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'Play Skills' for Shy Children: Development of a Social Skills Facilitated Play *Early Intervention Program for Extremely Inhibited Preschoolers*

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The aim of the present study was to develop and provide a preliminary evaluation of a social-skills-based early intervention program specifically designed to assist extremely inhibited preschoolers. Participants were a sample of $n = 22$ extremely inhibited preschool-aged children, who were randomly assigned to either the *Social Skills Facilitated Play* (SST) or *Waitlist Control* (WLC) condition. As compared to wait-list controls, extremely inhibited children who participated in the SST-facilitated play program sessions demonstrated a significantly greater post-intervention decrease in observed socially wary behaviours and a significantly greater increase in social and socially competent behaviours at preschool. Results are discussed in terms of the importance of developing and refining early intervention programs for extremely inhibited young children.

Key words: behavioural inhibition; early intervention; social skills

It is not uncommon for many children to feel somewhat shy or self-conscious when meeting unfamiliar people or encountering new situations. However, about 15% of young children are considered extremely *inhibited*, persistently experiencing fear and anxiety in the presence of peers and frequently withdrawing themselves from opportunities for peer interaction (Kagan, 1997). Results from recent research support the wisdom of non-intrusive early prevention for inhibited young children (Rapee, 2002), who are at increased risk for developing

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anxiety disorders (particularly social anxiety disorder) in later childhood and adolescence (e.g. Hudson & Rapee, 2000). Surprisingly, few intervention programs have been developed to directly target young children prone to social anxiety. Moreover, previous attempts have met with only modest success (Greco & Morris, 2001). The aim of the present study was to develop and provide a preliminary evaluation of a social-skills-based early intervention program specifically designed to assist extremely inhibited preschoolers.

Behavioural Inhibition in Childhood

In early childhood, extreme *behavioural inhibition* (also sometimes referred to as *shyness*) is characterized by the display of wary and reticent behaviours during interactions in novel settings with unfamiliar adults and peers. For example, in the presence of unfamiliar others, inhibited children avoid eye contact, cease talking or playing, turn away, attempt to physically withdraw from the social situation, or seek physical proximity to a parent (Kagan, 1997). Moreover, inhibited children frequently experience anxiety in novel and social contexts to a degree that hinders their abilities to interact successfully with other children and adults (e.g. Coplan, Arbeau, & Armer, 2008; Kagan, Snidman, Zentner, & Peterson, 1999).

Inhibition is quite stable throughout childhood and adolescence (Degnan & Fox, 2007; Fox, Henderson, Rubin, Calkins, & Schmidt, 2001; Rapee & Coplan, in press) and appears to involve biological substrates. For example, compared to their uninhibited counterparts, inhibited toddlers have higher and more stable heart rates, larger pupillary dilation, as well as higher levels of morning salivary cortisol and urinary norepinephrine (e.g. Fox, Henderson, & Marshall, 2001; Fox, Henderson, Marshall, Nichols, & Ghera, 2005; Kagan *et al*., 1988; Schmidt *et al*., 1997).

At preschool, inhibited children are more likely to display *reticent* behaviours, such as watching other children without joining in or staring off into space (Coplan, DeBow, Schneider, & Graham, 2009; Coplan, Prakash, O'Neil, & Armer, 2004). Moreover, during free play at preschool, inhibited young children tend to withdraw from social interaction with peers, are less likely to initiate social interactions with peers, and spend comparatively more time with teachers (e.g. Coplan *et al*., 2004; Coplan & Prakash, 2003; Ladd & Profilet, 1996).

Even in early childhood, inhibited children are also prone to a host of socio-emotional problems. For example, compared to their more sociable peers, inhibited preschoolers demonstrate deficits in social competence, lower self-esteem, less positive coping strategies, and more internalizing problems (Bohlin, Hagekull, & Andersson, 2005; Coplan *et al*., 2004, 2008; Eisenberg, Shephard, Fabes, Murphy, & Guthrie, 1998; Kienbaum, Volland, & Ulich, 2001; Weeks, Coplan, & Kingsbury, 2009). Extremely inhibited children are also more likely to experience other problems related to early school maladjustment, including peer rejection, social isolation, loneliness, academic difficulties, and school refusal (Coplan, Closson, & Arbeau, 2007; Kearney & Silverman, 1990).

