at home. A special
emphasis, after Session 4, is also placed on helping parents devise and implement exposure work using fear hierarchies during check-in. The program has two main goals: The first is to help parents provide a calm, predictable environment that promotes the child developing brave, confident behavior. The second aim is to provide parents with a range of strategies (graded exposure, problem-solving, and behavioral experiments) to manage childhood anxiety (see Cartwright-Hatton et al., 2011, for a full overview of the program’s components). For this study, no specific autism components were covered on the program but parents were encouraged to talk freely about current stressors that may be ASD-related. Facilitators were also aware of autism-relevant issues that may have contributed to anxiety issues (e.g., IU, alexithymia). The program placed a greater emphasis on behavioral as opposed to cognitive strategies, and parents had a number of opportunities to devise and implement behavioral experiments, in line with effective modifications to CBT for ASD.

**Videoconferencing Platform**

One of the focuses of this research was to improve access to mental health services. It was important that the videoconferencing program used in the study was user-friendly and readily available for home use. The Cisco Webex platform was chosen as it allowed numerous simultaneous users on screen. The screen configuration included a window for each of the participating families and therapist. All families could be seen simultaneously on the screen by each other and the therapist, unless they chose to turn off their camera. Parents were able to use webcams or access Webex through their smart phone. The therapist was always on camera as well. Families were encouraged to mute their microphones when others were talking to minimize background noise. Communication among parents was largely dynamic and involved general discussion as well as psychoeducation delivered to parents by therapists.

**Parent-Report Outcome Measures**

The PARS (RUPPs, 2002) is a dimensional assessment measure that rates the severity of child and adolescent anxiety. The five-item severity scale gives a total PARS score and is recommended for use in clinical trials and incorporates items assessing anxiety symptom frequency, distress, avoidance, anxiety-related interference at home, and interference out of home (at school, with peers, etc.). The scale has good psychometric properties when used with families of children with ASD (Storch et al., 2012).

Parent-Rated Anxiety Scale–ASD (Scahill et al., 2019) is a parent-report questionnaire that measures anxiety in youth with ASD. The questionnaire consists of 25 items and is rated on a 4-point Likert-type scale (0 = none to 3 = severe). Psychometric studies indicate that the scale is a reliable and valid scale for anxiety in children with ASD (Scahill et al., 2019). In the current sample, internal consistency was excellent (α = .95).

**Feasibility Measures**

Feasibility variables studied in this pilot include acceptability of intervention to parents (i.e., recruitment and enrollment rates, treatment completion, session attendance, satisfaction ratings) and usability of technology (i.e., frequency of technical problems).

Treatment satisfaction was assessed using the eight-item Client Satisfaction Questionnaire (CSQ-8; Attkisson & Greenfield, 2004). At the end of treatment, parents rated the degree to which the intervention addressed their issues and difficulties on a 4-point Likert-type scale ranging from low to high satisfaction.

**Log of technical difficulties.** Therapists completed a log for each session regarding internet connectivity. This log recorded the frequency of disconnections or other significant technical issues with picture or sounds that affected parents.

**Results**

**Feasibility Outcomes**

Of the 12 parents contacted about attending the program, nine attended. No parents dropped out of treatment. Of the 14 sessions offered over the two groups, eight sessions were fully attended, three sessions had one parent absent, and one session had three parents absent. Program satisfaction ratings, as measured by the CSQ-8, were high for parents. Eight of the nine parents reported that either most or almost all of their needs were met. In addition, seven parents reported feeling very satisfied with the intervention and two reported feeling mostly satisfied with the intervention.

**Usability of Technology**

The majority of the 14 sessions offered over Webex suffered from either no technical issues or only minor technical difficulties. Two sessions were significantly affected by technical glitches. One session could not be hosted on the Webex forum and had to be rearranged. The other session required the therapist to ask all parents to turn off their web cameras as connection issues meant that the audio was dropping.

