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Challenged by cognition : toward optimal measurement and greater understanding of youth cognition in school refusal and cognitive behavioural therapy outcome

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CHAPTER 4

Cognitive Mediation of Cognitive-Behavioural Therapy Outcomes for Adolescent School Refusal

The contents of this chapter are *in submission*:
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Abstract

Objective: To investigate, through mediation analyses, if self-efficacy mediates CBT outcomes for anxiety-based school refusal in adolescence. **Methods:** Participants were 19 adolescents (12-17 years) who completed a developmentally appropriate modularized manual-based cognitive-behavioral treatment. Outcomes associated with school attendance, fear of school, anxiety, depression and internalizing problems were assessed at post-treatment and two month follow-up. Three-wave and two-wave longitudinal mediation models were investigated using innovative statistical approaches appropriate for small samples and single condition designs (MacKinnon, 2008). **Results:** There was evidence that the post-treatment increases in school attendance and decreases in fear of school were mediated by self-efficacy. Mediating effects were not observed at two-month follow-up. **Conclusions:** Findings provide partial support for the role of self-efficacy in mediating the outcome of CBT for school refusal. These findings contribute to a small body of literature suggesting that cognitive change during CBT enhances outcomes for young people with internalizing problems. Regarding methodology, the product of coefficient test appears to be a valuable way to study mediation in outcome studies involving small uncontrolled samples.

Reviews of cognitive-behavioral therapy (CBT) for anxiety-based school refusal⁶ point to the efficacy of CBT for this population (Heyne, 2006; King & Bernstein, 2001). Similarly, in a recent review of psychosocial treatments for anxiety disorders, CBT for school refusal was classified as “possibly efficacious” (Silverman, Pina, & Viswesvaran, 2008, p. 109). Nevertheless, about one-third to one-half of anxious school refusers show little or no response to CBT (Heyne et al., 2002; King et al., 1998; Last, Hansen, & Franco, 1998), indicating that there is room for improvement. Efforts to improve CBT for youth warrant investigation of the mediators of treatment outcome (Chu & Harrison, 2007; Holmbeck, 1997; Hudson, 2005; Kazdin & Nock, 2003; Prins & Ollendick, 2003; Weersing & Weisz, 2002b). Knowledge of the process variables that mediate the effects of CBT can facilitate the refinement of theoretical models of psychopathology and its treatment.

The cognitions of school refusers are likely to be important to the study of mediators of CBT outcome. Cognition is hypothesized to be involved in the maintenance of school refusal (Heyne, 2006; Heyne & King, 2004; Okuyama, Okada, Kuribayashi, & Kaneko, 1999; Place, Hulsmeier, Davis, & Taylor, 2000, 2002) and it is often targeted in treatment (Heyne & Rollings, 2002; Kearney & Albano, 2007). However, no studies have examined the potential mediating role of cognition in the treatment of school refusal. Indeed, in the broader field of internalizing problems in youth, there is limited research on cognitive mediators of CBT outcome. Given the relationship between school refusal and internalizing problems (Bernstein, 1991; Egger, Costello, & Angold, 2003; Last & Francis, 1988; Last, Strauss, & Francis, 1987) we review this small but growing literature.

Two studies by Kendall and colleagues (Kendall & Treadwell, 2007; Treadwell & Kendall, 1996) found that negative self-statements were mediators of CBT outcome for youth anxiety, while positive self-statements were not. Kaufman and colleagues (2005) similarly demonstrated that negative automatic thoughts were mediators of CBT outcome for adolescent depression. Negative cognitive errors, on the other hand, were not found to be mediators of CBT outcome for adolescent depression (Kolko, Brent, Baugher, Bridge, & Birmaher, 2000). To our knowledge, no

6 Hereafter referred to as school refusal.

studies of CBT for internalizing problems in youth have investigated the mediating role of self-efficacy, despite the importance of self-efficacy in theories of behavior change (Bandura, 1994) and in cognitive theories of internalizing disorders (Beck, 1976; Beck, Emery, & Greenberg, 1985). Self-efficacy, referring to a person's beliefs about their capacity to perform well in certain situations (Bandura, 1994), is frequently measured in studies of CBT with youth (e.g., Barrett, Dadds, & Rapee, 1996; Flannery-Schroeder & Kendall, 2000; Heyne et al., 2002; Howard & Kendall, 1996; Kendall et al., 1997; Kendall, 1994; King et al., 1998; Melvin et al., 2006; Mendlowitz et al., 1999; Ollendick, 1995). In these studies, however, it is only examined as a measure of treatment outcome. Research efforts still need to determine whether CBT achieves its outcomes through changes in self-efficacy (Prins & Ollendick, 2003).