The long-term outcomes of inhibition in adolescence and adulthood include feelings of loneliness and depression, lower self-worth, a less active social life, and delays in adult life events such as work-related achievements, marriage, and parenthood (Caspi, Elder, & Bem, 1988; Rubin, Chen, McDougall, Bowker, & McKinnon, 1995). Moreover, extreme behavioural inhibition in early childhood appears to represent a precursor to the later development of clinically diagnosed social anxiety disorder (e.g. Neal & Edelmann, 2003; Fox *et al*., 2005; Rapee & Coplan, in press). Indeed, results from a growing number of both retrospective

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and longitudinal studies have demonstrated empirical links between inhibition in early childhood and the development of anxiety disorders (particularly social anxiety disorder) in later childhood, adolescence, and adulthood (Biederman *et al*., 1990; Rosenbaum, Biederman, Hirshfeld, Bolduc, & Chaloff, 1991; Schwartz, Snidman, & Kagan, 1999; Van Ameringen, Mancini, & Oakman, 1998).

Early Intervention and Treatment

The most widely employed treatments for anxiety disorders in older children and adolescents involve cognitive-behavioural therapy (CBT). Such CBT programs for youth typically consist of a combination of psychoeducation, somatic management, cognitive restructuring, problem solving, exposure, and relapse prevention (e.g. *Coping Cat Program*, Kendall, 1990). There is well-established empirical support for the efficacy of CBT for youth with anxiety disorders (e.g. Velting, Setzer, & Albano, 2004). However, because of the cognitive demands of CBT, such programs are not intended for children under 8 years of age (Grave & Blissett, 2004). Silverman and Berman (2001) argued that the increased use of peers and a greater focus social skills training may improve CBT treatment outcomes for anxious children and youth.

The current study involved preschool-aged children who, although extremely inhibited, had yet to be diagnosed with a clinical anxiety disorder. It should be noted that social anxiety disorder can be diagnosed formally in young children, but this is done very infrequently. Most previous intervention studies in this area have targeted socially withdrawn children, who engage in a comparatively lower frequency of peer interaction; anxiety is not considered in the selection of participants. As well, most interventions to date have focused on school-aged children (see Greco & Morris, 2001, for a detailed review).

A wide range of intervention strategies has been employed, including 'implosion' exposure to group activities (e.g. Lowenstein, 1983) and contingent reinforcement procedures (e.g. Lindeman, Fox, & Redelheim, 1993). Other interventions have made more extensive use of peers. Peer-mediated interventions may include providing peers with incentives or training to increase their rate of positive social interaction, or pairing withdrawn children with more sociable peers (e.g. Christopher, Hansen, & MacMillan, 1991; Fantuzzo, Stovall, Schachtel, Goins, & Hal, 1987).

The most popular intervention strategy for socially withdrawn children has been *social skills training* (SST). Most SST programs involve training in verbal and non-verbal communication skills, and incorporate components of coaching, modeling, and social-problem-solving training (Schneider, 1992). Some SST programs have demonstrated moderate short-term success in enhancing the social skills of withdrawn children and adolescents (e.g. Bienert & Schneider, 1995; Christoff *et al*., 1985; Schneider & Bryne, 1987). However, other SST programs have produced inconsistent findings and treatment effects that fail to generalize from one setting to the next (see Schneider, 1992).

Only a handful of studies have specifically targeted socially withdrawn preschoolers. Furman, Rahe, and Hartup (1979) demonstrated an increase in post-treatment observed social interaction as compared to controls for socially withdrawn preschoolers who participated in a series of play sessions with younger peers. Using a multiple-baseline procedure, Hodgens and McCoy (1990) demonstrated a significant increase in observed positive verbalizations to peers and inviting behaviours in five withdrawn preschoolers who had experienced an intervention that included adult coaching.

DOI: 10.1002/icd

Results from recent research suggest that children may withdraw from social interaction with peers for a number of different reasons (Coplan & Armer, 2007). Thus, the 'socially withdrawn' children in many of these previous studies may have in fact represented a fairly heterogeneous treatment group. As well, many of the previous intervention studies in this area have been characterized as having methodological shortcomings (e.g. very small sample sizes, lack of control group), focused primarily on reducing problems behaviours (e.g. anxiety), and did not extend findings into naturalistic settings (e.g. the classroom) (see Greco & Morris, 2001).

