Published in final edited form as:

School Ment Health. 2012 December 12; 4(4): 254–264. doi:10.1007/s12310-012-9078-9.

Interpersonal Psychotherapy-Adolescent Skills Training: Effects on School and Social Functioning

Jami F. Young,

Department of Clinical Psychology, Graduate School of Applied and Professional Psychology, Rutgers University, New Brunswick, NJ, USA

Amy Kranzler,

Department of Psychology, Rutgers University, New Brunswick, NJ, USA

Robert Gallop, and

Department of Mathematics, Applied Statistics Program, West Chester University, West Chester, PA, USA

Laura Mufson

Department of Psychiatry, Columbia University College of Physicians and Surgeons and New York State Psychiatric Institute, New York, NY, USA

Jami F. Young: jfyoung@rci.rutgers.edu

Abstract

This paper reports on school and social functioning outcomes in a randomized depression prevention study that compared Interpersonal Psychotherapy-Adolescent Skills Training (IPT-AST) with usual school counseling (SC). Outcome analyses were performed utilizing hierarchical linear models and mixed model analysis of variance. IPT-AST adolescents had significantly greater improvements than SC adolescents in total social functioning and friend functioning during the intervention. IPT-AST adolescents also demonstrated improvements in school, dating, and family functioning and emotional engagement in school, although these improvements were not significantly greater than seen in SC adolescents. Finally, in the 18 months following the intervention, IPT-AST adolescents were less likely than SC adolescents to be asked to leave school for academic or behavioral reasons. These findings extend the potential range of impact of depression prevention programs such as IPT-AST and provide preliminary evidence of the benefits of these programs on school and social functioning.

Keywords

Prevention; Depression; Adolescents; School mental health

Introduction

Adolescent depression is a highly prevalent condition that compromises the process of development, interfering with academic and social functioning. Depressed youth are at increased risk for many negative outcomes and consequences, including suicide, school failure, and social isolation (Birmaher et al., 1996; Colman, Wadsworth, Croudace, & Jones, 2007). Given these far-reaching consequences, it is essential to develop programs for the

prevention of depression (President's New Freedom Commission on Mental Health, 2003), particularly programs that can be delivered in schools where youth are most likely to receive services. There is growing evidence of the efficacy of preventive interventions for adolescent depression, particularly targeted programs for individuals with subthreshold depression or with a known risk factor for depression such as a depressed parent (for recent reviews, see Horowitz & Garber, 2006; Stice, Shaw, Bohon, Marti, & Rohde, 2009). The focus of this paper is on Interpersonal Psychotherapy-Adolescent Skills Training (IPT-AST; Young & Mufson, 2003), a group indicated preventive intervention. In two studies, IPT-AST has demonstrated positive effects on depressive symptoms, depression diagnoses, anxiety symptoms, and overall functioning as compared to usual school counseling (Young, Mufson, & Davies, 2006a; Young, Mufson, & Gallop, 2010; Young et al., 2012).

While targeted prevention programs, such as IPT-AST, have documented effects on depressive symptoms, few studies have examined the impact of these programs on other outcomes, such as social and school functioning (see Jaycox, Reivich, Gillham, & Seligman, 1994; Young, Gallop, & Mufson, 2009 for exceptions). In contrast, universal prevention programs and multi-component programs have more consistently examined diverse outcomes (Greenberg, Domitrovich, & Bumbarger, 2001). As many have argued, prevention and intervention studies should examine a broader array of outcomes than symptom improvement to better understand the impact of these programs on an individual's overall well-being (Compas, Connor, & Wadsworth, 1997; Kazdin, 2002; Kazdin & Kendall, 1998). In this study, we therefore examine school and social functioning, given their documented link with adolescent depression and their relevance for long-term adjustment.

Several studies have identified a relationship between adolescent depression and academic impairment. Depressive symptoms and depression diagnoses are associated with significant decrements in school productivity and educational attainment (Asarnow et al., 2005; Berndt et al., 2000; Humensky et al., 2010), adversely affect examination performance (Andrews & Wilding, 2004), and are associated with school burnout (Salmela-Aro, Savolainen, & Holopainen, 2009) and lower high school and college graduation rates (Kessler et al., 1995). In addition, depressive symptoms predict decreased academic efficacy (students' perceptions of their competence to do their class work) and worse parent report of their school functioning (e.g., paying attention, keeping up with schoolwork) 6 months later (Jaycox et al., 2009).

Additionally, recent research has highlighted the important role of adolescent engagement in school in determining both emotional well-being and academic success. School engagement refers to "active, goal-directed, flexible, constructive, persistent, focused interactions with the social and physical environments" (Furrer & Skinner, 2003, p. 149). It is comprised of two distinct, but related, dimensions: behavioral engagement, including a student's effort, persistence, attention, and participation during academic activities, and emotional engagement including a student's emotional reactions in the classroom, such as boredom, distress, and positive emotions such as interest (Patrick, Skinner, & Connell, 1993).

School engagement is associated with both concurrent (Anderman, 2002; Jacobson & Rowe, 1999; Li & Lerner, 2011) and future depressive symptoms (Shochet, Dadds, Ham, & Montague, 2006). In addition, prior studies have found a significant correlation between school engagement and academic functioning (e.g., grades, standardized tests, drop-out rates) for elementary, middle, and high school students (Alexander, Entwisle, & Horsey, 1997; Connell, Spencer, & Aber, 1994; Li & Lerner, 2011; Marks, 2000; Skinner, Wellborn, & Connell, 1990). Among at-risk minority students from low-income homes, school engagement predicts academic resilience, even after controlling for family background and psychological characteristics (Finn & Rock, 1997). Furthermore, school engagement may be

a particularly important target for interventions, given research suggesting it is both a proximal (Connell, Spencer & Aber, 1994) and malleable (Fredricks, Blumenfeld, & Paris, 2004) antecedent of academic functioning.

