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Psychological Intervention for Adolescents Diagnosed with Learning Disorders - "I Can Succeed" (ICS): Treatment Model, Feasibility, and Acceptability

Daphne Kopelman-Rubin, Ph.D.[1,2], Anat Brunstein Klomek, Ph.D.[1,2], Michal Al-Yagon, Ph.D.[3], Laura Mufson, Ph.D.[4], Alan Apter, M.D.[1,2], Mario Mikulincer, Ph.D.[1]
[1]Interdisciplinary Center (IDC), Herzliya, [2]Schneider Children's Medical Center of Israel, [3]Tel-Aviv University, [4]Columbia University

Abstract

This study describes a manual-based psychological intervention for adolescents diagnosed with Learning Disorders (LD), "I Can Succeed" (ICS), and reports on the feasibility of the treatment as an intervention to promote adaptive academic and emotional functioning. The intervention consisted of acute and follow-up phases, over 18 months. ICS focuses on developing skills in three major areas: intrapersonal skills, interpersonal skills and school/community skills. The intervention was administered to 40 adolescents with various types of LD and other co-morbid psychiatric disorders (aged 11-15 years) who were consecutively enrolled in an outpatient child and adolescent psychiatric department. Pre-post changes in outcomes showed significant decrease in adolescents' psychopathology (both externalizing and internalizing problems scales of the Child Behavior Checklist (CBCL)). In addition, significant improvement was shown in hope and effort levels. Fairly high satisfaction was demonstrated, with 97% of the participants reporting that ICS was helpful and that they would recommend it to a friend. The modules most often used were the interpersonal ones. The discussion is focused on understanding the feasibility of this manualized psychological intervention in terms of acceptability, adherence and preliminary changes.

Learning disorder (LD) is one of the most common childhood disorders, occurring in approximately 2 to 10 percent of children and adolescents, depending on the nature of the definitions applied (American Psychiatric Association, 2000). As suggested by the *DSM-IV-TR* (American Psychiatric Association, 2000), children with LD manifest an average IQ level but score substantially lower on standardized tests (reading, writing, and/or mathematics) than expected for age, schooling, and level of intelligence.

Beyond documenting the effects of LD on academic functioning, studies have also provided evidence on these children's and adolescents' susceptibility to diverse socioemotional and behavioral difficulties. Prior studies suggest that children and

adolescents with LD, as compared to their nondisabled peers, tend to experience higher levels of peer rejection and loneliness, a lower sense of coherence and self-esteem, and higher levels of depression, anxiety, and internalizing and externalizing behavior problems (Al-Yagon, 2007, 2010; Estell et al., 2008; Lackaye & Margalit, 2006; Wenz-Gross & Siperstein, 1998; Wiener & Schneider, 2002). Data from cross-sectional and longitudinal prospective studies highlight that LD often co-occurs with other psychiatric disorders, such as attention deficit hyperactivity disorder (ADHD), anxiety disorders, depression, and conduct disorders（Capozzi et al., 2008; Carrol, Maughan, Goodman & Meltzer, 2005; Goldston et al., 2007; Mayes, Calhoun & Crowell, 2000; Sideridis, 2007).

Studies have also examined the attachment and interpersonal relationships of LD adolescents. There is evidence that these adolescents, as compared to their nondisabled peers, are less securely attached to parents and less likely to appraise teachers as a secure base (e.g., Al-Yagon, 2007, 2010; Al-Yagon & Mikulincer, 2004a, Murray & Greenberg, 2001, 2006). Other studies have also highlighted the importance of reliable interpersonal relationships with peers and parents as a protective factor among adolescents with LD (e.g. Al-Yagon, 2007; Al-Yagon & Mikulincer, 2004a; De Civita, 2000; Murray & Greenberg, 2001).