The Current Study

Our review of the extant literature did not reveal any SST early intervention programs specifically designed to assist preschool-aged inhibited children. Thus, we developed an intervention program designed specifically in this regard. The program involved small groups of inhibited preschoolers meeting with trained adult group leaders for weekly sessions that involved systematic modeling of relevant social skills, as well as specific training in social problem solving, emotion-regulation strategies, and relaxation techniques. Hirschfeld-Becker and Biederman (2002) included these techniques in their 'components of an effective child intervention' (p. 168) for young children at risk for developing anxiety disorders. Furthermore, we complemented brief didactic SST with group play designed to encourage positive social interaction and to provide an opportunity for the adult leaders to prompt and reinforce *in vivo* use of targeted skills (Schneider & Bryne, 1987).

Baseline and outcome measures included multi-source assessments of child social interaction with peers, social skills, social anxiety, and other internalizing problems. In particular, given previous questions about the generalizability of SST results into the classroom (Schneider, 1992), we were particularly interested in evaluating changes in inhibited preschoolers' social behaviours with peers during free play at preschool. We hypothesized that as compared to a waitlist control group of inhibited children, inhibited children who experienced the intervention program would display a greater increase in observed social participation and socially competent behaviours, as well as reduced anxiety. As well, we expected that inhibited children who experience intervention would demonstrate a greater reduction in teacher-rated social anxiety and internalizing problems, as well as a comparative increase in teacher-rated social skills.

METHODS

Participants

The participants in this study were a targeted sample of $n = 28$ (14 boys and 14 girls) extremely inhibited preschool children ($M_{age} = 56.25$ months, SD = 5.99, age range 48–66 months). Children were attending local childcare centers, nurseries, and preschools in Ottawa, Canada. The sample was 72% Caucasian, with a variety of other ethnicities also represented (e.g. 9% Asian and 5% Black). Approximately 15% of mothers and 22% of fathers had completed high school, 59% of mothers and 54% of fathers had a college/university degree, and 25% of mothers and 23% of fathers had at least some graduate school training.

Participants were drawn from two cohorts of children who were targeted in the fall of consecutive school years (Cohort $1-n = 13$; Cohort $2-n = 15$).

DOI: 10.1002/icd

Information letters were sent home with all children in each participating preschool class asking parents if their child was 'shy' and if they might be interested in participating in an ongoing invention program for shy children. Parents who expressed a preliminary interest were then sent screening questionnaires to assess whether their child met target criteria for inclusion in the study.

Target criteria to be included in the study were as follows: (1) age within 48–66 months at the time of recruitment; (2) parent-rated behavioural inhibition scores above the top 15% cutoff on the *Behavioural Inhibition Questionnaire* (BIQ, see below);[1] (3) scores below the established 'borderline' range on the conduct problems and hyperactivity-inattention subscales of the *Strengths and Difficulties Questionnaire* (SDQ, see below); (4) no known developmental or other psychiatric disorder; and (5) child and at least one parent willing to participate.

Children were randomly assigned to with the *Social Skills Facilitated Play* (SST, $n = 13$, Cohort 1, $n = 6$, Cohort 2, $n = 7$) or the *Waitlist Control* (WLC, $n = 15$, Cohort 1$-n = 7$, Cohort 2$-n = 8$) condition.[2] Two children in the SST group (one from each cohort) withdrew from the study part way through the sessions and no post-intervention data were available. Four children in the WLC group (two from each cohort) also withdrew before post-intervention data were collected. Thus, the final sample consisted of $n = 11$ children (7 boys and 4 girls) in the SST group and $n = 11$ children (4 boys and 7 girls) in the WLC group.

Measures and Procedures

Overview

For both cohorts, participants were recruited near the start of the preschool year (September). Time 1 (baseline) assessments were collected in October and early November, and included both behavioural observations and teacher ratings. Intervention groups were conducted in November and December, with a 'booster' session in early January. Time 2 (follow-up) assessments were conducted in January and February, and consisted of the same observations and teacher ratings. The WLC group received an alternative intervention at the completion of the study (i.e. in the spring of each year—see below for details).