Self-efficacy is a cognitive construct which has received special attention in the school refusal literature. Early on, Mansdorf and Lukens (1987) described two cases of school refusal in which self-instructional training was used to help school refusers develop coping statements to guide adaptive behavior. Since then there have been various accounts of school refusers underestimating their ability to cope with stressful or anxiety-provoking situations such as handling peers' questions about absence from school or being separated from parents (Heyne, 2006; Heyne & King, 2004; Place et al., 2000, 2002). Further, self-efficacy is included as a key target in CBT for school refusal (Heyne & Rollings, 2002).

Seeing the potential importance of measuring self-efficacy for situations associated with school attendance, Heyne and colleagues (1998) developed the Self-Efficacy Questionnaire for School Situations (SEQ-SS). The SEQ-SS has shown good internal consistency and temporal stability (Heyne et al., 1998) as well as treatment sensitivity (Heyne et al., 2002; King et al., 1998). Using the SEQ-SS, researchers studying the efficacy of CBT for school refusal have consistently found that an increase in self-efficacy is accompanied by an increase in school attendance and a reduction in internalizing behavior (Heyne et al., 2002; King et al., 1998). With a view to improving CBT for school refusal, a next logical step is to examine the role of self-efficacy in mediating CBT outcome. In this study, it was hypothesized that increases in school refusers' self-efficacy would

mediate the effects of treatment on school attendance and internalizing behavior.

Method

The current study is part of a broader study investigating the efficacy of the '@school project' (Heyne, Sauter, & van Hout, 2008), a developmentally appropriate CBT for anxiety-based school refusal in adolescence. The efficacy study was conducted jointly between the Leiden University Institute of Psychology and the Academic Centre for Child and Adolescent Psychiatry (Curium-LUMC), The Netherlands. The institutional review board of Curium-LUMC approved this investigation, and written informed consent to participate was obtained from school refusers and their parents. Information regarding the participants and procedures are summarized below and described in more detail elsewhere (see Sauter, Heyne, Vermeiren, van Widenfelt, & Westenberg, *submitted*).

Participants

The sample consisted of 20 adolescents who participated in the evaluation of the '@school project'. All participants met Berg and colleagues' (Berg, 2002; Berg, Nichols, & Pritchard, 1969) criteria for school refusal, operationalized as: (i) less than 80% attendance during the past two school weeks (excluding legitimate absences); (ii) presence of a DSM-IV anxiety disorder (except obsessive-compulsive disorder and posttraumatic stress disorder) via administration of ADIS-C/P (Silverman & Albano, 1996; Siebelink & Treffers, 2001), (iii) parents could account for the adolescent's whereabouts on days absent; (iv) no current DSM-IV conduct disorder; and (e) current enrolment at school and expressed parental commitment for their child to achieve regular school attendance.

One adolescent dropped out of treatment, resulting in 19 CBT treatment completers (13 boys and 6 girls) aged 12 to 17 years (mean age=15.0, SD=1.6). Data was available for all 19 treatment completers at post-treatment and for 15 treatment completers (79%) at two-month follow-up. All adolescents were of Dutch origin. In addition to the presence of an anxiety disorder, 9 of the 19 adolescents (47%) met criteria for a

mood disorder at pre-treatment. The majority of adolescents (n=14, 74%) had not attended school at all during the two-weeks of pre-treatment assessment, and one other adolescent attended only 10% of the time.

Measures

Treatment Outcome

SCHOOL ATTENDANCE (% half days attended in the previous two school weeks) was based on inspection of school-based attendance registration. In cases where such data was not available, parents were asked to provide a detailed account of their child's school attendance (5 cases at pre-treatment, 6 at post-treatment, and 9 at follow-up).

SCHOOL FEAR THERMOMETER (SFT; Heyne & Rollings, 2002). The SFT is a visual analogue scale (from 0=*no fear* to 100=*maximum fear*) on which school refusers rate their level of fear about attending school the next day. Researchers have reported high reliability and acceptable validity for the fear thermometer and its variants (Kleinknecht & Bernstein, 1988), and the SFT has good test-retest reliability (Heyne, 1999).