Depressive symptoms also significantly impact social functioning. Youth with depressive symptoms report low levels of perceived support in peer and romantic relationships and are more likely to experience teasing and bullying (e.g., La Greca & Harrison, 2005; Monroe, Rohde, Seeley, & Lewinsohn, 1999; Sweeting, Young, West, & Der, 2006). Furthermore, depression and depressive symptoms are associated with high levels of conflict and low levels of perceived support in family relationships (e.g., Brendgen, Wanner, Morin, & Vitaro, 2005; Sheeber, Hops, Alpert, Davis, & Andrews, 1997). Importantly, the relationship between interpersonal difficulties and depression is reciprocal, with problems in interpersonal functioning increasing risk of depression (e.g., Hankin, Stone, & Wright, 2010; Rudolph, Hammen, & Burge, 1994). Thus, improvements in social functioning following a prevention program may buffer youth against the development of future symptoms.

Given the importance of examining school and social outcomes in intervention studies and the documented reciprocal links between depression and school and social functioning, the current paper extends recent findings by examining the effect of IPT-AST on social functioning, school engagement, and retention in school. Because IPT-AST aims to address interpersonal difficulties associated with the onset of depression, we expected IPT-AST to lead to unique improvements in social functioning as compared to school counseling (SC). In support of this hypothesis, an earlier study found that IPT-AST adolescents experienced significantly greater reductions in parent-child conflict than SC adolescents (Young et al., 2009). In addition, studies of interpersonal psychotherapy for depressed adolescents, upon which IPT-AST is based, have found improvements in social functioning following treatment (Mufson et al., 2004; Mufson, Weissman, Moreau, & Garfinkel, 1999; Rosselló & Bernal, 1999).

To date, no studies of IPT-AST have examined school outcomes. As a school-based prevention program, the long-term sustainability of IPT-AST is dependent on effective partnerships with school systems (Greenberg, 2004). The program's effects on school functioning and engagement are therefore important in demonstrating the benefits of its integration into schools. IPT-AST does not directly address academic concerns but may indirectly impact school functioning by improving adolescents' depressive symptoms and school engagement. School counseling, on the other hand, has the flexibility to more directly address academic and school concerns. Thus, we hypothesized that both groups would demonstrate improvements in school engagement during the course of the intervention.

Method

Case-finding Procedures

Screening—Adolescents with elevated symptoms of depression were identified through a two-stage procedure. The first stage was a classroom-based screening in 3 single-sex parochial high schools in New York City. Parents of adolescents in the 9th and 10th grades ($N = 1117$) were sent a letter about the screening and were given two opportunities to send back a notice of refusal if they did not want their child to participate. On the day of the screening, adolescents were informed of the procedures and those that wanted to participate signed a screening assent form. Three hundred and forty-six (30.98 %) parents and 125 (11.19 %) adolescents refused to participate in the screening. The screening consisted of the Center for Epidemiologic Studies-Depression Scale (CES-D; Radloff, 1977), a 20-item measure that assesses depressive symptoms over the past week. The screenings took place in the schools in large groups of students at a time agreed upon with each school. Across the 3

schools, 642 adolescents completed the screening; four students were repeatedly absent so were not screened. Adolescents with a CES-D score of 16 or higher ($N = 237$) were eligible to be approached for the prevention project and were contacted by the research staff to describe the project. A third of the families with elevated CES-D scores ($N = 79$) provided informed consent and assent to participate in an eligibility evaluation and the prevention program. The two most common reasons for refusing participation in the project were disinterest on the part of the adolescent (25.58 %), parents (11.63 %), or both (13.95 %) and lack of perceived need (30.23 %).

Diagnostic Evaluation—Adolescents who consented to the project completed the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS-PL) (Kaufman, Birmaher, Brent, & Rao, 1997) to determine whether they were eligible to participate in the prevention study. Adolescents were eligible to participate in the study if they reported at least 2 subthreshold (symptoms receiving a severity rating of 2) or threshold (symptoms receiving a severity rating of 3) depressive symptoms on the K-SADS-PL. One of these symptoms needed to be depressed mood, irritability, or anhedonia. Adolescents with a current depression diagnosis were excluded from the study as these individuals needed more intensive treatment than a prevention program would provide. Adolescents were permitted in the prevention study if they had comorbid social phobia, generalized anxiety disorder, separation anxiety disorder or specific phobia but were excluded for other psychiatric diagnoses or if they reported current suicidal ideation or self-harm (Young et al., 2010). The IRB allowed us to include adolescents with these particular anxiety disorders given the decreased severity of these diagnoses, overlap of these disorders with depressive symptoms, and the potential that the prevention programs might have a positive impact on these conditions, given prior findings that anxiety disorders improved following interpersonal psychotherapy for the treatment of adolescent depression (Young, Mufson & Davies, 2006b). Only 4 adolescents in the study had a current anxiety diagnosis (1 IPT-AST adolescent had generalized anxiety disorder, 2 IPT-AST and 1 SC adolescents had specific phobias).

Randomization—The 57 eligible adolescents were randomly assigned to receive IPT-AST or SC using a table of random numbers. To ensure enough adolescents in the IPT-AST groups, the random number table was generated so that approximately two-thirds of adolescents in each school would be randomized to IPT-AST. Thirty-six adolescents were randomized to IPT-AST and 21 to SC. Each of the schools was randomized to include parents in IPT-AST during either the first or second year of the study. Twenty-one adolescents received IPT-AST without parental involvement and 15 received IPT-AST with parent involvement. Because the study was not designed to compare the effects of IPT-AST with and without parental involvement (i.e., randomization to IPT-AST with and without parents occurred at the school rather than individual level) and the two IPT-AST conditions did not have significantly different effects on depressive symptoms or overall functioning (Young et al., 2010), these conditions have been collapsed for all current analyses.

