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Informing Modifications to Social Participation and Navigation (SPAN) for Adolescents with Social Anxiety Incorporating Pet Dogs

Nicole Porter  
*Tufts University* - USA, nicole.porter@tufts.edu

Gary Bedell  
*Tufts University* - USA, gary.bedell@tufts.edu

Jason Getzler  
*Tufts University* - USA, Jason.Getzler@tufts.edu

Megan Mueller  
*Tufts University* - USA, Megan.Mueller@tufts.edu

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Abstract

Background: Social anxiety is one of the most prevalent mental health challenges of adolescence and profoundly impacts social participation. This study obtained adolescent and parent feedback to inform a future modification of Social Navigation and Participation (SPAN) for use with adolescents with social anxiety incorporating pet dogs.

Methods: The study had two phases: Phase 1 included interviews with adolescents with social anxiety (n = 8) about their social participation experiences, strategies, pet dogs, and thoughts on a proposed intervention to promote social participation; and Phase 2 included online survey completed by the adolescents and their parents (n = 14) assessing likelihood to engage in proposed components of the future modified SPAN intervention.

Results: The adolescents identified social participation challenges consistent with prior literature, including fear of judgement and larger group avoidance, and supportive features of the relationship with their pet-dogs. The adolescents reported a high likelihood of engaging in the coaching aspects of SPAN and pet-dog assisted strategies. Findings reflected the necessity of flexibility and individualization of the proposed SPAN modification to address adolescent and parental needs.

Conclusion: Results provided insights that informed the future SPAN modification and highlighted areas to consider for occupational therapists and others who work with adolescents with social anxiety and incorporate animal-assisted activities into practice.

Comments

The authors declare that they have no competing financial, professional, or personal interest that might have influenced the performance or presentation of the work described in this manuscript.

Keywords

animal assistive interventions, coaching, telehealth, youth

Cover Page Footnote

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Credentials Display

Nicole Porter, OTD, MS, OTR/L; Gary Bedell, PhD, OTR/L, FAOTA; Jason Getzler, BS; Megan Mueller, PhD

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Social anxiety is one of the most prevalent mental health challenges of adolescence (Burstein et al., 2011; Jefferies & Unger, 2020). Between 9% and 12% of people in the US have met the criteria for social anxiety disorder during their lifetime, and about 10% have met the criteria by the end of adolescence (Burstein et al., 2011; Jefferies & Unger, 2020). Social anxiety disorder is described as a marked or intense fear or anxiety of social situations, often manifesting as extreme fear of negative evaluation by others in social settings and avoidance of social interaction (American Psychiatric Association, 2013; Maes et al., 2019; Miers et al., 2013). Comorbidity of social anxiety and other anxiety disorders, such as panic disorder and generalized anxiety disorder, is also high, as well as an increased risk of suicidal ideation and suicide attempts (Kashdan & Herbert, 2001; Maes et al., 2019; Miers et al., 2013). In addition, less than a third of individuals with social anxiety disorder seek treatment (Ruscio et al., 2008). Given that the onset of social anxiety is often before 18 years of age (Bögels et al., 2010; Otto et al., 2001), adolescence is a particularly important developmental period for exploring innovative methods for intervening and preventing the negative sequelae that can result from social anxiety disorder.

Furthermore, the COVID-19 pandemic significantly impacted adolescent social anxiety and related mental health challenges (Hawes et al., 2021; Itani et al., 2021; Lane et al., 2021; Loades et al., 2020; Morales et al., 2021). Worldwide, adolescent mental health, and anxiety in particular, has been identified as a health crisis (World Health Organization, 2021), prompting a health advisory issued by the United States Surgeon General (U.S. Surgeon General, 2021). Adolescents have frequently turned to social media during the pandemic to cope with loneliness and anxiety (Cauberghe et al., 2021). However, there is a need for more structured ways of intervening with adolescents to support mental health.

**Social Anxiety and Social Participation**

Social anxiety has a profound impact on social participation and interaction, given the fear and avoidance of social situations and opportunities that social anxiety causes (Kashdan & Herbert, 2001; Maes et al., 2019; Miers et al., 2013). Social participation has been defined as taking part, participating, and engaging in, and doing activities and spending time with others. It is considered the ultimate aim of many psychosocial-oriented interventions for adolescents, given its association with positive mental health and quality of life outcomes (Bedell, 2012; Bedell et al., 2017; O'Rourke et al., 2020). Research has shown that college students with social anxiety have significant problems participating in social activities at school (Clarke & Fox, 2017). In addition, adults with social anxiety are more likely to be unmarried, live alone, or remain in an unhappy relationship because of fear of meeting new people (Lipsitz & Schneier, 2000). Adults with social anxiety also report fewer friendships and social contacts and often report significantly lower quality of life compared to adults without clinical levels of social anxiety (Lipsitz & Schneier, 2000).