Maternal ratings

In September, mothers first completed the *Behavioural Inhibition Questionnaire* (BIQ, Bishop *et al*., 2003). The BIQ is a 30-item scale designed to assess behavioural inhibition (BI) in peer situations and in response to behavioural challenges, separation, performance situations, unfamiliar adults, and general novel situations. Bishop *et al*. (2003) demonstrated the factor structure and psychometric properties of this measure, including very high internal consistency ($\alpha = 0.95$) and moderate-to-high 12-month stability ($r = 0.78$) and teachers ($r = 0.58$) for maternal ratings. In terms of validity, maternal reports of child behavioural inhibition were shown to be significantly associated with indices of behavioural inhibition (with *r's* ranging from 0.46 to 0.60, all *p*'s < 0.01) as assessed using the standard observational protocol developed by Kagan *et al*. (1988). In the current sample, the BIQ also demonstrated extremely high internal consistency ($\alpha = 0.94$).

Mothers also rated children's psychosocial adjustment (for screening purposes) using the *Strength and Difficulties Questionnaire* (SDQ; Goodman, 1997). The SDQ is a frequently employed assessment of child behaviour problems and been demonstrated to have strong psychometric properties (Goodman, 2001).

DOI: 10.1002/icd

Moreover, results from recent meta-analyses (Warnick, Bracken, & Kasl, 2007) characterized the SDQ (along with the *Child Behaviour Checklist*) as efficient screeners for the identification of psychiatric difficulties in children and youth. Of particular interest for the present study were subscales assessing child *conduct problems* (five items, 'often fights with other children or bullies them'), and *hyperactivity* (five items, 'constantly fidgeting or squirming').

Behavioural observations

At Time 1 and Time 2, behavioural observations were collected for both SST and WLC children. Children's behaviours during indoor free play at preschool were observed and coded ('live off the floor') over a three-week period using an adapted version of the *Play Observation Scale* (POS; Rubin, 2001). Observational data were collected by four trained research assistants who were each assigned a subgroup of children to observe. Each child was observed (in random order) for a series of 10-second intervals until 15 min of behavioural coding data were collected for each child on a single day. Observers then repeated this procedure until they had observed their assigned children on at least three separate days for a total of 60 min (360 coding intervals) per child. All observers were blind to the status of the children they were observing.

For each coding interval, the child's predominant free-play behaviour was recorded (for a more detailed description of this coding scheme, see Coplan, 2000), including both social participation (e.g. solitary, group) and the cognitive quality of play (e.g. constructive, dramatic). Of particular interest for the present study were the behavioural codes of *reticent* behaviours (e.g. unoccupied and onlooking behaviours); *solitary behaviours* (e.g. playing at a distance of greater than feet from other children); *interactions with teacher*; and *social play* (e.g. group interactions and conversations with peers). In addition, 10-s intervals that included the display of *anxious* behaviours (e.g. automanipulatives, crying), *positive affect* (e.g. smiling and laughing), and *social initiations* made to peers (e.g. conversation bids) were also recorded. Raw scores were proportionalized by dividing by the total number of observed coding intervals.

After initial training, coders established inter-observer reliability in September (i.e. prior to the start of baseline coding) in a *separate* sample of preschoolers (i.e. who were not participating in the intervention study). Pairs of observers coded children's free play behaviours at preschool. Each pair of observers collected 540 codes of data (i.e. 90 min), representing approximately 27% of the amount of observational data they would later go on to collect during the study. Cohen's kappa between pairs of observers ranged from 0.80 to 0.86. During baseline and follow-up data collection, all observers met weekly with the principal investigators to review and discuss coding decisions in an attempt to avoid 'coder drift'.

Two conceptually derived aggregate variables were then created. First, *reticence-wariness* consisted of the average of the (standardized) observed proportions of intervals of reticent behaviours, solitary behaviours, interactions with teachers, and anxious behaviours. Second, *social-competence* included social play, peer conversation, positive affect, and social initiations made to peers.

Teacher ratings

At Time 1 and again at Time 2, teachers completed the *Child Behaviour Scale* (*CBS*, Ladd & Profilet, 1996), a 35-item scale designed to assess preschool children's adjustment with peers. Of particular interest for the present study were the subscales of *anxious* behaviour (4 items, 'tends to be fearful or afraid of new

DOI: 10.1002/icd

things or new situations') and *prosocial* behaviour (7 items, e.g. 'cooperative with peers'). Teachers were kept blind to the status of the children they were rating.