MULTIDIMENSIONAL ANXIETY SCALE FOR CHILDREN (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997; Utens & Ferdinand, 2000). The MASC is a 39-item self-report instrument to assess anxiety in youth, making use of a 4-point Likert scale (from 0=*never* to 3=*often*). Good internal consistency has been reported for both the English- and Dutch-language version (Muris, Gadet, Moolaert, & Merckelback, 1998; Muris, Merckelbach, & Luitjen, 2002; Rynn et al., 2006). The Dutch-language version also has good divergent and convergent validity (Muris et al., 2002) and good temporal stability (Muris et al., 1998).

CHILDREN'S DEPRESSION INVENTORY (CDI; Kovacs, 1992; Braet & Timbremont, 2002). The CDI is a 27-item instrument widely used to measure depression in youth. Each item consists of three statements (e.g., 0=*I am sad once in a while*; 1=*I am sad many times*; 2=*I am sad all the time*). The English- and Dutch-language versions of the CDI have good reliability and validity (Kovacs, 1992; Braet & Timbremont, 2002).

CHILD BEHAVIOUR CHECKLIST (CBCL; Achenbach, 1991a; Verhulst, van der Ende, & Koot, 1996). The CBCL was used to assess maternal reports of the adolescents' internalizing behavior. Items are

rated on a 3-point scale according to how well the item describes the child (0=*not at all true as far as is known*; 1=*somewhat or sometimes true*; 2=*often true*). The Dutch version has good reliability and validity (Verhulst et al., 1996).

Mediator

SELF-EFFICACY QUESTIONNAIRE FOR SCHOOL SITUATIONS-DUTCH VERSION (SEQ-SS-NL; Heyne, et al., 2007). The SEQ-SS-NL is a 23-item self-report instrument developed to assess children's and adolescents' perception of their ability to cope with situations associated with school attendance (e.g., "How sure are you that you could handle questions from others about why you've been away from school?"). Items are answered on a 5-point scale from 1= *really sure I couldn't* to 5=*really sure I could*. It has good internal consistency (van der Leeden, 2008) and adequate convergent validity and test-retest reliability (Duizer, 2007).

Treatment

The CBT treatment was designed as a developmentally appropriate, modularized manual-based treatment comprising cognitive and behavioral interventions. Exemplary modules with adolescents included 'Setting Goals', 'Managing Stress', 'Dealing with Cognition', and 'Attending School'. Exemplary parent-focused modules included 'Responding to Behavior', 'Preparing Parents to Provide Support', 'Helping Build the Young Person's Confidence', and 'Facilitating School Attendance'. For school staff, exemplary modules included 'Organizational Issues', 'Emotional Issues', and 'Academic Issues'. Treatment was implemented across an average of 16 weeks, comprising sessions with the adolescent (M=12.95), his/her parent(s) (M=12.45), and one or two meetings with school-based staff (M=1.7). Two booster sessions were offered in the two months following treatment (M uptake: adolescents=0.8, parents=0.5). Treatment integrity was found to be adequate (Sauter et al., *submitted*).

Procedure

Pre-treatment assessment (T1) of adolescent functioning was based on functioning during the two weeks prior to the commencement of treatment. Post-treatment assessment (T2) and two-month follow-up (T3) were based on functioning during the two weeks following treatment completion and the two weeks prior to follow-up, respectively. T1 assessment was conducted by project clinicians (five psychologists with Master's-level training in clinical/developmental psychology and one with post-graduate training in clinical psychology) and trained Master's-level students. T2 and T3 assessments were conducted by trained Master's-level students blind to treatment progress. Treatment outcome and mediator variables were assessed at T1, T2, and T3.

Mediational Models and Statistical Analyses

Three single mediator models were tested, each with self-efficacy as the mediator under investigation. Theoretically, the mediation effect represents processes in which CBT causes change in the mediator, which in turn causes change in the CBT outcome. This mediating effect was tested in a three-wave design in which the CBT precedes the mediator and the mediator precedes the CBT outcomes (Model 1: CBT->self-efficacy at T2->CBT outcomes at T3). This longitudinal approach is consistent with hypothesized temporal precedences among the variables (Mackinnon, 2008). While the three-wave model satisfies the temporal precedence prerequisite of mediation, it may fail to detect mediation effects if the time lag for the effects between the CBT, mediator, and CBT outcome variables do not coincide with the assessment periods (Gollob & Reichardt, 1987). To capture the immediate and delayed effects of the mediator on the CBT outcomes, two two-wave models were also tested. With the two-wave mediation models potential mediators that are not detected in the fully prospective model using a specific time lag may be identified (Cole & Maxwell, 2003). We investigated whether the effects of CBT on the mediator at post-treatment mediated CBT effects on the outcomes measured at post-treatment (Model 2: CBT->self-efficacy at T2->CBT outcome at T2). We also investigated whether the effects of CBT on the