Most of the interventions among children and adolescents with LD have focused on enhancing cognitive and learning skills, such as the reading process, writing abilities, mathematic skills, and memory functioning (e.g. Heath, 2007; Wexler, Voughn, Roberts, & Denton, 2010). Fewer intervention programs emphasize the social and emotional domains especially during adolescence (see Kavale & Mostert , 2004, for review), and most of these include cognitive behavior therapy (Kroese, Dagnan & Loumidis, 1997), social skills training (Vaughn, LaGreca, & Kuttler,1999), academic motivational programs (Brier, 2007), and group treatment methods (Freilich & Schechtman, 2010; Mishna & Muskat, 2004). The goal of these interventions is to reduce the emotional difficulties of LD children, using a problem-oriented approach. In a meta-analysis of studies examining social skills programs for children with LD, Kavale and Mostert (2004) concluded that socials skills training has received limited empirical support. It is recommended that social skills training programs should be "rebuilt" as part of a comprehensive treatment. Even less is known about individual psychotherapy with adolescents. Palombo (2001) suggests that the treatment of these children should include work with parents, teachers, and other professionals who are closely involved.

To the best of our knowledge, there is no manual- based treatment model that addresses both academic and emotional aspects of LD. Taken together, there is a need for an empirically supported comprehensive manual- based psychological intervention program focusing on promoting adaptive academic and emotional functioning of adolescents with LD. The current psychological intervention program (“I Can Succeed”, ICS) attempts to cover the intrapersonal, interpersonal, family, and school-relationship levels. The interpersonal aspects of the intervention are theoretically grounded in Interpersonal Psychotherapy for Depressed Adolescents (IPT-A; Mufson et al., 2004 a, 2004b).

ICS Treatment Description

ICS is a manual-based psychological intervention for adolescents who are diagnosed with learning disabilities. The purpose of ICS is to promote academic and emotional functioning of adolescents with learning disorders and related psychiatric disorders. ICS addresses three major areas: intrapersonal, interpersonal, and school/community level. In the intrapersonal area, ICS attempts to promote self-awareness of both personal strengths and weaknesses, to develop self- direction towards setting goals and establishing priorities, and to provide organizational strategies. In the interpersonal area, ICS attempts to improve interpersonal communication, decision making/problem solving, and self advocacy skills (i.e. learning to express what I need and what would help me). In this area, ICS also attempts to strengthen the adolescent-parent relationship. In the school/community area, ICS attempts to strengthen the family-school relationship by choosing a significant figure at school to support the process and guiding parents about effective communication with school staff about school-related issues.

Based on a review of the theoretical and empirical literature, we included in the ICS manual the following areas as key factors to be addressed in a treatment for individuals with LD: *Self-awareness* - Within this domain, the individual with LD works towards developing a clear picture of where his or her strengths and weaknesses lie, but equally important to this knowledge is the understanding that his or her difficulties or limitations are not an intractable part of his or her personality. *Goal setting and organization* - *Goal-setting* includes realistically understanding the steps involved in accomplishing a task and how they can be achieved. Goals must be specific, yet flexible enough to match concrete circumstances (Raskind, Goldberg, Higgins, & Herman, 1999). *Organization* involves the ability to plan and manage task demands, as well as make order of space, time, and materials (Dawson & Guare, 2010). *Parent and School involvement* - Parents become more knowledgeable and can learn new and valuable ways to help their child. School personnel become major participants in the multifaceted team. *Interpersonal skills* - this area focuses on interpersonal communication, which is an important topic among the LD population (Semrud-Clikeman, 2007). This area includes learning adaptive communication strategies and interpersonal problem solving. *Self-advocacy* - participants learn the process of recognizing and communicating their needs and standing up for their own interests and rights.

The ICS protocol consists of acute and follow-up phases. The acute phase includes 13 once-a-week sessions (over a 3-month period). The follow-up phase includes 6 sessions over 18 months (conducted at 2 weeks, 1, 3, 6, 12 and 18 months after the end of acute treatment). Most of the sessions are individual, while up to 4 sessions may be held with parents. The duration of each session with the adolescent is 50 minutes, except for the first session that is 70 minutes. The intervention includes ongoing work with the adolescent's school. One of the sessions is held at school (with school staff, parents, and the adolescent).