**Social Participation Intervention**

Although social participation is an integral part of home, school, and community life and is associated with quality of life outcomes across the lifespan, there is a lack of rigorously tested interventions that explicitly address social participation in adolescents and young adults (Bedell, 2012; Bedell et al., 2017; O'Rourke et al., 2020; Wade et al., 2018). Specifically, peer coaching has been identified as an ideal approach to addressing social participation in adolescence because of peers’ influence at this age (Burton et al., 2022; O’Rourke et al., 2020; Wade et al., 2018; Zand et al., 2009). Coaching, whether by peers, occupational therapists, or other practitioners, is a goal-oriented, strengths-based, collaborative process that supports developing and achieving personalized goals (Kessler & Graham, 2015; Novak, 2014). Research has shown that peer coaching plays a positive role in promoting
key outcomes for adolescents and transition-age young adults in domains such as interpersonal relationships, life skills, academics, self-esteem, and social communication and participation (Burton et al., 2022; King & Fazel, 2021; Rosenberg et al., 2022; Wade et al., 2018; Warner & Budd, 2018; Zand et al., 2009).

During the COVID-19 pandemic, remote and/or telehealth interventions were used as an effective tool for adolescents with social anxiety, allowing for greater access to support (e.g., Estabillo et al., 2022; Khan et al., 2021; Lu et al., 2021; Peros et al., 2021). Remote and telehealth interventions have also been used more frequently in occupational therapy (Little et al., 2021) but with limited evidence specific to adolescents with social anxiety or focused on social participation.

Social Participation and Navigation

Social Participation and Navigation (SPAN) is an existing evidence-based remotely delivered peer-coaching intervention targeting social participation that might benefit adolescents with social anxiety (Bedell et al., 2017; Narad et al., 2018; Wade et al., 2018). SPAN was initially developed for adolescents and young adults (AYA) with traumatic brain injuries (TBI) and more recently with AYA brain tumor survivors (Bedell et al., 2023; Bedell et al., 2017; Narad et al., 2018; Wade et al., 2018). Key components of SPAN include virtual weekly meetings with trained and supervised college student coaches (up to 10 sessions for the full version), tips and topics focused on underlying skills and strategies to promote social participation, and a goal planning application to promote social participation. Coaches work with each AYA individually to define goals and then use the SPAN goal-planning application (app) to create a step-by-step action plan (and strategies) to achieve each goal (Wade et al., 2018). In addition to reinforcement and reminders from the app, the peer coaches support and help the adolescent to identify barriers and supports and refine the participants’ plans if needed. SPAN uses the “Goal Plan Do Review” framework, which involves the creation of a goal and a plan to achieve the goal, implementing the plan step-by-step, and then reviewing how the plan was enacted and thinking about ways to change or modify the goal or plan if needed.

In the initial brief 4-week usability trial, SPAN was well-received by teenagers with TBI (n = 4), with all of the participants making progress toward their goals with the support of supervised graduate student coaches (Narad et al., 2018). Also, this study found large effect sizes in pretrial to posttrial subscale scores on social competence (overall increase) and social problems (overall decrease). In the subsequent pilot implementation trial of the 10-week full version of SPAN, the participants (13 teenage TBI and brain tumor survivors) were able to achieve their social participation goals (M = 3 goals; range = 1-7), and high levels of parent and participant satisfaction were reported with increases in parent pre to posttrial ratings of their child’s social participation confidence (Wade et al., 2018). After the initial SPAN trials, further development of the SPAN program was completed that included the creation of a website (https://spanprogram.com/) with online tips and topics and a web-based goal planning app for more widespread access and potential for additional and modifiable content to allow use by other populations. The new website and web app were used in a more recent brief SPAN usability study with AYA brain tumor survivors (Bedell et al., 2023). SPAN is currently being modified for implementation with autistic AYA as well (Lamash et al., 2023).

Animal Assistive Interventions

Another promising way to address social participation in adolescents with social anxiety is through animal-assisted interventions (AAI). AAI are goal-oriented and structured interventions that incorporate animals for therapeutic gains and improved health and wellness and have been incorporated into
occupational therapy practice across the lifespan (Andreasen et al., 2017; Ávila-Álvarez et al., 2020; Cipriani et al., 2013; Shue et al., 2018). Many different types of animals can be involved in AAI, including therapy animals (who provide physical, psychological, and emotional benefits to those they interact with, typically in facility settings with a health care provider or handler), service/assistance animals (who are trained to do a task for a person with a disability), and pets (a domesticated animal kept for companionship but who does not necessarily have specific training) (International Association of Human-Animal Interaction Organizations, 2018).

AAI has been shown to help improve social interaction skills and general mental health in adolescents and young adults. Prior research has demonstrated that the presence of a therapy animal can decrease participant heart rate, self-reported anxiety, and self-reported stress, which are all physiological or subjective markers of stress (Ein & Vickers, 2018). There is also promising evidence supporting the effectiveness of AAI, specifically with dogs, for decreasing primary symptomatology of mental health disorders and improving the therapeutic process (Hoagwood et al., 2017; Jones et al., 2019). AAI may also support social participation and decrease anxiety in particular. In one study, adolescents undergoing inpatient psychiatric treatment were given 30 min a week to spend “free-playing” with a therapy dog and handler (Prothmann et al., 2006). Compared to a group receiving regular “free play,” they showed significant increases in social extroversion and intra-emotional balance. Another study incorporated the therapy animal into an occupational therapy session, in which children diagnosed with Autism Spectrum Disorder received early intervention occupational therapy with a therapy dog once a week for 20 min (Ávila-Álvarez et al., 2020). In these sessions, the children participated in activities like caring for the dog and socially interacting with others through the dog (i.e., playing with the dog with another person). The children showed significant improvement in social interaction with the dog and the dog handler, suggesting that human-animal interaction may prompt social engagement and improve social skills in children (Ávila-Álvarez et al., 2020).