Participants

Participants were aged 13–17 years and in the 9th or 10th grade. The average age was 14.51 ($SD = 0.76$) years, and 59.65 % of the sample was female. A majority of adolescents (73.68 %) identified themselves as Hispanic. Regarding race, 61.40 % were Caucasian, 35.09 % African American, and 3.51 % biracial. Most adolescents (70.18 %) lived in a single-parent household and 29.07 % reported a gross household income of \$25,000 or less. Additional details on the participants are available in Young et al. (2010).

Interventions

IPT-AST—IPT-AST involves two initial individual sessions and 8 weekly 90-min group sessions. IPT-AST teaches communication strategies and interpersonal problem-solving skills that adolescents can use to improve their relationships, with the expectation that these improvements will lead to reductions in depressive symptoms and a decreased likelihood of developing depression. First, communication and interpersonal strategies are taught through didactics and role-plays. Then, group members are asked to apply the skills to different people in their lives, practicing first in group and then at home (Young & Mufson, 2003). In the groups with parent involvement, the parents participate in one of the pre-group sessions, a mid-group parent–adolescent session to work on a particular interpersonal issue, and a post-group parent–adolescent session to review progress made and highlight additional work to be done. If a parent is unable to attend a session, the adolescent meets alone with the leader.

All sessions took place in the schools. The individual sessions occurred during students' free periods or after school, and the group sessions took place after school. Seven IPT-AST groups (4 without parent involvement and 3 with parent involvement) were conducted over the course of 2 years, all with co-therapists. The first author co-led 2 of the groups. The remaining group leaders were masters or doctoral level psychologists or child psychiatrists who were trained and supervised by the first author. All group sessions were recorded and listened to for supervision purposes. Group size ranged from four to six adolescents. In schools where there were a sufficient number of adolescents randomized to IPT-AST to run two simultaneous groups, group assignment was made based on adolescents' after-school availability. When possible, attempts were made to ensure that at least 2 of the group members were in the same grade. Three IPT-AST adolescents dropped out prior to the first group session. The remaining IPT-AST adolescents attended an average of 1.94 pre-group sessions ($SD = 0.33$) and 5.22 group sessions ($SD = 2.55$), with a range of 2–8 group sessions.

School Counseling—The remaining adolescents were referred to the counselor to be seen at a frequency determined by the adolescent and the counselor. In each of the schools, SC was delivered by a guidance counselor. SC was not intended to be an equivalent intervention to IPT-AST. It was chosen as the comparison group because it approximates what normally occurs in the schools when an adolescent is identified as experiencing emotional difficulties. One adolescent left school after randomization so received no sessions but completed the evaluations. The remaining adolescents had an average of 3.95 sessions ($SD = 2.44$), with a range of 1–9 sessions. The SC sessions were 30–45 min in duration and consisted of supportive individual counseling. After each session, the guidance counselor was asked to complete a form about whether the adolescent showed for the session, if the session was scheduled or impromptu, the length of the meeting, and the topics discussed. The most commonly discussed topics in these sessions were relationships with parents (35.14 %) and academic issues (24.32 %).

Assessments

Adolescents completed assessments at baseline, post-intervention, and at 6, 12, and 18 months post-intervention. The two measures used in the current analyses are the Social Adjustment Scale—Self-report (SAS-SR; Weissman & Bothwell, 1976) and Student's Achievement Relevant Actions in the Classroom (SARAC; Wellborn & Connell, 1987). In addition, we also tracked whether participants were asked to leave school over the course of the study for either behavioral or academic reasons.

The SAS-SR (Weissman & Bothwell, 1976) is a self-report measure that assesses social functioning. A total score is computed by averaging all of the items on the measure. The SAS-SR also has four subscales: friends, school, family, and dating. The friends subscale assesses social functioning with peers, including frequency of contact and ability to share feelings with friends. The school subscale assesses aspects of academic functioning including school attendance, academic performance, and interest in schoolwork. The family subscale assesses family relationships, including ability to talk to parents about problems and disappointment in family relationships. The dating subscale includes two items that assess frequency and interest in dating. Scores on each of the scales range from 1 to 5, with higher scores indicating greater dysfunction. Cronbach's alpha for the total SAS-SR at baseline was 0.75 and ranged from 0.74 to 0.82 across other assessments.

The SARAC has 20 questions that assess behavioral engagement (e.g., "I try hard to do well in school", "When I am in class I think about other things") and emotional engagement (e.g., "I enjoy learning new things in class", "Class is not all that fun for me") in school. Each item is coded on a 1–4 scale. Behavioral and emotional engagement scores are computed by summing the items. Scores range from 10 to 40, with higher scores indicating greater engagement (Wellborn & Connell, 1987). The SARAC has been used in a number of educational studies with youth as young as 3rd grade (Patrick et al., 1993). Cronbach's alpha at baseline for behavioral engagement was 0.77 (ranging from 0.78 to 0.88 across other assessments) and 0.78 for emotional engagement (ranging from 0.78 to 0.87 across other assessments).

Statistical Analyses

Two forms of mixed effects were implemented: mixed model analysis of variance (MMANOVA) and hierarchical linear modeling (HLM), depending on the relationship of time and the nature of the outcome. Determination between the two modeling frameworks was based on visual inspection of change over time through mean profiles and subject-specific profiles. If the change appeared linear or could be put in some mathematical function of time (i.e., piecewise linear), we proceeded with HLM. If no such pattern was evident, we proceeded with the MMANOVA. For both the HLM and MMANOVA, appropriate covariance structures were analytically determined by comparison of the -2 Restricted Likelihood, AIC, and AICC.