mediator at follow-up mediated CBT effects on the outcomes measured at follow-up (Model 3: CBT->self-efficacy at T3->CBT outcome at T3). To test single mediator models in this study, asymmetric distribution of product of coefficients test was used rather than the more frequently used Baron and Kenny (1986) approach to mediation because it has greater power and more appropriate Type 1 error rates (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Further, it has the same power as the bias-corrected bootstrap, but it has a more conservative Type 1 error rate (MacKinnon, Lockwood, & Williams, 2004).

Single-mediator analyses were conducted following MacKinnon (2008). For each mediator, four values (c , a , b , c') characterized the relationships among the CBT treatment (X), mediator (M), and outcome (Y). The c path is the total effect of the CBT treatment X on outcome Y . The a path is the effect of the CBT treatment X on the mediator M . The a path was calculated using a dependent-samples t -test in which the changes in the mediator from T1 to T2 were tested for significance in Models 1 and 2, and changes in the mediator from T1 to T3 were tested for significance in Model 3. This approach is specific to the case where there is no control group (i.e., data is only available from experimental conditions so there is not a comparison group to compare changes) and measures are taken before and after treatment (D. MacKinnon, personal communication, November 3, 2009). The b path is the relationship of mediator M to outcome Y . The b path (mediator to outcome) for Models 1 to 3 was tested by regressing the change score of the outcome variables on the change score of the mediator. The product of the a and b paths, ab , is the mediated effect, the part of the total program effect transmitted through the mediator. Statistical significance of the ab estimate is evidence of mediation. The c' path is the direct effect of the CBT treatment X on outcome Y not transmitted through the mediator.

Results

Preliminary Analyses

Outlier analyses were conducted to identify cases that might have large influences on the parameters of the regression model. An outlier was

defined as any case having a standardized $df \beta$ above 2 (Stevens, 2002). Investigation of standardized $df \beta$'s revealed that the values of all cases were below 2. Thus, no meaningful outliers were found. Table 4.1 presents the means and standard deviations for all constructs at pre-treatment, post-treatment, and two-month follow-up. Increases in self-efficacy were accompanied by an increase in school attendance and decreases in internalizing behavior (school fear, anxiety, depression, and parent-reported internalizing behavior).

Table 4.1

Construct Means and Standard Deviations at Pre-, Post-, and Follow-up

Variable	Pre-treatment		Post-treatment		2 month Follow-up	
	Mean	SD	Mean	SD	Mean	SD
SA	12.89	26.21	39.47	46.60	55.94	47.16
SFT	43.16	35.68	37.33	38.54	14.92	26.89
MASC	42.50	20.62	31.67	18.68	30.83	21.93
CDI	14.42	8.94	9.33	6.55	7.58	6.97
CBCL-Int	68.06	9.30	61.81	12.14	53.30	13.24
SEQ-SS-NL	83.47	12.30	91.82	11.46	96.75	9.07

Note. SA=School Attendance (expressed as percentage), SFT=School Fear Thermometer, MASC=Multidimensional Anxiety Scale for Children, CDI=Children's Depression Inventory, CBCL-Int=Child Behavior Checklist Internalizing Problems T score, SEQ-SS-NL=Self-Efficacy Questionnaire for School Situations- Dutch version.

Mediator Analyses for CBT Outcomes

The results of the mediation analyses are presented in Table 4.2. In all three models, self-efficacy increased across participants, as indicated by significant a paths. Changes in self-efficacy from T1 to T2 were not related to any of the outcome measures at T3 (b paths, Model 1). Changes in self-efficacy from T1 to T2 were significantly related to outcome with respect to school attendance, school fear, anxiety, and depression at T2 (significant b paths, Model 2). Changes in self-efficacy from T1 to T3 were significantly related to outcome with respect to depression at T3 (significant b path, Model 3). Significant ab paths supported mediation in two instances. This is seen in Table 4.2 whereby the asymmetric confidence limits (CL) that did not include zero indicated the significance of

an *ab* path. Thus, increases in self-efficacy at post-treatment significantly mediated increases in school attendance and decreases in school fear at post-treatment. Finally, significant *c'* paths related to these two results were consistent with self-efficacy partially mediating school attendance and school fear at post-treatment.