The ICS manual attempts to provide a certain flexibility that enables the therapist to address the specific needs of every adolescent and his/her parents while adhering to a

structured protocol. The modules are implemented in a specific order because the acquisition of one skill is based on the acquisition of the preceding skill. One full session is devoted to each of the modules, except for parent training that is addressed in two sessions. However, the manual enables the therapist to conduct additional in-depth sessions during the acute phase as needed, with a maximum of three additional sessions. Therapists decide collaboratively with adolescents and parents which modules should be addressed more intensively. These three in-depth sessions may deal with one or more issues, depending on the needs of the adolescent and his parents. ICS recognizes that the adolescent may need further treatment, therefore if the current treatment does not progress or should adversities arise that cannot be solved, the therapist refers the family to an alternative suitable treatment or further treatment at the conclusion of the protocol.

ICS focuses on developing skills that strengthen resilience and enhance positive development for adolescents with learning disabilities. Below is a description of the sessions:

Psycho-education and establishing the therapeutic contract (session 1). The first session is devoted to establishing the therapeutic contract and psycho-education. First, the therapist explains in depth the findings of the psychological and educational assessment of the adolescent that he or she completed before treatment. This includes an in-depth description of the adolescent's areas of strength and protective factors as well as learning disabilities and their impact on other aspects of the adolescent's life (e.g., emotional, interpersonal, behavioral). An important component is psycho-education on how the LD influences the adolescent's emotional wellbeing, according to the unique profile of the adolescent and the family. Second, an explanation on the protective factors that have been found to predict success among children and adolescents with LD (e.g., self awareness of strengths and nature of LD, proactive approach, the ability to set academic as well as personal goals, self advocacy skills, getting support from parents and teachers) is given alongside the principles on which the treatment process is based. Finally, a discussion on the adolescent's and parents' commitment to the treatment is held in addition to identifying a contact person at school.

Sessions focused on intrapersonal skills (sessions 4, 5, 7). These sessions are aimed at increasing and promoting self-awareness of both personal strengths and weaknesses (e.g., realizing that one has good memory and broad vocabulary but difficulties with reading fluency), developing self-direction towards setting goals and establishing priorities, and providing organizational strategies.

Self-awareness includes an explanation of the meaning of self awareness, emphasizing the importance of understanding one's strengths alongside one's weaknesses. By using self-awareness questionnaires, the therapist focuses on teaching and developing the skill and identifying the difficulties via examination of three aspects: "What is difficult for me?", "How do I identify the difficulty?" and "How do I predict it?" ("When does the difficulty arise?"). A similar discussion is held about the adolescent's strengths and his or her self-awareness of these skills. The therapist explains the need to expand the adolescent's

knowledge regarding his or her strong and weak areas for pursuing future activities (e.g., behaviors, learning style, interpersonal relationships) and discusses in general the issue of "What is the meaning of success for me?" The goal here is to elaborate on the specific meaning of success for each adolescent.

Self-direction and establishment of priorities includes presentation of the meaning and importance of self-direction (taking responsibility) and establishing priorities. This module focuses on learning and developing the skill of organizing a required task and achieving a particular goal in a given area. The discussion focuses on the examination of a given area and the goals compared with the current state, the adolescent's aspirations in the given area, and how he or she takes action in order to achieve them. The therapist assists in setting goals while giving advice on how to achieve them. For example, if the adolescent's goal is to achieve a better grade on a specific subject, the therapist helps him or her to break this long-term goal into specific and realistic sub-goals and organize his or her tasks so he or she can spend as much time as needed to improve his or her knowledge of that subject.

The focus on organizational strategies includes describing the strategies and their importance and then focusing on learning and developing this skill by means of understanding the organizational habits of the adolescent. Up to three organization skills are taught. One such option is teaching the adolescent how to use his or her mobile phone as a reminder of important things. Another example is thinking about the proper way the adolescent can organize his or her desk before starting school work.

Sessions focused on interpersonal skills (sessions 8, 9). These sessions include the improvement of interpersonal communication, decision making/problem solving, self advocacy skills, and self- promoting skills. The therapist explains the importance of understanding the influence of interpersonal relationships on the adolescent in general and on the learning process in particular. The therapist focuses on learning and developing one interpersonal skill (e.g., communication, decision making/problem solving) each time. Before learning the skill, a discussion is held in which the therapist tries to get an understanding of the adolescent's significant relationships using the Closeness Circle and the Interpersonal Inventory derived from IPT-A (Mufson et al., 2004a, 2004b). In the interpersonal inventory, one or more relationships are examined in depth in order to understand their influence on the adolescent's academic and emotional functioning. After learning about the types of interpersonal difficulties the adolescent experiences, the therapist then chooses one interpersonal skill on which he or she works with the adolescent (e.g., adaptive communication; decision making/problem solving) in order to improve the identified relationship.