Pets in the home setting can also support overall social well-being and positive development for adolescents (Mueller, 2014). Attachment to a pet can serve as an emotional buffer during times of stress and is associated with adaptive social coping skills (Mueller & Callina, 2014). When presented with a stressful social performance situation (performing a speech and mental arithmetic in front of a researcher), the presence of cortisol (a stress hormone) did not decrease in the adolescent when a pet was present (Kertes et al., 2017). However, adolescents’ perceived stress levels decreased when a pet was present compared to being alone or with a parent (Kertes et al., 2017). When given a similar social stress task, adolescents in their pet’s presence reported significantly higher positive affect than those without their pets (Kerns et al., 2018). In addition, adolescents who reported more contact with their dogs in their day-to-day lives reported higher positive affect during the task (Kerns et al., 2018).

Pets can also provide social support and facilitate social engagement between humans. A relationship with an animal can strengthen an adolescent’s social resources, which may reduce the perception of social risk and lead to decreased anxiety. A stronger attachment to pets is shown to be associated with more prosocial behavior and empathy in children (Jacobson & Chang, 2018; Vidović et al., 1999). Pet ownership is also associated with social facilitation; for example, pet owners are more likely to interact with and get to know their neighbors than non-pet owners, as pets can act as catalysts and opportunities for social interaction for their owners (Wood et al., 2005, 2015). Therefore, pets provide socio-emotional support, act as a social resource, provide opportunities for social engagement, and function as facilitators for social interaction between people.
The purpose of this study was to obtain key feedback from adolescents with social anxiety and their parents to inform a future modification of SPAN (Bedell et al., 2017; Narad et al., 2018; Wade et al., 2018) for use with adolescents with social anxiety and leverage the supportive relationship of a pet dog. A formative and iterative design framework consisting of two successive phases was used to inform the future modification of SPAN similar to formative approaches used to develop the original SPAN for teenagers with TBI (Bedell et al., 2017) and inform a modified version for autistic AYA (Lamash et al., 2023).

Phase 1 involved an initial stakeholder interview with the adolescents with social anxiety focusing on social participation experiences with their pets and thoughts on the proposed intervention design components, including working with college-aged coaches and using different components of SPAN, such as the SPAN goal-planning app and tips and topics. Phase 2 involved a follow-up online survey assessing the parents’ and adolescents’ perceived likelihood that the adolescents with social anxiety might engage in the strategies they described from Phase 1 and the proposed aspects of the future modified program, such as working with graduate student coaches. The results of these two phases will inform future modifications and/or additions to SPAN to address the needs of adolescents with social anxiety, incorporating their pet dogs and other strategies to promote social participation. Once the modified SPAN intervention is developed, future research will examine its feasibility, usability, and potential benefits for adolescents with social anxiety.

Method

Participants

Participants for this study were recruited via convenience sampling using social media (posting to Twitter and Facebook). Interested participants were instructed to email the study team, who provided them with the link to a social anxiety screening survey. Participants who were eligible via the screener were contacted with further information about the full study via email. Inclusion criteria included between 13 and 17 years of age, a high level of social anxiety as defined by a score of 50 or higher on the Social Anxiety Scale for Adolescents (SAS-A; described in “Measures” section) (La Greca & Lopez, 1998), and having at least one pet dog.

Procedures

The Institutional Review Board at Tufts University (located in the Greater Boston area) approved all procedures for this study to ensure human participants’ protection. Interested participants first completed a screener survey that included questions about demographics, pets, and social anxiety. Eligible participants were contacted via email through the parent/guardian with a summary of the study and the consent/assent. Consent and assent were reviewed with a researcher over the phone and then emailed back to the researchers. The participants then participated in a 30-to-45-min semi-structured virtual interview (Phase 1) focusing on their social interaction and participation experiences and pet interactions, opinions on working with a college student coach, and thoughts on the potential intervention design. The interviews were digitally recorded via the university’s secure Zoom account. The Zoom transcriptions were used to generate text from the interviews. The researchers reviewed and edited the Zoom transcriptions for accuracy before analysis (see “Data Analysis” section).

The participants and their parents or guardians were then recontacted 6 months later to participate in the feedback phase (Phase 2), which consisted of an online survey asking about their thoughts on the strategies and potential features of the future intervention design derived from the first phase. Each adolescent and parent completed their own survey. Survey data were then aggregated to inform potential
modifications of a future SPAN intervention that will incorporate dog assistive strategies and other strategies to manage social anxiety and promote social participation.

Measures

Screening Survey

The screening survey was completed online via Qualtrics to screen for inclusion criteria and demographics, i.e., age, sex, race, ethnicity, dog-owning status, and social anxiety via the SAS-A. The SAS-A was designed for use in adolescence and has been validated extensively across many samples and in multiple languages (Garcia-Lopez et al., 2011; La Greca & Lopez, 1998). The SAS-A contains 18 items that include three domains of social anxiety: fear of negative evaluation from peers, social avoidance and distress in new situations, and generalized social avoidance.

Semi-Structured Interview: Phase 1

The adolescent participants engaged in a 30-to 45-min semi-structured interview via Zoom that covered three primary topic areas.