The standard HLM model involves two levels: within-subject (Level 1) and between-subject (Level 2). At Level 1, the outcome varies within subjects over time as a function of a person-specific growth curve. At Level 2, the person-specific change parameters are viewed as varying randomly across subjects, as a function of the participant's intervention condition. School was included in the model as a fixed effect. Like other investigators (e.g., Keller et al., 2000), we conducted a piecewise model looking at change from baseline to post-intervention and a second leg of time looking at post-intervention through the 18-month follow-up. The HLM model allows one to examine within-group change (e.g., is the slope of a given intervention group significantly different than zero), as well as between-group differences in change (e.g., are there significant between-group differences in rates of change), both questions of interest. The degrees of freedom were estimated with the Kenward-Roger's approximation (Kenward & Roger, 1997), which accommodates small sample inferences, and effect sizes (Cohen's *d*) were derived as specified by Verbeke and Molenberghs (2000).

The MMANOVA approach (Schwarz, 1993), similar to HLM, accounts for both the within-subject and between-subject nature of the data. The MMANOVA models the means per group over the respective time period and the covariance between the repeated measures over the assessments; therefore, it does not assume a linear relationship between the

outcome variable and time. In the MMANOVA analysis, pre-intervention scores were entered as a covariate leaving four evaluation periods (post-intervention, 6-, 12-, and 18-month follow-ups) for analysis. To mirror the HLM analyses, we examined both within-group change and between-group differences in change. Significant condition effects indicate an on-average difference between conditions over the entire post-baseline period. Estimated change scores and contrasts of change amounts per phase are estimated within the MMANOVA though linear contrasts.

The significance level for all tests was 0.05 (two sided). All analyses were conducted using SAS Version 9.2 and SPSS 17.0. The study was approved by the Institutional Review Boards at New York State Psychiatric Institute and Rutgers University.

Results

Social Functioning

The SAS-SR indicated no serious deviations in normality as assessed with the Shapiro–Wilk statistics, and there were no significant differences between interventions on total SAS-SR score or any of the subscales at baseline. The mean total SAS-SR score at baseline was 2.16 (SD = 0.44) for IPT-AST and 2.10 (SD = 0.39) for SC. The mean profiles for the SAS-SR illustrated different phases of change: active intervention and follow-up, and therefore, we implemented a piece-wise linear model looking at change during these two phases.

Table 1 lists the estimated slopes for total score, as well as the friend, family, dating, and school subscales of the SAS-SR. Regarding within-group change, adolescents in IPT-AST showed significant positive change over the course of the intervention in total social functioning ($t(195) = -4.90, p < 0.001$), as well as each of the domains (friend: $t(195) = -4.71, p < 0.001$, family: $t(195) = -2.55, p = 0.01$, school: $t(195) = -2.17, p = 0.03$, dating: $t(195) = -3.48, p < 0.01$). Conversely, adolescents in SC showed nonsignificant rates of change in total social functioning and the specific domains over the course of the intervention. Regarding between-group differences, IPT-AST adolescents showed significantly greater rates of change than SC adolescents from baseline to post-intervention on the total SAS-SR ($t(195) = -2.67, p < 0.01$) (see Fig. 1) and on the friend subscale ($t(195) = -2.88, p < 0.01$) (see Fig. 2), but not the family subscale, school subscale, nor dating subscale.

In the 18 months following the intervention, both IPT-AST adolescents and SC adolescents showed continued improvements (e.g., significant slopes) in total SAS-SR scores (IPT-AST: $t(195) = -2.82, p < 0.01$; SC: $t(195) = -3.50, p < 0.01$) and family functioning (IPT-AST: $t(195) = -2.90, p < 0.01$; SC: $t(195) = -2.60, p = 0.01$). In addition, SC adolescents showed significant improvements in friend functioning during the follow-up period ($t(195) = -4.03, p < 0.01$). The rates of change in the school and dating domains were not significant for either IPT-AST or SC adolescents. Regarding between-group differences, there were no significant differences between interventions in rates of change on the total SAS-SR or family, school, and dating subscales during the follow-up period. However, there was a significant difference in rates of change on the friend subscale ($t(195) = 2.47, p = 0.02$), reflecting the significant improvements in the SC group during follow-up, whereas IPT-AST adolescents showed minimal change (see Fig. 2).

Behavioral and Emotional Engagement

The SARAC indicated no serious deviations in normality as assessed with the Shapiro–Wilk statistics, and there was no significant difference between interventions on behavioral (IPT-AST: $M = 30.58, SD = 4.57$; SC: $M = 28.38, SD = 3.69$) or emotional engagement (IPT-AST: $M = 30.73, SD = 4.89$; SC: $M = 30.00, SD = 4.93$) at baseline. Given the nonlinear/

non-piecewise linear trajectories, we fit a MMANOVA model for emotional and behavioral engagement.

There were no significant differences between IPT-AST and SC for the entire post-baseline period for either behavioral engagement ($F(1,51) = 0.10, p = 0.75$) or emotional engagement ($F(1,51) = 1.03, p = 0.31$). To mirror the HLM analyses, we estimated change scores within the MMANOVA for the intervention and follow-up phases for each intervention condition. Neither IPT-AST nor SC adolescents showed significant rates of change in behavioral engagement during the intervention or follow-up. Furthermore, the rates of change in behavioral engagement for the two conditions were not significantly different during the intervention ($t(49) = 0.54, p = 0.59, d = 0.15$) nor the follow-up ($t(49) = 0.49, p = 0.63, d = 0.14$). On emotional engagement (see Fig. 3), adolescents in IPT-AST showed significant improvements during the course of the intervention ($t(49) = 2.80, p < 0.01$), with nonsignificant improvements during the follow-up phase ($t(49) = 0.60, p = 0.55$). Adolescents in SC showed nonsignificant rates of change in emotional engagement both during the intervention ($t(49) = 0.01, p = 0.99$) and follow-up phases ($t(49) = 1.34, p = 0.19$). Contrasts of the between-group difference in rates of change in emotional engagement were marginally significant during the intervention phase ($t(49) = 1.70, p = 0.09, d = 0.49$) but nonsignificant during the follow-up ($t(49) = 0.77, p = 0.44, d = 0.22$).