Another component of the interpersonal skills module is self-advocacy. The therapist presents and explains the meaning of "self-advocacy" (i.e. learning to say what is it that I need, what would help me, and how can I explain this to others to help find a solution). The therapist focuses on learning and developing the skill and explains how one executes self-advocacy. Then, the therapist practices self-advocacy with the adolescent by role playing.

Sessions focused on strengthening the adolescent-parent relationship (sessions 1, 2, 6). In these sessions, the therapist explains to the parent the importance of supporting the adolescent with LD and establishing a "secure base" for him or her. The therapist helps parents clarify the impact of the learning disability on family life in general and on the parent-adolescent relationship in particular. The therapist guides parents towards strengthening their relationship with their child while establishing a new narrative of "all of us in the face of the learning disability" within the family routine. Using this metaphor, the therapist helps members of the family to see the LD as an external problem that influences the adolescent's life and to work to enhance family cohesiveness in order to deal with the adolescent's problems. Discussion is devoted to examining everyday events and categorizing them into those that strengthen the new narrative as opposed to those that do not. The therapist encourages the parent and adolescent to examine the various events and guides them to identify ways in which they can expand and reinforce the new narrative in the future.

Sessions focused on strengthening the family-school relationship- (sessions 1, 3 and throughout treatment). The adolescent and parents are encouraged to choose a significant figure at school who understands the strengths of the adolescent and who would be a cooperative and supportive figure. This significant figure is expected to meet with the adolescent once a week for a few minutes conversation, consider the adolescent's specific needs in school, and whether he or she needs help solving any developing problem. The significant figure is also asked to be in touch once every three weeks with the therapist in order to help strengthen and apply skills the adolescent has learned in therapy into the natural school setting. The protocol includes a meeting with school staff as well. Early in treatment (as early as possible after session 2), the therapist meets the school staff, parents and adolescent at the school. The therapist provides the findings of the diagnosis and focuses on areas of strength upon which to build, as well as the implications of the adolescent's learning disability for his or her academic and emotional functioning at school. In addition, the therapist explains the ICS program and presents what is expected from the contact person at school. Finally, a summary of the session is given in order to strengthen cooperation and the "all of us in the face of the learning disability" support network.

Therapeutic session on completing the treatment and termination (session 13). This session deals with completing the intensive phase of the treatment. The session is held primarily with the adolescent and the parents join for the last 20 minutes. The therapist explains the completion of the treatment and the emotions that may elicit, provides legitimization for positive and negative emotions, and summarizes the adolescent's accomplishments and progress during treatment. The therapist reviews with the adolescent his or her skills and specific achievements in therapy. The therapist directs the discussion towards the adolescent's ability to progress in the future and provide acknowledgement of the fears and concerns regarding relapse, as well as support for applying and generalizing the identified helpful strategies in future real life situations.

Follow-up/booster sessions. The protocol includes six follow-up/booster sessions as follows: two weeks after the completion of the intensive phase of the treatment and then one month, three months, six months, twelve months, and eighteen months after the termination. The booster sessions are mainly individual, but parents join each of these sessions for the last twenty minutes. Follow-up sessions include examination of difficulties and conflicts the adolescent is dealing with, as well as provision of support for the adolescent and the family. The follow-up sessions are usually not used to teach new skills but rather to strengthen specific skills acquired during the acute phase of the intervention and foster their generalization to new situations.

A central feature of the current intervention is the identification, understanding, and conceptualization of the unique nature of the adolescent's LD. This includes conceptualizing the academic aspects as well as the emotional and interpersonal components of LD. The conceptualization is made collaboratively by the therapist, the adolescent, his or her parents, and the school staff, and serves as the starting point for the intervention. Once a conceptualization is made, a treatment plan is developed and individualized for each adolescent. The plan includes a decision about which specific skill-building intervention strategies to emphasize in the treatment of each adolescent. The prioritization of specific skills should include the skills that are most likely to help the adolescent deal effectively with his LD. This therapeutic process is different than targeting the co-morbidity of LD as an isolated psychiatric disorder that is not interconnected to the unique nature of the adolescent's LD.