1. Social interaction and participation experiences, pet interactions, and strategies to manage social anxiety: Adolescents were asked about their current social interaction and participation experiences, both with and without their dogs. In addition, they were asked about their beliefs about how their dogs may facilitate social connections. The participants were asked to describe their relationships with their dogs, what activities they currently engage in with their dogs, and in which future activities they would be willing to participate. The participants were also asked about strategies they use to cope with their social anxiety and which of those strategies involved their dogs.

2. Working with college student coaches: The participants were asked about their thoughts on working with a college student coach on social-participation-related goals and their preferred means of interaction (via in person or virtual). In addition, they were asked to describe any supports or information they would need to participate with a coach.

3. Intervention design: The participants were asked about various features of the existing SPAN intervention and their thoughts on the feasibility of using various aspects of SPAN, including (e.g., the website, goal planning app, and online tips and topics). In addition, the participants were asked about their preferences for their participation and interaction in the intervention (e.g., frequency of involvement and extent of parental involvement).

Feedback Survey: Phase 2

The adolescents and their parents/guardians were asked to respond to a 10-to-15-min online survey via Qualtrics. The survey asked the participants to rate their or their child’s likelihood to engage in SPAN-specific strategies and activities derived from the interviews and literature and requested their feedback on the proposed intervention design via open-ended questions. The likelihood to engage was rated on a scale of 1 to 4 (1 = very unlikely, 2 = somewhat unlikely, 3 = somewhat likely, and 4 = very likely). The participants rated their likelihood to engage in 11 dog companionship strategies, seven general coaching strategies, and five coaching session preferences. Also, the survey included open-ended questions for the participants to elaborate on or clarify their quantitative responses and provide additional comments and suggestions.

Data Analysis

In Phase 1, descriptive statistics were used to characterize the sample. Descriptive and categorical level content analyses were used to examine the participant responses to the Phase 1 semi-structured
interview questions. The content analysis process involved reviewing and coding the responses and organizing them into larger categories informed by the broader key interview question-related topics (e.g., social experiences/challenges, pet-dog interactions, strategies to manage social anxiety, and views on a future program/intervention).

Two coauthors (NP, JG) conducted the main content analyses (descriptive coding, organizing into categories, and counting key categories or distinctive responses if responses did not fit specific categories) and met to reach consensus and seek out confirmation and clarity from the two senior investigators and coauthors (GB, MM) throughout the process and particularly to assist with categorization. More specifically, the participant transcript responses were first coded individually into one-to-three-word summarized statements. Responses were then coded across all of the participants by common categories. Coded data were then organized by category, and the frequency of responses in that category was counted. The categories were then organized by highest to lowest frequency of responses, and the categories relating to coping skills involving pets and in general were then converted into strategies to inform the design of the proposed modification to SPAN. The responses related to preferences informing the design of the intervention were organized by most frequent responses.

In Phase 2, descriptive statistics were used to characterize the sample, analyze the quantitative survey responses, and compare responses between adolescents and their parents and guardians. The mean and standard deviation (SD) were calculated for each item (rated on the 4-point likelihood to engage scale). Item means for both the adolescent and parent and guardian responses were then plotted onto a radar plot reflecting the 4-point scale (1 = very unlikely, 2 = somewhat unlikely, 3 = somewhat likely, and 4 = very likely). Content analyses were used to examine key participant responses to the open-ended questions that addressed elaboration or clarification of quantitative responses and additional comments and suggestions.

Results

Phase 1: Adolescent Interviews

Sample Characteristics

Eight adolescents participated in the Phase 1 interviews: two males and six females. All resided in the USA and had at least one pet dog. Two of the eight participants identified as Hispanic or Latino. Six (75%) of the participants identified as white, one (12.5%) participant identified as Asian, and one (12.5%) participant identified as more than one race. The mean age of the participants was 14.75 years, with a standard deviation of 1.28 and a range of 13 to 17 years of age. The mean SAS-A score for the participants was 63.75 with a standard deviation of 10.18, and scores ranged from 50 to 82.

Social Participation Experiences and Strategies

Table 1 summarizes the key areas of social participation challenges described by the adolescents. Common problem areas focused on performance-based activities, interacting socially in the company of others, and interacting with new people or in large groups with or without a familiar person present.

Table 1

<table>
<thead>
<tr>
<th>Social Participation Challenges</th>
<th>Number (%)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>4 (50.0%)</td>
<td>The completion of an activity in front of a crowd, usually of unknown individuals.</td>
</tr>
<tr>
<td>Social</td>
<td>4 (50.0%)</td>
<td>Interactions that require the person to engage in a conversation or remain in the company of others.</td>
</tr>
<tr>
<td>New people</td>
<td>4 (50.0%)</td>
<td>Interacting with unknown people for the first time.</td>
</tr>
<tr>
<td>Large groups</td>
<td>2 (25.0%)</td>
<td>Interacting with many people at one time.</td>
</tr>
<tr>
<td>Independent</td>
<td>1 (12.5%)</td>
<td>Interactions that do not involve the individual’s “comfort person.”</td>
</tr>
</tbody>
</table>
The adolescents also described the strategies they currently use to cope with distressing emotions and anxiety. Table 2 summarizes the coping strategies described in the interviews as currently being used by the adolescents. The most commonly reported strategy was seeking comfort in the company of a “comfort person,” such as a close friend or family member. Also, 25% of the participants listed their pet dog as a source of comfort to address social stressors.