Moderate technical glitches (defined as a brief disconnection from either video or audio with successful rejoining within a few minutes) were more common, with nine incidents recorded across three sessions. Therapists reported
that such connectivity issues were problematic to the flow of the session; something that had to be monitored but generally manageable.

**Preliminary Outcomes**

Table 1 includes the parent-report questionnaire and outcome measures scores at pre- and post-intervention, with changes assessed using a Wilcoxon signed-rank test due to small sample size. Significant improvement was found on the five-item PARS severity score, $z = -1.90$, $p = .05$, with a large effect size ($r = .45$). In addition, five parents reported PARS total severity post-scores of 10 or less, which indicates anxiety remission (Johnco et al., 2015). In contrast, no significant difference was found on the Parent-Rated Anxiety Scale–ASD following intervention. See Table 1 for an overview of PARS and Parent-Rated Anxiety Scale–ASD scores.

**Discussion**

Results from the current pilot study support the preliminary efficacy and feasibility of delivering the *From Timid to Tiger* parent-led CBT group program to parents of children with anxiety and ASD through commonly available videoconferencing technology. The COVID-19 pandemic has emphasized the need for the delivery of treatments and intervention for children and families struggling with anxiety, and this may be even more apparent for children with complex profiles that include ASD. Feasibility was demonstrated by the high parent satisfaction with the overall intervention, high attendance, and low attrition rates. Technical issues did arise, with two being deemed significant, but in general, such issues were manageable and therapists were able to skillfully work around connectivity difficulties.

A further aim of the study was to assess the preliminary effectiveness of the intervention through parent-report measures. The findings reported present a somewhat mixed picture, with significant results found on post-treatment PARS severity scores. In contrast, no such improvements were found on the Parent-Rated Anxiety Scale–ASD. It is possible that the PARS severity scores were better able to tap into the practical improvements in anxiety (in areas such as home life and school) from the intervention as opposed to the more ASD-specific fears and concerns captured by the Parent-Rated Anxiety Scale–ASD.

There are a number of important limitations to our findings. First, due to our small sample size, results need to be interpreted with caution. Second, the lack of a control group increases the likelihood that such improvement was due to expectancy biases or regression to the mean. Furthermore, we only included parent outcome measures. Future studies would benefit from including child and teacher report forms so as to ascertain a more global picture of possible change in anxiety. Finally, parents in the current study resided in South Dublin, an area that would historically be seen as having a high socio-economic status. Thus, findings from this population may not be generalizable to other families.

**Implications for Practice**

The COVID-19 pandemic has led many services to transition to the remote delivery of treatment for anxiety and related difficulties in children with autism (Byrne & Ni Longphuirt, 2020; Kalvin et al., 2021). The current parent-led format may be particularly beneficial for families in which their children struggle to work remotely and engage with online formats. Given the demands of home schooling and children having to remain at home, online interventions may be more practical in reducing scheduling difficulties. Clinicians had to adapt to the limitations imposed by videoconferencing, but the lack of attrition and feasibility findings suggest that the format and group were appropriate in addressing parental concerns regarding their child’s anxiety. Although not an issue in the current study, future use of such online delivery formats may benefit from seeking parents in helping gauge their access to appropriate technology and comfort with same. Similarly, further research may benefit from assessing the various benefits and drawbacks from both face-to-face and telehealth approaches. The findings from this preliminary study highlight the need for further well-designed, randomized controlled trials that have adequate sample sizes and appropriate methodological rigor. The need for further research into parent-mediated interventions delivered through telehealth for children with autism is an area that has been relatively neglected but is gathering a growing evidence base due to proposed benefits of the modality (Liu et al., 2021) and COVID-19-related necessity.
Conclusion

The current study provides preliminary evidence of the acceptability and effectiveness of the parent-led From Timid to Tiger program delivered through a videoconference format. It is important to consider that this format, although beneficial especially during pandemic-related restrictions, may not suit all families and address all of their needs and concerns. Future research may benefit from researching online versions of the program against face-to-face ones in ascertaining the relative benefits of each. In sum, findings reported here, albeit tentative, are encouraging and suggest that online parent-led CBT programs addressing anxiety in children with ASD are a viable format.