Description of intervention

The intervention consisted of the newly developed '*Play Skills for Shy Children*' program, which was based on a review of the components of previous interventions that have shown some success with young socially withdrawn children. Children met weekly for seven one-hour sessions in November and December and then later in January for one booster session. Groups were mixed-gender and included either $n = 6$ (Cohort 1) or $n = 7$ (Cohort 2) children. Groups were co-led by two female leaders with previous education and working backgrounds in early childhood education. The leaders were trained by the two senior authors. The groups were held in a play room at a local community center. The room was decorated with posters on the walls and appropriate toys and games were provided for the children. A digital video camera was also installed to record all the sessions.

The general format of the intervention groups consisted of: (1) five minutes of unstructured free play; (2) ten minutes of 'circle time'; (3) forty minutes of leader-facilitated free play; and (4) five minutes of a structured positive social activity. A detailed procedure manual for this intervention is available upon request from the authors. In the following sections we provide a brief description of the various components of the intervention program.

The *initial free play period* was designed as a warm-up session for children (and parents). During this period, children were given time to become more accustomed to the environment of the playroom and the presence of other children. We also used the warm-up period to gently 'coax' parents outside of the play room to a waiting area. Not surprisingly, many of the children (and parents) were somewhat resistant to parental separation (particularly during the first few weekly sessions).

The *circle time sessions* were used to provide didactic content. Group leaders focused on a specific set of appropriate social skills each week. Songs and games were used as age-appropriate ways of conveying the content, minimizing didactic lessons to the extent possible. Puppets were also used by both group leaders and children to facilitate interaction during circle time. The didactic content focused on a limited number of social skills that were selected for their specific appropriateness in facilitating social interactions for young inhibited children. During the first three sessions, the didactic content focused on skills related to initiating and maintaining peer interactions (e.g. introducing yourself, asking someone to play, saying something nice about someone, sharing likes and dislikes, making eye contact during conversations). During the next three sessions, content shifted to understanding and expressing feelings and the regulation of affect (particularly fear). For example, children practiced identifying and happy and sad facial expressions and describing these feelings in themselves and others. Various age-appropriate strategies for coping with disappointment (i.e. when someone does not want to play with you) were also discussed. Children were also taught and practiced a simple relaxation breathing technique ('blowing up a balloon with your tummy') to use when they felt nervous or scared. The final two sessions were used for review and practice.

The *leader-facilitated free play* component was designed to mirror free-play sessions in daycares and preschools. Children were generally free to play with the available materials and people as they saw fit. Leaders interspersed into the

DOI: 10.1002/icd

sessions to guide and facilitate social participation. For example, a session leader might approach a child playing along and gently prompt interaction (e.g. 'is there some one you might like to build a building with?').

Leaders also prompted, modeled, and reinforced the specific social skills that had been previously discussed during circle time (e.g. initiating conversation, approaching another child in a bid to play together). For example, when witnessing a child making eye contact during a conversation with a peer, the leader might say, '____, it is good to see you looking right into ___'s eyes while you are talking to him'. If a child was looking at a peer but not joining in, the leader might say, '___, do you remember how to ask some one to let you play with them?'

As well, leaders provided individual support and reassurance to children when they displayed signs of anxiety and social fear. For example, when intervening with a child who appeared frightened, the leader might acknowledge the child's feelings (e.g. 'I see that you are feeling a little scared now'), provide reassurance (e.g. 'it's ok to be scared sometimes', 'your mom is going to be back very soon'), and then spend a few minutes with the child providing comfort and reviewing relevant techniques learned in circle time (e.g. relaxation breathing).

The final few minutes of each session included all the children in a *structured positive social activity*. The purpose of this activity was to provide children with a 'fun' social experience before leaving each week. After pilot testing, we selected 'parachute games' as the final activity each week as an activity that was both socially interactive and also generated frequent expressions of positive affect among children.

Session leaders met regularly with the principal investigators to review the video tapes of the SST group intervention sessions. The leaders were provided with detailed feedback and suggestions for improvement regarding their behaviours during all components of the intervention sessions. The meeting also included a review of the content of upcoming sessions. This was done to encourage and monitor the leaders' continued adherence to treatment protocol.