Table 2
Currently Used Strategies to Address Social Stressors

<table>
<thead>
<tr>
<th>Category</th>
<th>Number (%)</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfort Person</td>
<td>5 (62.5%)</td>
<td>Seeking comfort in the company of a peer or family member who is familiar to the participant.</td>
</tr>
<tr>
<td>Comfort Pet</td>
<td>2 (25.0%)</td>
<td>Seeking comfort in the company of their pet.</td>
</tr>
<tr>
<td>Self-Talk</td>
<td>2 (25.0%)</td>
<td>Talking to themselves prior to, during, and after the event to prepare themselves and remind themselves of their abilities.</td>
</tr>
<tr>
<td>Avoiding/ Isolating</td>
<td>2 (25.0%)</td>
<td>Active avoidance of stress-inducing situations and more apt to isolate oneself.</td>
</tr>
<tr>
<td>Finding Common Interests</td>
<td>2 (25.0%)</td>
<td>Finding a common interest in conversations and using it as a buffer for stress.</td>
</tr>
<tr>
<td>Deep Breathing</td>
<td>1 (12.5%)</td>
<td>Using deep breathing strategies to calm themselves prior to, during, and after the stressor.</td>
</tr>
<tr>
<td>Online / Virtual Interactions</td>
<td>1 (12.5%)</td>
<td>Using an online medium to interact instead of an in-person medium to decrease stress, e.g., video games.</td>
</tr>
<tr>
<td>Prior Planning / Preparation</td>
<td>1 (12.5%)</td>
<td>Playing out the conversation or situation in mind and preparation prior to the event.</td>
</tr>
<tr>
<td>Therapy / Counseling</td>
<td>1 (12.5%)</td>
<td>Discussing and working on the stressor with a licensed mental health professional.</td>
</tr>
<tr>
<td>Fidgeting</td>
<td>1 (12.5%)</td>
<td>Making small movements, especially of the hands, to relieve internal stress.</td>
</tr>
</tbody>
</table>

**Pet Dog Interactions and Strategies**

Table 3 summarizes the activities the adolescents reported currently engaging in with their dogs, both as a strategy and as a part of their normal routines. Common strategies involving their dog included petting or cuddling the dog poststressor to establish a calming physical connection, engaging in activities, such as playing or walking their dog with the secondary purpose of relieving social stress or anxiety, and using the dog as a discussion topic in a conversation either with or without the dog present. Other strategies discussed included focusing or diverting attention of conversation from the adolescent to their dog to prevent or manage social anxiety and practicing a skill in front of their dog for a potentially stress-inducing activity (i.e., practicing a speech or conversation).

Table 3
Strategies Involving Pet Dogs

<table>
<thead>
<tr>
<th>Category</th>
<th>Number (%)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petting or cuddling</td>
<td>8 (100.0%)</td>
<td>Seeking comfort in the company of their pet, specifically via physical touch.</td>
</tr>
<tr>
<td>Activities with dog</td>
<td>4 (50.0%)</td>
<td>Engaging in activities involving their pet, such as playing with or walking them.</td>
</tr>
<tr>
<td>Talking with dog</td>
<td>3 (37.5%)</td>
<td>Talking with their dog instead of a person due to the dog’s non-judgement nature.</td>
</tr>
<tr>
<td>Dog conversation focus</td>
<td>2 (25.0%)</td>
<td>Bringing up their dog in conversation or directing attention in a conversation to the dog.</td>
</tr>
<tr>
<td>Practicing skills</td>
<td>1 (12.5%)</td>
<td>Practicing a skill with their dog for a potentially stress-inducing activity, e.g., conversation or speech.</td>
</tr>
</tbody>
</table>

**Views on Potential Intervention Design**

Table 4 summarizes the adolescents’ views on the design of a future social participation intervention involving pet dogs. Half of the participants reported they had no concerns with the overall SPAN program design and supported both the use of college-aged coaches and working with their dogs.
The most common concern reported was related to the dog’s temperament and stress levels during activities.

Table 4

<table>
<thead>
<tr>
<th>Category</th>
<th>Number (%)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supportive of idea of pets and coach</td>
<td>4 (50.0%)</td>
<td>Supporting idea of college-aged student coaches working with them and their dog.</td>
</tr>
<tr>
<td>Concerns related to dog’s temperament</td>
<td>3 (37.5%)</td>
<td>Concerns about dog becoming stressed or ill-behaved in certain situations. Reported need for dog to be friendly to support social participation.</td>
</tr>
<tr>
<td>Concerns relating to dog drawing more attention</td>
<td>1 (12.5%)</td>
<td>Concerns about having their dog with them and thus drawing more unwanted attention in certain situations.</td>
</tr>
<tr>
<td>Concerns relating to bringing dog with them</td>
<td>1 (12.5%)</td>
<td>Concerns about being unable to bring dog to certain locations (i.e., to school with them, to the movies).</td>
</tr>
<tr>
<td>Desire for peer involvement</td>
<td>1 (12.5%)</td>
<td>Wanting to engage in the program if another peer they are familiar with was also involved.</td>
</tr>
</tbody>
</table>

Phase 2: Online Feedback Surveys Completed by Adolescents and their Parents

Sample Characteristics

Seven of the eight adolescents from Phase 1 completed the online feedback survey: two males and five females. Two of the seven participants identified as Hispanic or Latino, five (71.4%) participants identified as white, one (14.2%) participant identified as Asian, and one (14.2%) participant identified as more than one race. The adolescent participants ranged from 14 to 16 years of age. The parents and guardians of the seven adolescent participants also completed their own surveys.