Declaration of Conflicting Interests

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References

Attkinson, C., & Greenfield, T. (2004). The UCSF client satisfaction scales: I. The Client Satisfaction Questionnaire-8. In M. E. Maruish (Ed.), The use of psychological testing for treatment planning and outcome assessment (pp. 799–811). Lawrence Erlbaum Associates.

Byrne, G., Ni Ghrada, A., & O’Mahony, T. (2022). Parent-led cognitive behavioral therapy for young children with autism spectrum conditions. A pilot study. Journal of Autism and Developmental Disorders. Advance online publication. https://doi.org/10.1007/s10803-022-05424-2

Byrne, G., & Ni Longphuirt, E. (2020). The psychological impact of quarantine on children with autism spectrum disorders. Irish Journal of Psychological Medicine, 8, 1–2. https://doi.org/10.1017/ipm.2020.117

Cartwright-Hatton, S., Laskey, B., Rust, S., & McNally, D. (2010). From Timid to Tiger: A treatment manual for parenting the anxious child. Wiley-Blackwell.

Cartwright-Hatton, S., McNally, D., Field, A. P., Rust, S., Laskey, B., Dixon, C., Gallagher, B., Harrington, R., Miller, C., Pemberton, K., Symes, W., White, C., & Woodham, A. (2011). A new parenting-based group intervention for young anxious children: Results of a randomized controlled trial. Journal of the American Academy of Child & Adolescent Psychiatry, 50(3), 242–251. https://doi.org/10.1016/j.jaac.2010.12.015

Hepburn, S. L., Blakeley-Smith, A., Wolff, B., & Reaven, J. A. (2016). Telehealth delivery of cognitive-behavioral intervention to youth with autism spectrum disorder and anxiety: A pilot study. Autism, 20(2), 207–218. https://doi.org/10.1177/1362361315575164

Hudson, J. L., & Rapee, R. (2004). From anxious temperament to disorder: An etiological model of generalised anxiety disorder. In R. Heinberg, C. Turk, & D. Mennin (Eds.), Generalised anxiety disorder: Advances in research and practice (pp. 51–74). Guilford Press.

Johnco, C. J., De Nadai, A. S., Lewin, A. B., Ehrenreich-May, J., Wood, J. J., & Storch, E. A. (2015). Defining treatment response and symptom remission for anxiety disorders in pediatric autism spectrum disorders using the Pediatric Anxiety Rating Scale. Journal of Autism and Developmental Disorders, 45(10), 3232–3242. https://doi.org/10.1007/s10803-015-2483-9

Kalvin, C. B., Jordan, R. P., Rowley, S. N., Weis, A., Wood, K. S., Wood, J. J., Ibrahim, K., & Sukhodolsky, D. G. (2021). Conducting CBT for anxiety in children with autism spectrum disorder during COVID-19 pandemic. Journal of Autism and Developmental Disorders, 51, 4239–4247. https://doi.org/10.1007/s10803-020-04845-1

Knutsen, J., Wolfe, A., Burke, B. L., Hepburn, S., Lindgren, S., & Coury, D. (2016). A systematic review of telemedicine in autism spectrum disorders. Review Journal of Autism and Developmental Disorders, 3(4), 330–344. https://doi.org/10.1007/S40489-016-0086-9

Lee, J. (2020). Mental health effects of school closures during COVID-19. The Lancet Child and Adolescent Health, 4(6), 421. https://doi.org/10.1016/s2352-4642(20)30109-7

Liu, Q., Hsieh, W. Y., Cheatham, G., & Yin, Y. (2021). Parent-mediated intervention delivered through telehealth for children with autism spectrum disorder. Cochrane Database of Systematic Reviews, 2021(3), CD014793. https://doi.org/10.1002/14651858.CD014793

Lord, C., Rutter, M., DiLavore, P. C., Risi, S., Gotham, K., & Bishop, S. L. (2012). ADOS-2. Autism Diagnostic Observation Schedule (2nd ed.). WPS.