The Current Study

The goal of the current study is to report on the feasibility of the ICS manual-based psychological intervention for the treatment of adolescents with learning disorders. For this purpose, the intervention was delivered to 40 adolescents with LD aged 11-15 years in an outpatient child and adolescent psychiatric department who were recruited consecutively from referrals to the clinic. These adolescents went through 13 sessions (over a 3-month period) and 6 follow-up sessions over 18 months (conducted at 2 weeks, 1, 3, 6, 12 and 18 months after the end of the 13 sessions). We examined the feasibility of the treatment (i.e., acceptability, participation and preliminary outcomes).

Method

Participants

Participants included 40 adolescents and their parents. Table 1 presents the socio-demographic characteristics of the sample. The sample reported high co-morbidity of other psychiatric disorders (see Table 1). Inclusion criteria consisted of LD diagnosis, normal range IQ, and regular class attendance. Exclusion criteria included suicidal ideation and psychosis. All participants were junior high school students with a mean of 7.4 years of schooling. All of them came from central Israel. The majority of the adolescents came from a middle class socio-economic level and fairly well-educated families. All were diagnosed with various kinds of learning disorders and many of them (77.5%; $n = 31$) had more than one learning

disability, especially co-morbid reading disorder and disorder of written expression. Three adolescents dropped out after session 3 and one after session 4. These participants were not significantly different from the other participants in their demographic characteristics including age, severity of learning disorders, psychiatric co-morbidity, parents' age, educational level, and SES. Ten participants were treated with medication prior to ICS intervention. During ISC, nine participants started medication while two participants stopped. Sixteen of the participants were on Ritalin and one was on an SSRI. The study was approved by the IRB committee of Schneider Children's Medical Center of Israel.

Instruments

Instruments Completed By Parents.

Child Behavior Checklist (Achenbach, 1991). This standardized instrument for rating children's behavior (Hebrew adaptation: Zilber, Auerbach, & Lerner, 1994) includes 112 behavioral items scored on a 3-point scale from 0 = *Not true* to 2 = *Very/Often true*. Achenbach's principal components analysis yielded eight narrow-band syndrome scales and two broad-band syndrome scales (i.e., internalizing and externalizing). Cronbach's α for internalizing baseline was .72, and end of treatment was .62. Cronbach's α for externalizing at baseline and end of treatment was .66 and .82, respectively.

The Mini-International Neuropsychiatric Interview for children and adolescents *(M.I.N.I.- KID;* Sheehan et al., 1998). This is a structured diagnostic psychiatric interview designed to elicit specific diagnostic criteria for DSM-IV and ICD-10.

Adolescents' Self-Report Instruments.

Children's Hope Scale (ages 8–16; Snyder et al., 1997). This scale (Hebrew adaptation; Lackaye & Margalit, 2006) includes three items about goal directed energy (e.g., 'I think I am doing pretty well') and three items about planning to meet goals (e.g., 'I can think of many ways to get the things in life that are important to me'), rated on a six-point scale from *None of the time* (1) to *All of the time* (6). Cronbach's α at base line and end of treatment were .78 and .85, respectively.

Effort scale (Lackaye & Margalit, 2006). This scale includes four items assessing children's self-ratings of investment and effort levels, such as 'I don't give up even when it is difficult for me', rated on a six-point scale from *None of the time* (1) to *All of the time* (6). Cronbach's α at baseline and end of treatment were .89 and .76, respectively.

Children's Sense of Coherence Scale (SOC) (Margalit & Efrati, 1995). This scale includes 16 items assessing three dimensions of children's SOC in the world—comprehensibility, manageability, and meaningfulness (e.g., ''I feel that I don't understand what to do in class''; ''I have trouble with most of the things I try to do'') rated on a 4-point scale from 1 = *Never* to 4 = *Always*. Computation of a single total score tapped global SOC. Current Cronbach's α at baseline and end of treatment were .79 and .82, respectively.