School Retention

A large proportion of adolescents left the schools over the course of the study. Thirteen of 21 (61.9 %) SC adolescents left the school during the 18-month follow-up period as compared to 13 of 36 (36.1 %) IPT-AST adolescents ($\chi^2 = 3.56, p = 0.06$). To better understand this phenomenon, we asked school personnel to identify those adolescents who had left the school and the reason they left. Students left school for a variety of reasons including financial concerns, moving, academic failure, and behavioral reasons. Ten percent of students left school because families found the cost of parochial school prohibitive; an additional 19 % left by initiative of the family for other reasons (e.g., family moved, dissatisfaction with the school). We were particularly interested in whether the two groups differed in the rates in which students were asked to leave school because of academic difficulties or behavioral problems. Six of 21 students in SC (28.6 %) left for these reasons as compared to 3 of 33 students in IPT-AST (9.1 %). Using Fisher's exact test, this difference in rates is marginally significant ($p = 0.06$).

Discussion

The present study compared the effects of IPT-AST and SC on social and school functioning. IPT-AST adolescents demonstrated greater improvements in total social functioning than SC adolescents during the course of the intervention and greater improvements in the friend domain. They also demonstrated improvements in school, dating, and family functioning, although these improvements were not significantly greater than in SC adolescents. During the follow-up phase, both IPT-AST and SC adolescents continued to show improvements in total and family functioning, and SC adolescents showed continued improvements in friend functioning. On our measure of school engagement, IPT-AST adolescents showed significant improvements in emotional engagement during the course of the intervention while SC adolescents showed no change; neither IPT-AST nor SC led to significant improvements in behavioral engagement. Finally, over the follow-up period, IPT-AST adolescents were less likely to leave school for behavioral or academic reasons than SC adolescents.

The effect of IPT-AST on total social functioning is consistent with findings from other studies of interpersonal psychotherapy for depressed adolescents (Mufson et al., 2004,

Mufson et al., 1999; Rosselló & Bernal, 1999), suggesting it is a robust intervention effect. While studies have found this effect to be driven by changes in different subscales of social functioning, there is consistency across studies of improvement in overall social functioning and specifically on the interpersonal domains (e.g., friend, family, and dating). This consistency is not surprising given interpersonal psychotherapy's focus on interpersonal skills and suggests that the program is effectively improving this target area. The findings on the friend domain parallel the program's effect on depressive and anxiety symptoms, with IPT-AST adolescents demonstrating more rapid improvements, and SC adolescents catching up during follow-up (Young et al., 2010, 2012). However, adolescents in both conditions experienced continued improvements in total social functioning and family functioning during the 18-month follow-up, suggesting long-term intervention effects. Our findings further suggest that changes in family functioning may occur more gradually than changes in the friend domain, although this requires replication in future studies.

The impact of IPT-AST on school engagement is somewhat more surprising, given the intervention does not directly address this construct. IPT-AST adolescents demonstrated significant improvements in emotional engagement during the intervention, while SC adolescents demonstrated limited improvements. This finding is important given the documented link between school engagement and academic outcomes (Alexander et al., 1997; Connell et al., 1994; Li & Lerner, 2011; Marks, 2000; Skinner et al., 1990), adolescent well-being (e.g., Loukas, Ripperger-Suhler, & Horton, 2009; Whitlock, 2006), and depression (Anderman, 2002; Jacobson & Rowe, 1999; Li & Lerner, 2011; Shochet et al., 2006). Neither IPT-AST adolescents nor SC adolescents demonstrated significant improvements in behavioral school engagement. This may reflect Li and Lerner's (2011) assertion that behavioral engagement is more stable and less likely to fluctuate than emotional engagement. It is also possible that the nature of IPT-AST, with its focus on interpersonal skills, may increase a student's capacity to engage emotionally with school through improved relationships with teachers and peers, whereas a more targeted, behavioral intervention may be needed to result in behavioral changes in the classroom. More research is needed to better understand these two constructs and their amenability to change.

We were unable to track grades and attendance due to the large number of adolescents that left their respective schools in the year and a half following the program. As such, we made the decision to examine school retention as a proxy for school functioning. Nearly a third of students who switched schools did so because of financial stress, moving or dissatisfaction with the school. We felt these departures were best understood by the additional demands and expectations of parochial school education, rather than anything related to the prevention programs. We were, however, interested in whether there were differences in the rate of students who were asked to leave the school because of behavior difficulties or failure to meet academic standards, since academic and behavioral functioning are critical for success across educational settings. IPT-AST adolescents were significantly less likely to be asked to leave school for behavioral or academic reasons than SC adolescents. This finding has implications for keeping students in school and preventing academic failure. Importantly, IPT-AST is a short-term intervention that does not directly target academic functioning, while school counseling has the flexibility to more directly address school-related problems. Nonetheless, IPT-AST demonstrated benefits on emotional engagement in school, school functioning on the SAS-SR, and school retention. The current findings suggest that school functioning may be closely related to depressive symptoms and should be considered an important secondary outcome of depression prevention programs. Additionally, these effects may be reciprocal, with improvements in depressive symptoms increasing both school and social success, which may further buffer adolescents from future depressive symptoms. Indeed school and interpersonal problems represent two important

domains of risk of depression (Greenberg et al., 2001), and improvements in these domains may serve as long-term buffers against the development of future symptoms.

As we move toward wide-scale dissemination of prevention programs, it has become increasingly important to provide convincing answers to those who question having mental health programs in schools (Weist & Paternite, 2006). Schools serve as critical locations for prevention programs, providing accessibility of services for large numbers of youth who might otherwise not seek services. Yet historically, mental health programs have been regarded as “add-ons” that are not central to the academic responsibilities of schools (Paternite & Johnston, 2005; Sedlak, 1997). Given the time constraints and limited resources available to schools, it is not surprising that school leaders may resist the inclusion of mental health programming. However, this study provides initial evidence that prevention programs which target depressive symptoms may also effect school engagement and school success. If the current findings are replicated, it may be in the best interest for school systems to consider long-term integration of depression prevention programs into their educational curricula, providing benefits for both adolescent mental health and school and social functioning.