Table 4.2

Summary of the mediation effects (self-efficacy as mediator) for two- and three-wave longitudinal mediation models

Time lag	Outcome	a	b	c'	c	ab	95% CL of mediated effect	
							Lower	Upper
Model 1	SA	- 4.31**	.227	.597	.315	-.978	-4.69	1.92
	SFT	- 4.31**	-.439	.467**	.499	1.892	-.69	5.95
	MASC	- 4.31**	.185	.795**	.806**	-.797	-4.34	2.08
	CDI	- 4.31**	-.057	.718**	.786**	.246	-2.85	3.55
	CBCL-Int	- 4.31**	-.382	.207	.458*	1.646	-1.00	5.62
Model 2	SA	- 4.31**	.770***	.566**	.533*	-3.319	-7.33	-.05
	SFT	- 4.31**	-.759***	.378*	.532*	3.271	.05	7.18
	MASC	- 4.31**	-.467*	.685***	.864***	2.013	-.10	5.41
	CDI	- 4.31**	-.578**	.723**	.855***	2.491	-1.58	8.57
	CBCL-Int	- 4.31**	-.190	.174	.345	.819	-1.24	3.56
Model 3	SA	-3.71**	.422	.269	.315	-1.566	-6.50	1.65
	SFT	-3.71**	-.402	.554	.499	1.491	-1.79	6.65
	MASC	-3.71**	.118	.834**	.806**	-.438	-3.46	1.94
	CDI	-3.71**	-.620*	.738**	.786**	2.300	-2.38	8.36
	CBCL-Int	-3.71**	-.282	.361	.458*	1.215	-1.59	5.11

Note. SA=School Attendance, SFT=School Fear Thermometer, MASC=Multidimensional Anxiety Scale for Children, CDI=Children's Depression Inventory, CBCL-Int=Child Behavior Checklist Internalizing Problems T score; Model 1=CBT->T2 mediator->T3 outcome, Model 2=CBT->T2 mediator->T2 outcome, Model 3=CBT->T3 mediator ->T3 outcome; *<.05, p**<.01, p***<.001.

Discussion

The present study is, to the best of our knowledge, the first to address the question of *how* CBT for school refusal works. We hypothesized that changes in self-efficacy would mediate the effects of CBT on the school attendance and internalizing behavior of adolescent school refusers. In effect, this is also the first study to examine the broader question of whether self-efficacy mediates the outcome of CBT for internalizing problems in youth. The study made use of statistical approaches to studying mediation in small samples in the absence of a control condition (MacKinnon, 2008).

Changes in adolescent self-efficacy observed at post-treatment were concomitant with increases in school attendance and decreases in internalizing behavior, consistent with previous school refusal research (Heyne et al., 2002; King et al., 1998). Importantly for this study, there was evidence for the hypothesized mediating role of self-efficacy within CBT. That is, increases in self-efficacy partially accounted for increases in school attendance and decreases in school fear following CBT. The results from the second two-wave mediation model (i.e., delayed effects of the mediator on CBT outcomes) did not support the hypothesis. That is, while the results associated with mediating a path indicated significant increases in self-efficacy between pre-treatment and two-month follow-up, there was no evidence for self-efficacy being a mediator of CBT outcomes at two-month follow-up. Furthermore, results from the three-wave mediation model indicated that changes in self-efficacy between pre- and post-treatment were not found to be associated with changes in treatment outcome at two-month follow-up.

The finding that self-efficacy mediated school attendance and school fear at post-treatment is consistent with the findings from previous studies of cognitive mediators, whereby post-treatment decreases in the negative self-statements of anxious youth (Kendall & Treadwell, 2007; Treadwell & Kendall, 1996) and the negative automatic thoughts of depressed youth (Kaufman et al., 2005) were found to mediate CBT outcome at post-treatment. The results from the current study also add to these findings. That is, the cognitive construct of self-efficacy is now also associated with enhanced treatment outcome, alongside the construct of

negative cognitive content (i.e., self-statements and automatic thoughts).

It is noteworthy that significant post-treatment mediation effects were only found for school attendance and school fear. Such effects were not found for the other treatment outcome measures (i.e., self-reported anxiety and depression; parent-reported internalizing behavior). It could be argued that increased self-efficacy for handling situations related to school attendance had an effect on those two measures which are most closely connected with the phenomenon of school refusal, namely the amount of time spent at school and the level of fear about being at school. This may point to specificity in the mechanisms of change during CBT for school refusal, in much the same way that Chu and Harrison (2007) suggested that there may be anxiety-specific and depression-specific mediators of CBT outcome for youth with either an anxiety disorder or a depressive disorder. Perhaps CBT for school refusal works predominantly because it helps young people to feel more confident about being at school per se. It is also conceivable that a more general measure of self-efficacy (i.e., self-efficacy not specific to school situations) may have yielded significant mediation effects at post-treatment with respect to self-reported anxiety and depression and parent-reported internalizing behaviour.