Waitlist control group protocol

During the baseline, intervention, and follow-up periods of the study, WLC children and their parents did not have contact with study personnel except to arrange the various components of data collection. At the completion of the study in each year, the WLC was offered an alternative intervention program. This program consisted of four weekly hour-long parenting education and training workshops. This program was developed by the principal investigators drawing upon previous parenting education and training programs designed for young inhibited children and older anxious children (e.g. Rapee, Kennedy, Ingram, Edwards, & Sweeney, 2005; Spence, Donovan, & Brechman-Toussaint, 2000).

RESULTS

Preliminary Analyses

The SST and WLC groups did not differ significantly from one another in terms of child age, $t(20) = 0.79$, *ns*, or gender, $\chi^2(1, n = 22) = 1.63$, *ns*. However, results from preliminary analyses indicate some potential differences between the SST and WLC groups in terms of baseline measures. Given the relatively small n, it is not surprising that the randomization procedure might not have resulted in equivalent groups on some measures. For example, the difference between the

DOI: 10.1002/icd

two groups in terms of baseline observed social competence approached significance ($M_{SST} = -0.35$, SD = 0.99; $M_{WLC} = 0.35$, SD = 0.91; $t(20) = 1.74$, $p < 0.10$). As such, the analytical strategy selected was to employ an Analyses of Covariance approach, where Time 2 scores were compared between groups while controlling for Time 1 scores.

Comparisons of SST and WLC Children

Behavioural observations

Two separate ANCOVAS were conducted, comparing SST and WLC children at Time 2 in terms of reticence-wariness and social-competence (while controlling for Time 1 scores). For the standardized aggregate of *reticent-wariness*, results indicated a significant effect of intervention group ($M_{SST} = -0.35$, SD = 0.63; $M_{WLC} = 0.35$, SD = 1.21; $F(1,19) = 4.22$, $p < 0.05$, $\eta^2 = 0.182$). After controlling for Time 1 scores, children in the SST group were observed to display significantly less reticent-wary behaviours post-intervention as compared to WLC children. Time 1 (pre-intervention) and Time 2 (post-intervention) standardized scores for the behavioural observations are displayed in Figure 1.

For *social competence*, results also indicated a significant effect of intervention group, ($M_{SST} = 0.25$, SD = 1.08; $M_{WLC} = 0.35$, SD = 0.89; $F(1,19) = 4.82$, $p < 0.05$, $\eta^2 = 0.202$). Children in the SST group were observed to display significantly more socially competent behaviours post-intervention as compared to WLC children.

Teacher ratings

Two separate ANCOVAS were also conducted comparing SST and WLC children at Time 2 in terms of teacher ratings of anxiety and prosocial behaviours (while controlling for Time 1 scores). For teacher ratings of child *anxious behaviours* (although results were in the expected direction), no significant effect of intervention group emerged, $M_{SST} = 1.29$, SD = 0.33; $M_{WLC} = 1.59$, SD = 0.47; $F(1,19) = 1.66$, *ns*, $\eta^2 = 0.081$. Similarly, for teacher ratings of child *prosocial* behaviours, no significant effect of intervention group was evident, $M_{SST} = 2.26$, SD = 0.44; $M_{WLC} = 2.30$, SD = 0.36; $F(1,19) < 1$, *ns*, $\eta^2 = 0.033$.

DISCUSSION

The goal of the present study was to develop and evaluate the preliminary efficacy of a social skills facilitated play early intervention program for preschool-aged extremely inhibited children. We sought to develop a program that both reduced social anxiety as well as increased social interactions with peers in the naturalistic setting of the preschool classroom. Results provided some initial support for the feasibility of implementing this intervention, and some indications of short-term change in the social behaviours of young inhibited children at preschool. These preliminary findings are an important first step in the process of establishing well-validated interventions for extremely inhibited children.

Intervention Content and Feasibility

To the best of our knowledge, the social skills training (SST) facilitated-play program developed in the current study was the first specifically designed to