Although findings from the present study are believed to add a valuable contribution to the school mental health literature, the study is not without limitations. First, this study was limited by a small sample size, which affected our power to detect small or medium differences between the two intervention conditions. A second limitation is that there was a high refusal rate, with many students refusing to participate in the screening, and only a third of adolescents with elevated symptoms consenting to the eligibility evaluation. These rates are consistent with refusal rates in other indicated depression studies (e.g., Clarke et al., 1995; Young et al., 2006a), but limit the generalizability of these findings. The high refusal rates suggest the need to better integrate both screenings and prevention programs into schools to increase their acceptability and impact. The majority of families who refused to participate in the prevention project did so because of lack of perceived need and general disinterest. Some of the families who were disinterested in the project may have participated in prevention programming had it not been part of a research study. Nonetheless, for school-based prevention programs to be impactful, additional work needs to be done to educate families about the prevalence and implications of adolescent depression, the importance of screening, and the benefits of engaging in prevention programs. In addition, researchers and school-based practitioners need to identify barriers to care so we can develop methods to better engage youth in school-based services.

Third, the school counseling condition was designed to parallel existing resources available to adolescents and therefore involved individual counseling, leaving it unclear whether intervention differences might be attributable to general group processes rather than specific components of IPT-AST. Fourth, a large proportion of adolescents, in particular those in SC, switched schools for behavioral, academic, or other reasons and failed to complete the follow-up assessments. Although the HLM analyses included all participants, the long-term outcomes for the SC group should be interpreted cautiously. Finally, this study was conducted in inner city, single-sex, parochial schools and the majority of the sample was Hispanic or African American. It remains unclear whether findings from this study are generalizable to adolescents of other races and ethnicities and to schools serving different populations. Additional research is needed that examines the efficacy of IPT-AST when delivered in single-sex versus coed groups and schools.

Conclusion

This study was one of the first to evaluate the social and school outcomes of a school-based adolescent depression prevention program. Although IPT-AST is primarily designed to prevent depression, the program led to immediate improvements in total social functioning, friend functioning, emotional school engagement, and increased school retention rates, as compared to usual school counseling. In addition, IPT-AST resulted in improvements in school, dating, and family functioning, although these improvements were not significantly greater than seen in SC adolescents. These findings extend the potential range of impact of depression prevention programs such as IPT-AST and provide preliminary evidence of the benefits of school mental health programs. More research is needed to determine additional benefits that depression prevention programs may have on academic functioning and school retention. If replicated, these findings suggest that the integration of depression prevention programs into schools may reduce the rising rates of adolescent depression, while simultaneously improving school and social functioning. We urge the field to continue to explore the many possible benefits of such partnerships to more effectively address the inter-related academic, social, and mental health needs of adolescents.

Acknowledgments

This study was funded by a Career Development Award (5K32 MH071320) from the National Institute of Mental Health to Dr. Young.

References

- Alexander KL, Entwisle DR, Horsey CS. From first grade forward: Early foundations of high school dropout. *Sociology of Education*. 1997; 70:87–107.
- Anderman EM. School effects on psychological outcomes during adolescence. *Journal of Educational Psychology*. 2002; 94:795–809.
- Andrews B, Wilding JM. The relation of depression and anxiety to life-stress and achievement in students. *British Journal of Psychology*. 2004; 95:509–521. [PubMed: 15527535]
- Asarnow JR, Jaycox LH, Duan N, LaBorde AP, Rea MM, Tang L, et al. Depression and role impairment among adolescents in primary care clinics. *Journal of Adolescent Health*. 2005; 37:477–483. [PubMed: 16310125]
- Berndt ER, Koran LM, Finkelstein SN, Gelenberg AJ, Kornstein SG, Miller IM, et al. Lost human capital from early-onset chronic depression. *The American Journal of Psychiatry*. 2000; 157(6): 940–947. [PubMed: 10831474]
- Birmaher B, Ryan ND, Williamson DE, Brent DA, Kaufman J, Dahl RE, et al. Childhood and adolescent depression: A review of the past 10 years, part I. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1996; 35:1427–1439. [PubMed: 8936909]
- Brendgen M, Wanner B, Morin AJS, Vitaro F. Relations with parents and with peers, temperament, and trajectories of depressed mood during early adolescence. *Journal of Abnormal Child Psychology*. 2005; 33:579–594. [PubMed: 16195952]
- Clarke GN, Hawkins W, Murphy M, Sheeber LA, Lewinsohn PM, Seeley JR. Targeted prevention of unipolar depressive disorder in an at-risk sample of high school adolescents: A randomized trial of a group cognitive intervention. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1995; 34:312–321. [PubMed: 7896672]
- Colman I, Wadsworth MEJ, Croudace TJ, Jones PB. Forty-year psychiatric outcomes following assessment for internalizing disorder in adolescence. *American Journal of Psychiatry*. 2007; 164:126–133. [PubMed: 17202554]
- Compas, BE.; Connor, J.; Wadsworth, M. Prevention of depression. In: Weissberg, RP.; Gullota, TP.; Hampton, RL.; Ryan, BA.; Adams, GR., editors. *Issues in children's and families' lives. Enhancing children's wellness*. Vol. 8. Thousand Oaks, CA: Sage Publications; 1997. p. 129-174.