Murphy, A., Pinkerton, L. M., Bruckner, E., & Risser, H. J. (2021). The impact of COVID-19 on therapy service delivery for children with disabilities. The Journal of Pediatrics, 231, 168–177.e1. https://doi.org/10.1016/j.peds.2020.12.060

Perihan, C., Burke, M., Bowman-Perrott, L., Bicer, A., Gallup, J., Thompson, J., & Sallese, M. (2020). Effects of cognitive behavioral therapy for reducing anxiety in children with high functioning ASD: A systematic review and meta-analysis. Journal of Autism and Developmental Disorders, 50(6), 1958–1972. https://doi.org/10.1007/s10803-019-03949-7

Research Units of Pediatric Psychopharmacology. (2002). The Pediatric Anxiety Rating Scale (PARS): Development and psychometric properties. Journal of the American Academy of Child and Adolescent Psychiatry, 41(9), 1061–1069. https://doi.org/10.1097/00004583-200209000-00006

Rodgers, J., Hodgson, A., Shields, K., Wright, C., Honey, E., & Freeston, M. (2017). Towards a treatment for intolerance of uncertainty in young people with autism spectrum disorder: Development of the coping with uncertainty in everyday situations (CUES©) program. Journal of Autism and Developmental Disorders, 51(10), 3232–3242. https://doi.org/10.1007/s10803-015-2483-9
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Developmental Disorders, 47(12), 3959–3966. https://doi.org/10.1007/s10803-016-2924-0

Rutter, M., Le Couteur, A., & Lord, C. (2003). ADI-R. Autism Diagnostic Interview–Revised Manual. Western Psychological Services.

Seahill, L., Lecavalier, L., Schultz, R. T., Evans, A. N., Maddox, B., Pritchett, J., Herrington, J., Gillespie, S., Miller, J., Amoss, T., Aman, M. G., Bearss, K., Gadow, K., & Edwards, M. C. (2019). Development of the parent-rated anxiety scale for youth with autism spectrum disorder. Journal of the American Academy of Child & Adolescent Psychiatry, 58(9), 887–896. https://doi.org/10.1016/j.jaac.2018.10.016

Simonoff, E., Pickles, A., Charman, T., Chandler, S., Loucas, T., & Baird, G. (2008). Psychiatric disorders in children with autism spectrum disorders: Prevalence, comorbidity, and associated factors in a population-derived sample. Journal of the American Academy of Child and Adolescent Psychiatry, 47(8), 921–929. https://doi.org/10.1097/CHI.0b013e318179964f

Storch, E. A., Wood, J. J., Ehrenreich-May, J., Jones, A. M., Park, J. M., Lewin, A. B., & Murphy, T. K. (2012). Convergent and discriminant validity and reliability of the Pediatric Anxiety Rating Scale in youth with autism spectrum disorders. Journal of Autism and Developmental Disorders, 42(11), 2374–2382. https://doi.org/10.1007/s10803-012-1489-9

Sukhodolsky, D. G., Bloch, M. H., Panza, K. E., & Reichow, B. (2013). Cognitive-behavioral therapy for anxiety in children with high-functioning autism: A meta-analysis. Pediatrics, 132(5), 1341–1350. https://doi.org/10.1542/peds.2013-1193

van Steensel, F. J., Bogels, S. M., & de Bruin, E. I. (2011). Anxiety disorders in children and adolescents with autistic spectrum disorders: A meta-analysis. Clinical Child and Family Psychology Review, 14, 302–317. https://doi.org/10.1007/s10567-011-0097-0

van Steensel, F. J., Bogels, S. M., & Perrin, S. (2011). Psychiatric comorbidity in children with autism spectrum disorders: A comparison with children with ADHD. Journal of Child and Family Studies, 22(3), 368–376. https://doi.org/10.1007/s10826-012-9587-z