DOI: 10.1002/icd

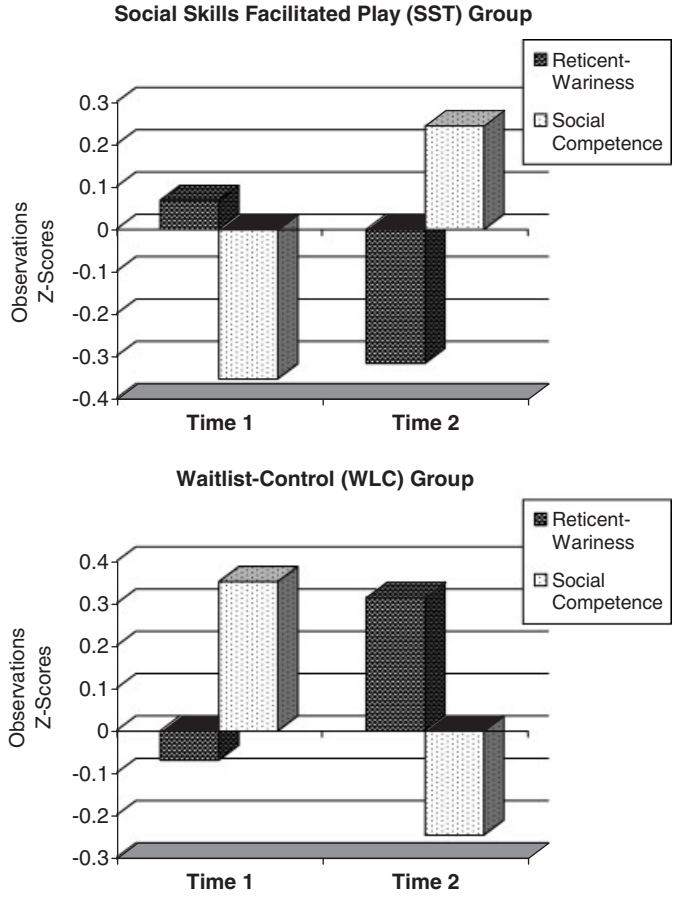

Figure 1. Time 1 (pre-intervention) and Time 2 (post-intervention) standardized scores for behavioural observations in the SST and WLC groups.

target extremely inhibited preschool-aged children. The content of the dyadic skills-teaching sessions was derived from an extensive review of the relevant literature on the social and emotional difficulties experienced by extremely inhibited children. These included modeling of social skills related to the initiating and maintaining social interactions, specific training in relevant associated social-problem-solving abilities, coaching of emotional regulation strategies (particularly with regards to anxiety and fear), and instruction in age-appropriate relaxation techniques (Hirschfeld-Becker & Biederman, 2002). Moreover, expanding on traditional social skills training paradigms, we also provided an extensive peer play component, which promoted social interaction in a context where the adult leaders could also prompt and reinforce *in vivo* use of the targeted skills (Schneider & Bryne, 1987).

Anecdotally, the content of the intervention appeared to be very well-received by participating children. Although 2 (out of 13) children in the intervention groups withdrew from the study without completing the sessions, this rate of participant attrition (approximately 15%) is consistent with previous social-skills intervention research with individuals diagnosed with social

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anxiety disorder (Federoff & Taylor, 2001). This can also be viewed as preliminary evidence of the feasibility of this program for implementation on a larger scale.

Intervention Efficacy

As compared to wait-list controls, extremely inhibited children who participated in the SST-facilitated play program sessions demonstrated a significantly greater post-intervention decrease in observed socially wary behaviours at preschool. These behaviours included reticent and solitary behaviours, interactions with teachers, and overt demonstrations of anxiety.

As mentioned previously, inhibited preschoolers are more likely to display reticent (e.g. onlooking) and anxious behaviours, withdraw from peer interaction, and spend more time with teachers, (e.g. Coplan & Prakash, 2003). Moreover, it has been suggested that these associated behaviours, in and of themselves, contribute towards peer-relationship difficulties and other adjustment problems that inhibited children display in early education settings (Coplan *et al*., 2008). Thus, the observed reduction in these behaviours post-intervention should be considered a promising result, with potentially promising implications for extremely inhibited children's socio-emotional functioning.

Inhibited children typically display poorer social skills and lower levels of peer interaction at school (e.g. Bohlin *et al*., 2005). Thus, it is also noteworthy that inhibited preschoolers in the intervention group not only experienced a significantly greater decrease in socially wary behaviours but they also experienced a significant *increase* in social and socially competent behaviours, as compared to their waitlist counterparts. These behaviours include group play, peer conversation, social initiations made to peers, and positive affect during peer play. Overall, increases in such positive social behaviours are likely to improve children's social standing in the peer group (Rubin, Bukowski, & Parker, 2006). Moreover, these benefits may be particularly beneficial to inhibited children, who appear to be particularly prone to suffering the negative affects of peer exclusion (Gazelle & Ladd, 2003).