Table 1
Demographic and Clinical Characteristics

Adolescent Characteristics	*N*=40	Mean ± SD or Percentage
Female	*n*=12	30%
Male	*n*=28	70%
Age	*n*=40	12.6±0.87
Years in school (Grade)	6th grade: *n*=1	2.5 %
	7th grade: *n*=24	60 %
	8th grade: *n*=13	32.5 %
	9th grade: *n*=2	5 %
IQ (Full Scale)	*N*=40	95.45±7.48
Learning Disability Diagnosis (DSM-IV-TR)*		
Reading Disorder	*n*=27	67.5%
Disorder of Written Expression	*n*=25	62.5%
Mathematics Disorder	*n*=11	27.5%
Reading & Writing	*n*=18	40%
Reading & Writing & Mathematics	*n*=4	10%
Reading & Mathematics	*n*=5	12.5%
Writing & Mathematics	*n*=5	12.5%
DSM-IV Co-Morbidity Diagnosis**		
ADHD	*n*=21	52.5%
Anxiety Disorders	*n*=11	27.5%
Major Depression Disorder	*n*=3	7.5%
Oppositional Defiant Disorder	*n*=3	7.5%
Tourette Syndrome and Tic Disorder	*n*=1	2.5%

Parent and Family Characteristics		
Mother's Age	*n*=40	43.1 ± 4.45
Father's Age	*n*=39	44.77 ± 5.1
Family Income ***		
Below Average	*n*=5	12.5%
Average	*n*=27	67.5%
Above Average	*n*=8	20%
Mother's Educational Level	*n*=40	14.16 ± 2.45
Father's Educational Level	*n*=39	13.71 ± 2.89

Note: *77.5% (*n*=31) had LD co-morbidity (include ADD/ADHD)
**20% (*n*=8) had psychiatric co-morbidity
*** Family income was based on parent's self report demographic questionnaire.

Peer-Network Loneliness and Peer-Dyadic Loneliness Scale (PNDLS; Hoza, Bukowski, & Beery, 2000)**.** The Hebrew version of this 16-item scale (Al-Yagon, 2011) assesses two subscales of loneliness using Harter's (1982) 4-point "Some kids …other kids" format. The *peer-network loneliness* subscale comprises 8 items such as "Some kids hardly ever feel accepted by others their age – But – other kids feel accepted by others their age most of the time." Cronbach's α at baseline and at end of treatment were .92 and .89 respectively. The *peer-dyadic loneliness* subscale includes 8 items such as "Some kids don't have a friend that they can talk to about important things – But – others kids do have a friend that they can talk to about important things. Cronbach's α at baseline and end of treatment were .93 and .80, respectively.

Satisfaction and Estimation of Progress Questionnaire (Kopleman-Rubin et al., 2011). This questionnaire consists of 14 1-7 Likert scale questions, 3 yes/no questions, and 3 open-ended questions. Adolescents were asked about different aspects of ICS (duration, frequency of session, the most important topic, and most unimportant topic), whether they found ICS useful, and whether they would recommend ICS to a friend who would consider such an intervention. The questionnaire also addressed several areas of functioning, including intrapersonal skills (organizational skills, concentration on academic tasks), interpersonal skills (effective communication, problem solving, effective emotion communication within the family, getting support from parents and teachers), school functioning (behavior and academic grades), and emotional aspects (feeling sad, anxious, stressed, self-esteem, personal coping resources) (see Appendix A). Change of grades from 1 (very significant improvement) to 3 (light improvement) were considered improvement.

Procedure

All adolescents went through a comprehensive psycho-educational assessment and a structured psychiatric interview (M.I.N.I-KID, Sheehan et al., 1998) before beginning the ICS intervention. Adolescents and parents completed questionnaires (Child Behavior Checklist, Children's Hope Scale, Effort Scale, Children's Sense of Coherence Scale, Peer-Network Loneliness and Peer-Dyadic Loneliness Scale) before ICS Intervention (baseline) and at the end of the acute phase (end of treatment). In addition, at the end of therapy, adolescents were asked about their satisfaction with treatment and their estimation of progress using a semi-structured questionnaire (Satisfaction and Estimation of Progress Questionnaire) administered by two independent evaluators.

Nine therapists were trained in 6 separate day-long workshops, which consisted of didactic presentations and role plays. Bi-weekly group supervision was used to enhance adherence. All sessions were audio taped. After each session, therapists completed a checklist of the session interventions, skills training, or strategies that they believed they used in the session.