Dog Companionship Strategies

As shown in Figure 1, 10 of the 11 dog companionship strategies had mean ratings of at least three (somewhat likely to engage in) or higher by both the adolescents and parents. The strategy of practicing school presentations in front of your pet dog had a mean rating below 3 by both parents and adolescents. Five out of 11 strategies rated by the adolescents had mean ratings on the higher end of the scale (above 3.7). One out of 11 strategies rated by the parents, playing with your dog, had a mean rating on the higher end as well. Two items had larger differences in mean ratings (close to 0.50 or a half-point difference) between the adolescents and parents, with higher ratings for the adolescents (walking dog with other people; having a dog around while meeting new people).

General Strategies with Coaches

Figure 2 shows that six out of seven strategies for the adolescents and seven out of seven strategies for the parents had mean ratings of above 3 (somewhat likely). The strategy learning about relaxation strategies had a mean rating below 3 for the adolescents. The strategy reviewing what strategies worked and did not work to achieve the goal had the highest mean rating for adolescents and had the largest difference in mean ratings (more than 0.50 or a half-point difference) between the adolescents and parents with higher ratings for the adolescents.
Figure 1
*Likelihood of Engaging in Dog-Assisted Strategies*

- Walking dog with others: 4
- Bringing dog to dog park or hiking trail: 3
- Playing with dog when feeling stressed: 2.5
- Practicing school presentations in front of dog: 2
- Talking about dog in conversation with new friend or acquaintance: 1.5
- Show photos of dog in conversation with person you don’t know well: 1
- Petting dog before something potentially stressful or uncomfortable: 3.5
- Interacting with dog after something stressful or uncomfortable: 3
- Having dog around while meeting new people: 2
- Learning more about dog’s comfort levels in different settings: 1
- Trying out ways of communicating with others with dog: 4

Youth (blue) | Parent (red)
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Figure 2
*Likelihood of Engaging in General Strategies with a Coach*

- Learning more about strategies for social interaction & participation: 4
- Learning about relaxation strategies (e.g., breathing, meditation): 3.5
- Trying out ways of communicating with others: 3
- Talking about ways to address challenges: 2.5
- Working on making plan to achieve goal: 2
- Working on setting goals: 1.5
- Reviewing what strategies worked & did not to achieve goals: 1

Youth (blue) | Parent (red)
Coach Session Preferences

As shown in Figure 3, only one of the five session preferences, working with own friend to achieve a goal, was rated above 3 (somewhat likely) for the adolescents. Meeting new people involved in the program, working with another teenager in the program, and bringing family to the sessions had mean ratings between 2 and 3 (somewhat unlikely; somewhat likely). Bringing a friend to the session had a mean rating of 2 for the adolescents. Overall, the parents had higher mean ratings than the adolescents for items related to coach session preferences, with bringing a friend to sessions and meeting new people in the program being rated somewhat likely and working with friend to achieve goals and bringing family to sessions rated between 3 and 4 (somewhat and very likely). Also, there were larger differences in mean ratings between the parents and adolescents (more than 0.75 or three quarters of a point difference) in two areas (bringing family member to coaching session, bringing a friend to coaching session), with higher ratings for the parents.

Figure 3
Likelihood to Engage in Coach Session Preferences

Discussion

Overall, the results provide valuable feedback from the adolescents with social anxiety and their parents to inform the design of a future modification of SPAN incorporating pet dogs and insights for those working with adolescents with social anxiety. The participants’ responses highlight the value and important features of the dog and adolescent relationship as well as the necessity of addressing social participation in adolescents with social anxiety. In addition, the results provide support for the proposed potential benefits of individualized coaching (with college student coaches) in addressing each participant’s unique needs and the importance of the program’s adaptability. Results from Phase 1 and Phase 2 of the study will be discussed separately, with related findings highlighted.
Phase 1

Phase 1 interviews with the adolescents focused on their social participation experiences, existing strategies to manage social anxiety, and their interactions and relationships with their pets.

Social Participation Experiences and Existing Strategies

Consistent with the literature, the participants in this study reported difficulties in many areas of social participation, such as difficulties with large group interactions, small group and individual interactions, and interactions with new or unfamiliar people (Clarke & Fox, 2017; Kashdan & Herbert, 2001; Lipsitz & Schneier, 2000; Maes et al., 2019; Miers et al., 2013). The most frequently reported strategy to cope with social anxiety that was highlighted in the interviews was seeking out comfort from a peer or family member who is familiar to the participant (“comfort person”). In addition, the participants reported avoidance and social isolation as strategies to address social stressors, in which they actively averted situations that involved that stressor or isolated themselves to avoid social stressors in general. This result aligns with the research that individuals with social anxiety experience fewer social contacts and are less involved in social activities because of the stress associated with them (Kashdan & Herbert, 2001; Lipsitz & Schneier, 2000).

Preparatory strategies, such as talking to themselves before the event and planning a conversation before an event, were also common strategies used by the participants. Talking about a common interest in conversations was also a strategy noted by the participants, as was talking about their dog as a topic of conversation as a strategy to address social stressors. The variety of strategies discussed in these interviews also demonstrates the necessity for individualized person-centered approaches to social anxiety, as there is variation in the strategies that different adolescents might wish to use.

