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 3

Cognitive Risk Factors in Anxiety-Based School Refusal

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Abstract

The purpose of this study was to investigate cognitive risk factors in anxiety-based school refusal. Negative cognition commonly linked to anxiety in youth (i.e., negative automatic thoughts and cognitive errors) were studied in a sample of school refusers (n=50) and youth without school refusal (n=181) between 11 and 17 years. Positive thoughts were simultaneously investigated. Cognitions were assessed with the Children's Automatic Thoughts Scale-Negative/Positive and the Children's Negative Cognitive Error Questionnaire-Revised. When controlling for anxiety, school refusers were found to report more negative thoughts concerning personal failure, fewer negative thoughts concerning hostility, and fewer positive automatic thoughts. Negative thoughts concerning personal failure and hostility and the negative cognitive error of overgeneralizing were found to independently predict school refusal. The current findings underscore the importance of studying cognitions in efforts to understand the etiology of anxiety-based school refusal and to enhance treatment.

Anxiety-based school refusal[5] occurs among approximately 1 to 2 percent of young people and between 5 and 16 percent of clinic-referred youth (Heyne & King, 2004). It causes significant distress for a young person, their family, and school staff, and it jeopardizes the young person's social, emotional, academic, and vocational development (Berg, 2002). Follow-up studies of clinically-referred young people presenting with school attendance problems indicate a risk for ongoing mental health problems in late adolescence (Buitelaar, Van Andel, Duyx, & Van Strien, 1994) and in adulthood (Berg & Jackson, 1985; Flakierska-Praquin, Lindstrom, & Gillberg, 1997; McCune & Hynes, 2005). Continued effort to better understand the nature of school refusal and to enhance treatment effectiveness is imperative (Heyne, 2006; King, Tonge, Heyne, & Ollendick, 2000).

Characteristically, school refusal comprises a behavioural component (e.g., avoidance of school; Heyne & King, 2004; Kearney, Eisen, & Silverman, 1995; Ollendick & King, 1990), an affective component (e.g., anxiety, fear, depression; Bernstein, 1991; Buitelaar, et al., 1994; Egger, Costello, & Angold, 2003; Hansen, Sanders, Massaro, & Last, 1998; Last, Strauss, & Francis, 1987; Last & Strauss, 1990; MacShane, Walter, & Ray, 2001), and a physiological component (e.g., headaches, stomach pain, nausea; Bernstein, 1997; Egger et al., 2003; Honjo et al., 2001). To a lesser extent, cognitive factors have been associated with school refusal (Heyne, 2006). Self-efficacy, for example, has received some attention in school refusal research and clinical practice. School refusers have been found to have low expectations about their ability to cope with social and emotional problems and other stressful situations associated with school attendance (Heyne et al., 1998; Place, Hulsmeier, Davis, & Taylor, 2000; 2002). Other cognitive constructs appear in the descriptions of clinical practice with school refusers. Place et al. (2000; 2002) described school refusers as having a tendency to interpret problems as insoluble and to have a general pessimistic outlook. Such conclusions, however, were based on a small sample (n = 17) and in the absence of a control group. Based on clinical experience, Heyne (2006) noted that cognitive errors such as 'threat interpretations' and 'underestimation of the ability to cope' may be observed among school-refusing children and adolescents. The negative

5 Hereafter referred to as school refusal.

automatic thoughts associated with such errors appear in published case reports. For example, Anderson and colleagues (1998) reported that a 13-year-old school-refusing boy expected negative reactions from the other children at school (e.g., "I know they're going to tease me") and Mansdorf and Lukens (1987) reported that a 12-year-old school-refusing girl had the thought "the teachers might pick on me because of my absences." The importance of determining the automatic thoughts of school-refusing youth was noted by Kennard and colleagues' (2005) in their discussion about the obstacles in the treatment for adolescent depression. No suggestions were made, however, as to which automatic thoughts might be associated with school refusal.

In short, cursory attention has been paid to the cognitive constructs associated with school refusal. This is despite the fact that cognitive therapy techniques are commonly recommended in the treatment of school refusal (e.g., Heyne & Rollings, 2002; Kearney & Albano, 2007; Kennard et al., 2005; Mansdorf & Lukens, 1987). The field of school refusal clearly lags behind other fields in youth psychopathology with respect to the systematic empirical investigation of associated cognitive risk factors. In the field of youth anxiety, for example, there has been considerable attention to cognition and the field has now turned towards developing more sophisticated models of cognitive risk factors in the prediction and mediation of anxiety and its treatment (e.g., Alfano, Beidel, & Turner, 2002; Bögels & Zigterman, 2000; Creswell, Schniering, & Rapee, 2005; Kendall & Treadwell, 2007; Schniering, & Rapee, 2004b; Silverman et al., 1999; Stallard, 2009; Treadwell & Kendall, 1996; Weems, Berman, Silverman, & Saavedra, 2001; Weems, Costa, Watts, Taylor, & Cannon, 2007). Systematic investigation of the cognitions of school refusers could similarly lead to a fuller understanding of the complex phenomenon of school refusal and to more informed implementation of cognitive interventions.