Data Analysis

In order to examine the acceptability, grades from 1 (very significant improvement) to 3 (light improvement) on the Satisfaction and Estimation of Progress Questionnaire were considered improvement. In order to examine preliminary pre-post intervention changes, mixed models (ANOVA analyses) were performed, with time as a within-subject variable (before intervention, after intervention), and change of medication during ICS intervention as a between-subjects variables (change, no change). Pre-post changes in outcomes showed significant decrease in adolescents' psychopathology.

Results

Acceptability

Ninety-seven percent of the adolescents reported feeling that ICS was helpful and that they would recommend it to a friend; 84% found the specific skills acquired through ICS were useful; 89.2% reported that duration was fine; and 86.5% reported that the frequency of sessions was suitable. Ninety-two percent (mean=2.58 *SD* =.9) reported an improvement in general coping skills; 89.2% (mean=2.76 *SD*=.9) reported improvement in academic grades; 83.8% (mean=2.76; *SD*=.83) reported improvement in organizational skills; 75.7% (mean=2.81 *SD*=.92) reported improvement in concentration on academic tasks; and 78.4% (mean=2.64 *SD*=.83) reported improvement in effective communication.

Adherence

Adherence is defined here as the clinician-reported use of the mandatory components of ICS and teaching of appropriate skill modules. At this phase, it was important to evaluate whether therapists and adolescents would perceive that they were able to adhere to the demands of the treatment structure. Based on therapists' ratings, the modules of treatment

were all delivered according to the sequence prescribed in the manual. Therapists decided collaboratively with adolescents and parents which skill training modules should be addressed more intensively (up to three additional sessions). The modules that were chosen to be more intensively addressed were interpersonal skills, including parent training, effective communication, problem solving/decision making, and self-advocacy (see Table 2).

Preliminary Outcomes

Before the intervention 45% were in the clinical and subclinical range of internalizing problems on the CBCL subscale (11 and 7 participants respectively). After the intervention, only 24.3% were in the clinical and subclinical range (5 and 4 participants respectively). Before intervention 22.5% were in the clinical and sub clinical range of externalizing problems on the CBCL subscale (8 and 1 participants respectively). After the intervention, only 13.5% were in the clinical and subclinical range (1 and 4 participants respectively). Results of our study indicate that participants significantly improved on both subscales. In addition, at the end of treatment, patients reported higher levels of investment and effort in their studying compared to baseline. Moreover, at the end of treatment, patients reported higher hope, which includes both higher goal directed energy as well as higher effort about planning to meet their goals, compared to baseline. Nearly significant improvement was found in the sense of coherence and peer-dyadic loneliness variables (see Table 3).

Discussion

The current study described a manual-based psychological intervention program ("I Can Succeed") for adolescents with LD. Our results demonstrate that ICS is a feasible treatment to deliver and is acceptable to adolescents with various kinds of learning disorders and other co-morbid psychiatric disorders. Few subjects (four) dropped out and satisfaction was high, with 97% of adolescents reporting that ICS was helpful and that they would recommend it to a friend. Most of them (84%) found that the specific skills acquired through ICS were useful. In addition, pre-post changes in outcomes showed significant decrease in both externalizing and internalizing problems scales of the CBCL. Importantly, significant improvements were found in hope, investment and effort in studying, and achieving academic and personal goals. These results indicate that the intervention is targeting not only the LD but the psychiatric symptoms as well as the important psychological characteristics accompanying the LD. This is important since most of the interventions among children and adolescents with LD have mainly focused on enhancing cognitive and learning skills.