The second two-wave model and the three-wave model indicated that self-efficacy did not mediate treatment outcomes at follow-up. These findings may be explained by several factors. First, the smaller sample size at follow-up relative to post-treatment (i.e., $n=19$ at post-treatment and $n=15$ at follow-up) may have reduced the likelihood of finding mediating effects of self-efficacy on CBT outcome. Second, it is possible that other variables or set of variables mediate treatment outcomes at follow-up. Indeed, other CBT-specific variables have been proposed to mediate the outcome of CBT for internalizing disorders in young people, such as the use of trained skills (Alfano et al., 2009; Kaufman et al., 2005). Finally, with regard to the three-wave model, it is possible that the spacing of assessment points in the current study (i.e., pre-treatment, post-treatment, and two-month follow-up) was inadequate to capture a temporal sequence of change in self-efficacy prior to change in functioning at follow-up.

Two limitations associated with the current study deserve particular

attention. First, in the absence of a waitlist control condition, it is possible that the post-treatment changes observed in self-efficacy, school attendance, and school fear were attributable to the passage of time rather than to the effects of the CBT per se. However, in a prior controlled evaluation of CBT for school refusal, the treatment group was observed to have higher post-treatment self-efficacy and school attendance and lower fear of school, relative to the waitlist control group, even when controlling for pre-treatment scores (King et al., 1998). Second, in the absence of a psychological placebo control condition which controls for the non-specific aspects of CBT (e.g., the therapeutic alliance), it remains unclear as to whether CBT-specific aspects of intervention (e.g., cognitive therapy; graded exposure to school attendance) were responsible for the observed change in self-efficacy as opposed to the non-specific aspects of intervention. Treatment designs such as those comparing CBT with psychological placebo conditions controlling for the non-specific aspects of CBT (e.g., Hudson et al., 2009; Last et al., 1998; Silverman et al., 1999) are needed for a fuller understanding of cognitive mediation of CBT outcome (Hudson, 2005).

Although the design of the current study allowed for a test of the temporal precedence of the mediator, a better test of temporal precedence would be facilitated via a design in which there are more frequent assessment points, including assessment during the active phase of treatment (see DeRubeis, Evans, et al., 1990; DeRubeis & Feeley, 1990; Moscovitch, Hofmann, Suvak, & In-Albon, 2005, for examples of such a design). Future mediation studies could also employ single-subject designs to capture the multiple mechanisms which are likely to be related to each young person's functioning (MacKinnon, 2008). This is perhaps especially relevant when investigating intervention for school refusers, given the heterogeneity associated with this population (Heyne & King, 2004). Qualitative data gathered post-treatment (e.g., asking clients "What was most helpful for you in preparing for a return to school?") could provide unique insights into the process of the treatment (Dworkin, Exner, Melendez, Hoffman, & Ehrhardt, 2006; MacKinnon 2008). Developmental considerations also merit further attention. We examined self-efficacy as a mediator of CBT outcome for school refusal among adolescents, and it remains to be seen whether CBT operates through different (cognitive)

mechanisms in younger versus older school refusers. Indeed there is support for age-related differences in cognitive processing (Abela & Hankin, 2008), and receptivity to cognitive therapeutic techniques will vary according to cognitive developmental level (Sauter, Heyne, & Westenberg, 2009).

In conclusion, results suggested that, at post-treatment, increases in school attendance and decreases in school fear were mediated by increases in self-efficacy. The fact that reductions in fear of school and increases in school attendance depended, to some extent, upon enhanced belief in adolescents' ability to engage in school-attending behaviors hints at the importance of targeting self-efficacy during treatment for school refusal. Preventive interventions in educational settings might also target self-efficacy related to situations associated with school attendance. Methodologically, the current study suggests that those methods which have been used to establish mediation effects in larger samples (i.e., product of coefficient test and asymmetric confidence intervals) can be implemented with smaller samples (MacKinnon, 2008). This is particularly important because small samples are common in youth psychotherapy research (Bögels & Siqueland, 2006; Diamond, Reis, Diamond, Siqueland, & Isaacs, 2002; Siqueland, Rynn, & Diamond, 2005).