Pet Dog Interaction and Relationships

The results were consistent with the existing evidence that indicates dogs are a source of comfort for individuals with social anxiety (Ein & Vickers, 2018; Hoagwood et al., 2017; Jones et al., 2019). For example, the participants reported that they sought out their pet dog and engaged in activities with their dog to cope with social anxiety. Although not mentioned by the adolescents, it would seem like seeking out their pet dog as a source of comfort (“comfort pet”) would be a useful strategy, especially when a “comfort person” (the most frequently reported social anxiety coping strategy in the Phase 1 interviews) was not immediately present or available and vice-versa. The interactions the adolescents reported having with their pets informed the development of pet-dog-assisted strategies that will be included in the future modified SPAN program.

With the goal of maximizing effectiveness, the SPAN modification will build on existing strategies and incorporate the individuals’ pets into the goal-planning intervention. For example, one strategy to include in the modification is integrating their pet dog or other pets into conversations as a topic of common interest. The participants could discuss their pet, with or without their pet being present, and the dog could act as a buffer for social stress by directing the conversation to a comfortable topic or the attention of the situation of the adolescent. Other strategies include practicing interactions or social stressor situations with their dogs, interacting with the dog to relieve anticipatory and post stressor anxiety, and planning activities that involve the dog as a buffer for social stress by drawing attention off the adolescent with social anxiety.

Phase 2

The Phase 2 online surveys focused on rating the likelihood of engaging in dog assistive and general strategies to manage social anxiety, promoting social participation, and engaging in different
components of the future modified SPAN intervention, particularly the coaching component. As mentioned, the strategies identified by the adolescents in the Phase 1 interviews were incorporated into the Phase 2 surveys.

**Dog-Assisted Strategies**

The participant responses to the Phase 2 online surveys were consistent with the Phase 1 interview results that the adolescents’ dogs were sources of comfort and that having them present might increase the likelihood of engaging in activities with others. All of the participants reported that they pet or cuddle their dog to relieve social stress. In addition, the adolescents rated five of the 11 strategies on the higher end of the 4-point scale (M > 3.7), suggesting they were more likely to engage in these strategies (i.e., bringing the dog to a dog park or hiking trail, playing with the dog, talking about the dog, petting the dog, and interacting with the dog after a stressful situation). Also, a variety of strategies incorporating their dog were identified by each adolescent, highlighting the importance of leveraging each adolescent’s existing strategies and providing them with a range of potential strategies to use or modify, if needed, in the future modified SPAN intervention for use with adolescents with social anxiety.

The participants’ responses highlighted the potential benefits of working in the existing dog-human relationship. By incorporating their own family dogs, the dog is most often present at their home when they are, and there is a preexisting supportive relationship on which to build. In addition, integrating challenging social activities with their pet could function as a motivator to support engagement and goal attainment in areas that may produce social stress. When compared to the general coaching strategies listed on the Phase 2 online survey, the dog strategies received slightly higher mean ratings from both adolescents and parents/guardians, suggesting that the inclusion of the participants’ dogs would likely provide an additional source of motivation for and comfort when engaging with others in daily life. It is unclear why there were larger differences in mean ratings (close to a half-point difference) on two dog assistive strategies (walking dog with other people; having a dog around while meeting new people) between the adolescents (M = 3.57; 3.43, respectively) and parents (M = 3.0; 3.0, respectively) with higher ratings for the adolescents. One plausible explanation is that these particular strategies might be used more in the neighborhood or community, and the parents might not have observed or considered their potential benefits compared to the adolescents. However, these findings might be specific to this sample and cannot be generalized to the larger population as with all study findings.

The only pet strategy that received a lower mean rating (< 3; below somewhat likely) was practicing school presentations in front of your pet. This strategy may have been rated lower than other strategies because of a preference for practicing this with a comfort person who could provide constructive feedback, a desire to avoid the distress that might be induced by a realistic practice scenario, or a lack of desire to practice their presentation in front of their dog or anyone. Again, this strategy may be beneficial for some participants and not others, which is why the flexibility and individualized person-centered nature of the future modified SPAN program incorporating pet dogs will be essential for supporting the participants’ social participation.

**General Strategies with Coaches**

The adolescents indicated that that they were somewhat to very likely to use six of seven of the general strategies used with coaches. The strategy with the highest mean rating by the adolescents (M = 3.72; closest to very likely) was reviewing which strategies worked or not to achieve goals. This strategy is a part of the existing goal-planning framework used in SPAN called “Goal, Plan, Do, Review,” which involves developing a goal, creating a plan to achieve it, implementing the plan, and then reviewing
progress and making refinements if needed. Of note, ratings between the adolescents and parents (M = 3.17; above somewhat likely) showed the greatest disparity for this strategy, which might be because of the parents not knowing the extent to which this strategy might be deemed useful for their adolescent with social anxiety. Other strategies used as part of this framework (talking with coach about ways to address a specific challenge, working with coach to set goals, and working with coach to make a plan to achieve your goal) were rated more highly as well, suggesting that these existing SPAN components previously used with AYA with acquired brain injuries (Bedell et al., 2023; Wade et al., 2018) might be well-received by adolescents with social anxiety.