Table 2

Frequency of Modules' Use

Modules	No. of Sessions (Module was used), Mean ± *SD*	Percentage of Adolescents Receiving Module
Psychoeducation	1.03±0.16	1 session: *n*=39 97.5%
		2 session: *n*=1 2.5%
Parents training	2.68±0.62	2 session: *n*=16 40%
		3 session: *n*=21 52.5%
		4 session: *n*=3 7.5%
School staff meeting	1	1 session: *n*=40 100%
Self awareness	1.60±0.59	1 session: *n*=18 45%
		2 session: *n*=20 50%
		3 session: *n*=2 5%
Self direction priorities	1.05±0.22	1 session: *n*=38 95%
		2 session: *n*=2 5%
Organization strategies	1.35±0.62	1 session: *n*=29 72.5%
		2 session: *n*=8 20%
		3 session: *n*=3 7.5%
Interpersonal relations (communication analysis and problem solving/decision making)	1.83±0.81	1 session: *n*=17 42.5%
		2 session: *n*=13 32.5%
		3 session: *n*=10 25%
Self advocacy	1.5±0.51	1 session: *n*=20 50%
		2 session: *n*=20 50%
Completing the intensive phase of treatment	1	1 session: *n*=40 100%

Table 3

Pre-Post Outcomes

	N	Before Intervention		After Intervention		*F*	η^2
		M	*SD*	*M*	*SD*	*df*=1, *N*-2	
CBLC: Externalizing Problems Scale	37	8	6.6	6.4	5.4	5.1*	0.13
CBLC: Internalizing Problems Scale	37	9.09	7.2	7.4	6.43	3.97*	0.1
Children's Hope Scale	34	4.25	0.89	4.53	1.00	7.57**	0.19
Effort Scale	34	4.29	1.17	4.61	1.06	7.26**	0.19
Children's Sense of Coherence Scale	38	3.01	0.36	3.12	0.37	3.66	0.09
Peer-Network Loneliness Scale	37	1.66	0.69	1.55	0.47	1.43	0.04
Peer-Dyadic Loneliness Scale	37	1.69	0.74	1.58	0.65	3.38	0.09

Note: * p<.05; ** p<.01

ICS adopts a comprehensive framework and focuses on developing skills in three major areas: intrapersonal, interpersonal/family, and school/community level. Our manual is designed to provide an optimal balance between flexibility and structure. The manual contains modules that should be consistent for all adolescents but it is flexible enough to allow therapists to decide, collaboratively with adolescents and parents, which modules should be addressed more intensively according to the unique needs of each adolescent. Results indicated that the most frequently used modules were interpersonal skills. This is in line with previous studies highlighting the importance of interpersonal functioning in the overall well-being of adolescents with LD (Murray & Greenberg, 2001). It is also consistent with previous studies reporting that overall functioning of children with LD, when followed into adulthood, is associated with their emotional and interpersonal functioning more than the severity of their LD (Goldberg, Higgins, Raskind, & Herman, 2003). This suggests that an interpersonal therapeutic intervention may be an appropriate and beneficial focus of future intervention research with this population. One such option is Interpersonal Psychotherapy

for Depressed Adolescents (IPT-A), which conceptualizes disorders within an interpersonal framework (Mufson et al., 2004a, 2004b).

The two main IPT-A principles included in the ICS focus on adaptive communication and problem solving. A central tenet of IPT-A is that the level of distress experienced by an LD adolescent occurs in an interpersonal context and that the onset, response to treatment, and therapeutic outcomes are influenced by the quality of the interpersonal relationship between the adolescent and his or her significant others. In line with the IPT-A framework, the initial understanding of LD focuses on its interpersonal manifestations, which become a main focus of treatment.

The study has several limitations. The treatment was delivered in an open clinical trial rather than a randomized controlled trial. Therefore, we cannot address questions concerning the comparative efficacy of our intervention and whether or not the improvements made are specific to the interpersonal aspects of the intervention. Sessions were audio taped in order to analyze treatment fidelity but these have not been analyzed yet. Furthermore, our findings are limited by the small number of participants. Feasibility and acceptability of the treatment is limited to adolescents from 11 to15 years old.

In conclusion, our results support the feasibility, acceptability and preliminary positive outcome of ICS for treatment of adolescents with various kinds of learning disorders and co-morbidity of other psychiatric disorders. ICS may be an appropriate intervention to promote emotional and academic functioning among adolescents aged 11-15 with various types of LD and other non-severe co-morbid psychiatric disorders. It seems that most adolescents were seen as needing more intensive work in the interpersonal module of the intervention. Therefore it might be beneficial to add more IPT-A related modules within ICS for future studies. The pilot data do support the future study of the efficacy of ICS in a randomized controlled trial.

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