To some extent, knowledge of the cognitive factors potentially associated with school refusal may be drawn from research on youth anxiety. That is, school refusal is usually characterized by problematic levels of fear and anxiety (e.g., Berg et al., 1993; Bools, Foster, Brown, & Berg, 1990; Egger et al., 2003), albeit that not all young people who refuse to attend school are anxious (Atkinson, Quarrington, & Atkinson,

1989; Hoshino et al., 1987). Most studies have found that anxious youth report more negative cognition than nonanxious or low anxious youth, with respect to cognitive products (i.e., automatic thoughts) as well as cognitive process (i.e., cognitive errors). Using the Children's Automatic Thoughts Scale (CATS; Schniering & Rapee, 2002), Schniering and Rapee (2002) found that negative automatic thoughts concerning social threat, physical threat, and personal failure were significantly related to anxiety in a community sample of youth. Research in which the Children's Negative Cognitive Error Questionnaire (CNCEQ; Leitenberg, Yost, & Carroll-Wilson, 1986) was administered to a community sample of youth found that anxious children scored significantly higher than their nonanxious counterparts on the total negative cognitive error scale and on four types of errors (i.e., catastrophizing, overgeneralizing, personalizing, and selective abstraction). Likewise, other studies making use of the CATS (Micco & Ehrenreich, 2009) or the CNCEQ (Weems et al., 2001; 2007) have found a relation between anxiety and negative cognitions.

Few studies have investigated the role of positive cognitions in anxiety in youth. A dominant perspective on the role of positive cognitions in anxiety is 'the power of non-negative thinking' perspective. That is, the absence of positive cognitions is considered to be less influential in the development and persistence of anxiety than the presence of negative cognitions (Kendall & Chansky, 1991; Kendall & Korgeski, 1979). Indeed, negative self-talk has been shown to have a greater association with anxious symptoms relative to positive self-talk (Kendall & Treadwell, 2007; Treadwell & Kendall, 1996). Further, in two studies comparing anxious and nonanxious youth, no differences were found with respect to the presence of positive cognitions (Bögels & Zigterman, 2000; Miers, Blöte, Bögels, & Westenberg, 2008). Moreover, positive coping statements were not found to be predictive of test-anxiety (Prins & Hanewald, 1997). In a recent study, however, there was some evidence for a relationship between positive automatic thoughts and anxiety in young people. Hogendoorn et al. (2010) extended the CATS to include items measuring positive automatic thoughts (i.e., CATS-Negative/Positive [CATS-N/P]) and found that positive automatic thoughts were negatively associated with anxiety in a community sample of children and adolescents.

In summary, there is anecdotal support for the notion that

negative cognitions are related to school refusal. To further understand school refusal and to enhance treatment effectiveness, it is important to systematically examine the role of cognitive risk factors in school refusal. Negative automatic thoughts and negative cognitive errors are prime candidates for investigation; they have been found to be involved in the etiology of anxiety and in the prediction or mediation of outcome of CBT for anxiety. An additional area for investigation is positive cognition, given that it has received some attention in investigations of psychopathology in young people. The first research question was whether there are differences between school-refusing youth and youth without school refusal with respect to negative automatic thoughts, negative cognitive errors, and positive automatic thoughts. Based on the anecdotal evidence for a relationship between negative cognition and school refusal (Anderson, et al., 1998; Heyne, 2006; Heyne et al., 1998; Mansdorf & Lukens, 1987; Place et al., 2000; 2002), it was hypothesized that youth with school refusal would report higher levels of negative automatic thoughts and higher levels of negative cognitive errors. No specific hypotheses were formulated with respect to positive automatic thoughts, given the somewhat mixed findings surrounding the role of positive cognition in youth psychopathology. The second research question was whether negative automatic thoughts, negative cognitive errors, and positive automatic thoughts have a unique contribution to the prediction of school refusal. This question was addressed exploratively.