Learning about relaxation strategies was the only strategy surveyed that was rated, on average, at the lower end of the scale by adolescents (M = 2.86; below somewhat likely). The lower rating of this strategy may suggest that the participants want to learn strategies beyond the typical breathing and relaxation strategies taught to address anxiety. Coaching can be a new and supportive method of addressing social anxiety, and although it may incorporate relaxation and breathing strategies, the main modality of the intervention is the coaching relationship and support for goal planning via scaffolding, practice with a safe person, assistance with goal planning, monitoring progress, and modifying goals and/or plans as needed (Kessler & Graham, 2015; Novak, 2014; Wade et al., 2018).

Intervention Design and Coaching Session Preferences

When asked about their thoughts on the proposed combination of coaching and dog-assisted strategies, 50% of the adolescents reported they supported the current intervention design. Of those who suggested modifications, the most common centered around the need for the program to be adaptable to dog temperament and to be able to make situational adaptations for places where bringing a dog may not be allowed. For example, the students are not permitted to bring their dog to school (unless it is a service dog), and, therefore, dog-related strategies in school social-stressor situations must be able to be modified to be performed without the physical presence of the dog.

Overall, the adolescent ratings were lower than the parent ratings, particularly in relation to bringing others into the coach sessions. For example, when asked about bringing a family member to a coaching session, mean ratings for the adolescents were on the lower end of the scale (M = 2.29; closer to somewhat unlikely), whereas mean ratings for the parents and guardians were rated much higher (M = 3.5; between somewhat and very likely). A plausible explanation for this large (> 1 point) difference is that the adolescents are at a point of emerging independence and are wanting more autonomy, whereas the parents are still wanting to be involved in some way to ensure that the adolescents are safe and have a positive experience. Although one adolescent participant interviewed in Phase 1 of the study identified that they would engage in a future program if another peer they are familiar with was also involved, mean ratings for bringing a friend into coaching sessions (in Phase 2 survey) were the lowest of all ratings by the adolescents (M = 2.0), whereas the parents rated these items more highly (M = 3.0). However, mean ratings for working with a friend to achieve a goal outside of the coaching session were much higher for the adolescents (M = 3.28), and also higher for the parents (M = 3.4), suggesting that many of the adolescent participants would want to keep the sessions closed to themselves but involve others from their lives in the other aspects of the program, such as sharing information about their social participation goals, plans and strategies, and getting additional support to achieve their goals (i.e., similar to the existing SPAN intervention). Peer and friend involvement can be tailored to the individual participant’s needs because of the flexibility of the SPAN intervention.
Program Flexibility and Parental Involvement

Flexibility and individualization are two key concepts that consistently emerged in this research. Although a strategy may work or is rated highly for some of the participants, it may not work for all. Infrequently mentioned strategies are still of value to consider for use, as they worked for the participants that identified them. Thus, it will be important that the future modified SPAN intervention provides encouragement and scaffolding for the adolescents to explore and trial a variety of strategies that match their individual preferences and realities. The person-centered coaching and “strategy bank” components of the existing SPAN program are set up to do just this (Wade et al. 2018). For example, the participants (with support from coaches) generate potential strategies that are explored, implemented, and reviewed in terms of their effectiveness. Existing and co-created strategies are entered (or “deposited”) into the strategy bank section of SPAN goal-planning app. Strategies used for one goal can also be reviewed and repurposed for other goals, if desired.

The type and extent of parental involvement in the program is another area that will likely require individualization and flexibility. While the parents and guardians and adolescents agreed on many of the program elements, there was most disparity in their responses related to coaching session preferences. Because of the age range targeted in this intervention, parental involvement and consent will be a significant part of the program, and it will be important to consider the fine balance between type and extent of parental involvement and adolescent autonomy to support goal attainment and independence. The extent of parental involvement may need to be considered on a case-by-case basis based on parental and adolescent requests, as is done in the current SPAN intervention used with other populations (and without the pet dog component) by keeping parents updated on their child’s weekly progress to allow them the opportunity to be involved by reinforcing and further supporting social participation goal achievement.

Conclusion

The results of this study provided key feedback to inform the development of a future SPAN modification for adolescents with social anxiety incorporating pet dogs and suggest that most, if not all, of the key SPAN components may be acceptable and beneficial to adolescents with social anxiety. The existing coaching and goal planning (“Goal, Plan, Do, Review”) components of SPAN along with the pet-dog-assisted strategies will likely add to the existing support of the pet relationship and motivate adolescents to participate in social participation goal activities. In addition, the variety of strategies used (with and without their dogs) to manage social anxiety and the likelihood in which they might be used suggests that the intervention must be flexible and personalized to support the needs of a diverse population of adolescents with social anxiety and their families. In addition to informing the SPAN modification, the results highlighted key social participation challenges, social stressors, strategies and pet-dog activities that can provide insights to occupational therapists and others who work with adolescents with social anxiety and who incorporate animal-assisted activities into their practices.

The study also has limitations. Data were collected from a small group of adolescents and their parents from the Greater Boston area; and, because of the small sample size, the results may not have been robust enough to reach saturation. Therefore, while the results of this study are informative and provide important insights, the results are potentially biased toward the small, self-selected sample and cannot be generalizable to the broader population. Once the modified SPAN intervention has been created for adolescents with social anxiety (incorporating pet-dog and other strategies to manage social anxiety), future research will examine its feasibility, usability, and potential benefits because this has not yet been done. As this is an iterative design process, additional feedback will be gathered in this future research to inform ongoing and as needed revisions.
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