- Connell JP, Spencer MB, Aber JL. Educational risk and resilience in African-American youth: Context, self, action, and outcomes in school. *Child Development*. 1994; 65:493–506. [PubMed: 8013236]
- Finn JD, Rock DA. Academic success among students at risk for school failure. *Journal of Applied Psychology*. 1997; 82:221–234. [PubMed: 9109280]
- Fredricks JA, Blumenfeld PC, Paris AH. School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*. 2004; 74:59–109.
- Furrer C, Skinner E. Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology*. 2003; 95:148–162.
- Greenberg MT. Current and future challenges in school-based prevention: The researcher perspective. *Prevention Science*. 2004; 5:5–13. [PubMed: 15058907]
- Greenberg M, Domitrovich C, Bumbarger B. The prevention of mental disorders in school-aged children: Current state of the field. *Prevention & Treatment*. 2001; 4:Article 1. Available on the World Wide Web: <http://journals.apa.org/prevention/volume4/pre0040001a.html>.
- Hankin BL, Stone L, Wright PA. Corumination, interpersonal stress generation, and internalizing symptoms: Accumulating effects and transactional influences in a multi-wave study of adolescents. *Development and Psychopathology*. 2010; 22:217–235. [PubMed: 20102657]
- Horowitz JL, Garber J. The prevention of depressive symptoms in children and adolescents: A meta-analytic review. *Journal of Consulting and Clinical Psychology*. 2006; 74:401–415. [PubMed: 16822098]
- Humensky J, Kuwabara SA, Fogel J, Wells C, Goodwin B, Van Voorhees BW. Adolescents with depressive symptoms and their challenges with learning in school. *The Journal of School Nursing*. 2010; 25:377–392. [PubMed: 20606058]
- Jacobson KC, Rowe DC. Genetic and environmental influences on the relationships between family connectedness, school connectedness, and adolescent depressed mood: Sex differences. *Developmental Psychology*. 1999; 35:926–939. [PubMed: 10442862]
- Jaycox LH, Reivich KJ, Gillham J, Seligman MEP. Prevention of depressive symptoms in school children. *Behaviour Research and Therapy*. 1994; 32:801–816. [PubMed: 7993324]
- Jaycox L, Stein BD, Paddock S, Miles JVN, Chandra A, Meredith L, et al. Impact of teen depression on academic, social, and physical functioning. *Pediatrics*. 2009; 124:e596–e605. [PubMed: 19736259]
- Kaufman J, Birmaher B, Brent D, Rao U. Schedule for affective disorders and schizophrenia for school-age children-present and lifetime version (K-SADS-PL): Initial reliability and validity data. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1997; 36:980–988. [PubMed: 9204677]
- Kazdin AE. The state of child and adolescent psychotherapy research. *Child and Adolescent Mental Health*. 2002; 7:53–59.
- Kazdin AE, Kendall PC. Current progress and future plans for developing effective treatments: Comments and perspectives. *Journal of Clinical Child Psychology*. 1998; 27:217–226. [PubMed: 9648038]
- Keller MB, McCullough JP, Klein DN, Arnow B, Dunner DL, Gelenberg AJ, et al. A comparison of nefazodone, the cognitive behavioral-analysis system of psychotherapy, and their combination for the treatment of chronic depression. *The New England Journal of Medicine*. 2000; 342:1462–1470. [PubMed: 10816183]
- Kenward MG, Roger JH. Small sample inference for fixed effects from restricted maximum likelihood. *Biometrics*. 1997; 53:983–997. [PubMed: 9333350]
- Kessler RC, Foster CL, Saunders WB, Stang PE. Social consequences of psychiatric disorders I: Educational attainment. *The American Journal of Psychiatry*. 1995; 152:1026–1032. [PubMed: 7793438]
- La Greca AM, Harrison HM. Adolescent peer relations, friendships, and romantic relationships: Do they predict social anxiety and depression? *Journal of Clinical Child and Adolescent Psychology*. 2005; 34:49–61. [PubMed: 15677280]

- Li Y, Lerner RM. Trajectories of school engagement during adolescence: Implications for grades, depression, delinquency, and substance use. *Developmental Psychology*. 2011; 47(1):233–247. [PubMed: 21244162]
- Loukas A, Ripperger-Suhler KG, Horton KD. Examining temporal associations between school connectedness and early adolescent adjustment. *Journal of Youth and Adolescence*. 2009; 38:804–812. [PubMed: 19636782]
- Marks HM. Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Educational Research Journal*. 2000; 37:153–184.
- Monroe SM, Rohde R, Seeley JR, Lewinsohn PM. Life events and depression in adolescence: Relationship loss as a prospective risk factor for first onset of major depressive disorder. *Journal of Abnormal Psychology*. 1999; 108:606–614. [PubMed: 10609425]
- Mufson L, Dorta KP, Wickramaratne P, Nomura Y, Olfson M, Weissman MM. A randomized effectiveness trial of interpersonal psychotherapy for depressed adolescents. *Archives of General Psychiatry*. 2004; 63:577–584. [PubMed: 15184237]
- Mufson L, Weissman MM, Moreau D, Garfinkel R. Efficacy of interpersonal psychotherapy for depressed adolescents. *Archives of General Psychiatry*. 1999; 56:573–579. [PubMed: 10359475]
- Paternite CE, Johnston TC. Rationale and strategies for central involvement of educators in effective school-based mental health programs. *Journal of Youth and Adolescence*. 2005; 34:41–49.
- Patrick BC, Skinner EA, Connell JP. What motivates children's behavior and emotion? Joint effects of perceived control and autonomy in the academic domain. *Journal of Personality and Social Psychology*. 1993; 65:781–791. [PubMed: 8229650]
- President's New Freedom Commission on Mental Health. *Achieving the promise: Transforming mental health care in America*. Washington, DC: President's New Freedom Commission on Mental Health; 2003.
- Radloff LS. The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*. 1977; 1:385–401.
- Rosselló J, Bernal G. The efficacy of cognitive-behavioral and interpersonal treatments for depression in Puerto Rican adolescents. *Journal of Consulting and Clinical Psychology*. 1999; 67:734–745. [PubMed: 10535240]
- Rudolph KD, Hammen C, Burge D. Interpersonal functioning and depressive symptoms in childhood: Addressing the issues of specificity and comorbidity. *Journal of Abnormal Child Psychology*. 1994; 22:355–371. [PubMed: 8064038]
- Salmela-Aro K, Savolainen H, Holopainen L. Depressive symptoms and school burnout during adolescence: Evidence from two cross-lagged longitudinal studies. *Journal of Youth and Adolescence*. 2009; 38:1316–1327. [PubMed: 19779808]
- Schwarz CJ. The mixed-model ANOVA: The truth, the computer packages, the books. *American Statistician*. 1993; 47:48–59.
- Sedlak MW. The uneasy alliance of mental health services and the schools: An historical perspective. *American Journal of Orthopsychiatry*. 1997; 67:349–362. [PubMed: 9250337]
- Sheeber L, Hops H, Alpert A, Davis B, Andrews J. Family support and conflict: Prospective relations to adolescent depression. *Journal of Abnormal Child Psychology*. 1997; 25:333–344. [PubMed: 9304449]
- Shochet IM, Dadds MR, Ham D, Montague R. School connectedness is an underemphasized parameter in adolescent mental health: Results of a community prediction study. *Journal of Clinical Child and Adolescent Psychology*. 2006; 35:170–179. [PubMed: 16597213]
- Skinner EA, Wellborn JG, Connell JP. What it takes to do well in school and whether I've got it: A process model of perceived control and children's engagement and achievement in school. *Journal of Educational Psychology*. 1990; 82:22–32.
- Stice E, Shaw H, Bohon C, Marti CN, Rohde P. A meta-analytic review of depression prevention programs for children and adolescents: Factors that predict magnitude of intervention effects. *Journal of Consulting and Clinical Psychology*. 2009; 77:486–503. [PubMed: 19485590]
- Sweeting H, Young R, West P, Der G. Peer victimization and depression in early-mid adolescence: A longitudinal study. *British Journal of Educational Psychology*. 2006; 76:577–594. [PubMed: 16953963]