Previous intervention studies that employed social skills training for socially withdrawn children have been criticized for their lack of generalization to peer contexts outside the 'training room' (Greco & Morris, 2001). Thus, it is particularly noteworthy that our results included changes in observed social behaviours *at preschool* post-intervention. In this regard, our findings add to the handful of studies that have demonstrated intervention-related change in socially withdrawn children's behaviour in the preschool classroom (e.g. Furman *et al*., 1979; Hodgens & McCoy, 1990). It is worth noting that both Furman *et al*. (1979) and Hodgens and McCoy (1990) employed aspects of peer-mediation in their interventions. Thus, it is possible that the inclusion of the facilitated-play component to the present intervention program increased the apparent generalizability of effects to the preschool classroom.

Unfortunately, results did not indicate significant effects in terms of *teacher* ratings. Inhibited children in the intervention and waitlist groups did not differ significantly in terms of post-intervention teacher ratings of child anxious or prosocial behaviours. There is some evidence that teacher ratings of child behaviours are less sensitive to short-term change than direct observations (e.g. Hundert *et al*., 1999). It may be that longer follow-up times for assessment would be required for these differences to emerge.

DOI: 10.1002/icd

Limitations and Future Directions

The results from the present study provided some encouraging preliminary results in terms of the feasibility and effectiveness of a social skills training and facilitated play program designed specifically to assist extremely inhibited preschool-aged children. Notwithstanding, there are also some important caveats in the current study that must be considered.

To begin with, although larger than some previous studies, our sample size was still quite small. The implications of this are evident at various stages in the study. For example, despite our best effects at randomizing group assignment, the small sample size likely contributed to the baseline differences in the social behaviours of our intervention and waitlist groups. As well, a larger sample may have allowed for some of the 'in the right direction findings' to reach statistical significance. Replication and extension of these findings with a larger sample is clearly warranted. There were also other 'methodological shortcomings' in the present study that must be acknowledged. For example, despite regular coder meetings, it is possible that some 'coder drift' occurred over the course of the study. As well, the current design did not control for children's degree of therapist contact.

It will also be important for subsequent research to demonstrate the longer term effectiveness of this intervention program. Indeed, it remains to be seen whether these effects will persist beyond the immediate short-term period following intervention. To achieve longer term effects, it will likely be necessary to do more than just 'train and hope' (Stokes & Baer, 1977). Without maintenance programs, the results of social skills training do not generalize well to other settings or sustain over time (Berler, Gross, & Drabman, 1982). In addition, in order to be increasingly effective, future intervention programs for inhibited preschoolers will also likely need to incorporate parents. Parents play a critical role in the development of inhibition and social anxiety (Wood, McLeod, Sigman, Hwang, & Chu, 2003). Moreover, results from two recent studies have indicated that education and training programs for parents can reduce social anxiety in inhibited young children (Rapee *et al*., 2005). Parental involvement also appears to improve treatment outcomes for school-aged anxious children (e.g. Spence *et al*., 2000).

Finally, it may also be possible to increase the effectiveness and generalizability of this intervention by employing a school-based approach. School-based programs reduce barriers to treatment (e.g. transportation), reach a broader range of children, and tend to reduce participant attrition. Such programs also appear to reduce stigmatization, enhance peer support, and promote healthy development at the classroom level (Barrett, Lock, & Farrell, 2005). Moreover, a program delivered in the school context allows for practicing skills in 'real-world' situations, thus increasing the likelihood of outcomes generalizing to different settings (Evans, Langberg, & Williams, 2003).

We are hopeful that the preliminary results of this study will serve as a stepping stone to more extensive research related to early intervention for young inhibited children. This project has at least established that extreme inhibition among young children is amenable to change. Given the future risks associated with extreme inhibition in childhood, we must continue efforts to develop appropriate and effective prevention, intervention, and treatment programs.

Notes

1. We established the 'top 15% cutoff' for the BIQ using data from a previously recruited *unselected* sample of $n = 304$ preschool children in Ottawa (168 boys, 136 girls, $M_{age} = 56.36$ months, SD; = 7.58, range 48–66).

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2. Random assignment was employed whenever possible. However, in a few cases, parents and children were not able to participate in the intervention group because of conflicts with originally scheduled activities. These families were offered a place in the WLC group, and thus the opportunity to receive intervention when the study was concluded.

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