- Verbeke, G.; Molenberghs, G. Linear mixed models for longitudinal data. New York: Springer; 2000.
- Weissman MM, Bothwell S. Assessment of social adjustment by patient self-report. Archives of General Psychiatry. 1976; 33:1111–1115. [PubMed: 962494]
- Weist MD, Paternite CE. Building an interconnected policy-training-practice-research agenda to advance school mental health. Education and Treatment of Children. 2006; 29:173–196.
- Wellborn, JG.; Connell, JP. Manual for the Rochester assessment package for schools. Rochester, NY: University of Rochester; 1987.
- Whitlock JL. Youth perceptions of life at school: Contextual correlations of school connectedness in adolescence. Applied Developmental Science. 2006; 10:13–29.
- Young JF, Gallop R, Mufson L. Mother-child conflict and its moderating effects on depression outcomes in a preventive intervention for adolescent depression. Journal of Clinical Child and Adolescent Psychology. 2009; 38:696–704. [PubMed: 20183654]
- Young JF, Makover HB, Cohen JR, Mufson L, Gallop R, Benas JS. Interpersonal Psychotherapy-Adolescent Skills Training: Anxiety outcomes and impact of comorbidity. Journal of Clinical Child and Adolescent Psychology. 2012 (in press).
- Young, JF.; Mufson, L. Unpublished manual. 2003. Manual for Interpersonal Psychotherapy-Adolescent Skills Training (IPT-AST).
- Young JF, Mufson L, Davies M. Efficacy of interpersonal psychotherapy adolescent skills training: An indicated preventive intervention for depression. Journal of Child Psychology and Psychiatry. 2006a; 47:1254–1262. [PubMed: 17176380]
- Young JF, Mufson L, Davies M. Impact of comorbid anxiety in an effectiveness study of interpersonal psychotherapy for depressed adolescents. Journal of the American Academy of Child and Adolescent Psychiatry. 2006b; 45:904–912. [PubMed: 16865032]
- Young JF, Mufson L, Gallop R. Preventing depression: A randomized trial of interpersonal psychotherapy-adolescent skills training. Depression and Anxiety. 2010; 27:426–433. [PubMed: 20112246]

Fig. 1.
Mean profile plots for total social functioning

Fig. 2.
Mean profile plots for friend functioning

Fig. 3.
Mean profile plots for emotional engagement in school

Table 1

Estimated slopes for the social adjustment scale—self-report

	IPT-AST (N = 36)	SC (N = 21)	T	p value	Cohen's d (95 % CI)
<i>Active phase</i>					
Total	-0.11 (0.02)	-0.01 (0.03)	-2.67	0.01	0.73 (0.17–1.27)
Family	-0.10 (0.04)	-0.01 (0.05)	-1.31	0.19	0.39 (-0.19–0.90)
Friend	-0.13 (0.03)	0.00 (0.04)	-2.88	0.01	0.79 (0.15–1.40)
School	-0.06 (0.03)	-0.02 (0.04)	-0.95	0.34	0.26 (-0.28–0.80)
Dating	-0.19 (0.06)	-0.05 (0.07)	-1.60	0.11	0.16 (-0.38–0.70)
<i>Follow-up phase</i>					
Total	-0.01 (0.00)	-0.02 (0.01)	1.33	0.18	0.37 (-0.25–0.97)
Family	-0.01 (0.01)	-0.02 (0.01)	0.52	0.60	0.14 (-0.40–0.68)
Friend	-0.01 (0.01)	-0.03 (0.01)	2.47	0.01	0.69 (0.13–1.23)
School	-0.01 (0.00)	-0.01 (0.01)	0.58	0.57	0.44 (-0.11–0.98)
Dating	-0.01 (0.01)	0.01 (0.02)	-0.97	0.33	0.27 (-0.27–0.81)

Standard errors of the estimates are in parentheses