Method

Participants

Participants were 50 school-refusing children and adolescents (the 'school refusal sample') and 181 children and adolescents without school refusal (the 'control sample'). Young people were accepted into the study if they were aged between 10 and 18 years. The school refusal sample met Berg and colleagues' (2002; 1969) criteria for school refusal: (1) reluctant or refusing to attend school; (2) at home during school hours, rather than concealing non-attendance from parents; (3) emotional upset at the prospect of attending school, reflected in excessive fearfulness, temper

tantrums, unhappiness, or possibly in the form of unexplained physical symptoms; (4) an absence of severe antisocial tendencies, beyond the young person's resistance to parental attempts to get them to school; and (5) reasonable parental efforts to secure the young person's attendance at school, at some stage in the history of the problem. Similar to prior studies with school refusal samples (e.g., Bernstein et al., 2000; Heyne et al., 2002), criterion 1 was operationalized as absence from school for at least 20 percent of the time (excluding legitimate absences) during the two weeks prior to assessment. For the majority of the school refusal sample (i.e., those from the '@school project' as described below) criterion 3 was operationalized as the presence of a DSM-IV (American Psychiatric Association [APA], 1994) anxiety disorder (other than obsessive-compulsive disorder or posttraumatic stress disorder) and criterion 4 was operationalized as the absence of DSM-IV conduct disorder, as assessed via the ADISC-C/P (Silverman & Albano, 1996). For the remainder of the school refusal sample, due to organizational issues, criteria 3 and 4 were operationalized as the presence of anxiety and the absence of antisocial behaviour as assessed via clinical interviews and checklists employed within the municipal mental health services. Children and adolescents were excluded if they had IQ<80 or had participated in cognitive-behavioral therapy in the two months prior to assessment. Initially 52 school refusers were recruited: 31 (60%) were consecutive referrals to the '@school project' (an academic clinic for evaluating an intervention for school refusal) and 21 (40%) were referred for school refusal to a municipal mental health services in the southwestern part of the Netherlands. Two of the school refusal cases were excluded from data analysis due to missing data. The mean age for the remaining 50 school-refusing youth was 14.6 years (age range 11-17 years; SD = 1.40). Fifty-eight percent of the youth with school refusal were male. The majority of school-refusing youth (92%) had a Dutch background, 2% were Turkish, and 6% reported 'other' ethnic background. The mean level of school attendance in the two weeks prior to assessment was 24%. Almost half of the school-refusing youth (49%) had not attended school at all in these two weeks. Of those who had attended school some of the time (i.e., 51% of the school-refusing youth), the mean level of school attendance was 46%. As per our operationalisation of school refusal, none of those who attended

school in the two weeks prior to assessment were present for more than 80% of the time. The control sample comprised 181 adolescents drawn from two elementary public schools and two secondary public schools also in the southwestern region of the Netherlands. This represents a 100 percent response rate from schools approached to participate in the study. The mean age of the control sample youth was 13.6 years (age range 11-17 years; SD = 1.89), and fifty-five percent were male. The majority of the control sample (88%) had a Dutch background, while 3% were Surinamese, 2% were Turkish, 1% was Moroccan, and 5% reported 'other' ethnic background.

The school refusal sample and control sample did not differ with respect to gender, X^2 (1) = .12, p = .73, or ethnicity, X^2 (4) = 2.36, p = .67. Youth in the school refusal sample were found to be significantly older than youth in the control sample, $t(229) = 4.07$, $p < .001$.

Measures

CHILDREN'S AUTOMATIC THOUGHTS SCALE NEGATIVE/POSITIVE (CATS-N/P)
The CATS-N/P (Hogendoorn et al., 2010) is a 50-item self-report measure designed to assess negative and positive automatic thoughts in youth aged 8 to 18 years. It yields scores for five subscales, namely 'physical threat' (e.g., "I'm going to have an accident"), 'social threat' (e.g., "Kids are going to laugh at me"), 'personal failure' (e.g., "I can't do anything right"), 'hostility' (e.g., "Bad people deserve to be punished"), and 'positive thoughts' (e.g., "I enjoy life"). Children and adolescents rate the frequency with which they had each thought over the past week using a 5-point scale from 0="not at all" to 4="all the time". The CATS-N/P has good internal consistency and test-retest reliability (Hogendoorn et al., 2010). The earlier version of the CATS-N/P (i.e., CATS; Schniering & Rapee, 2002) contains four of the five subscales (i.e., all subscales except 'positive thoughts') and was found to have good internal consistency and satisfactory test-retest reliability, and to discriminate between young people with internalizing disorders and those with externalizing disorders (Schniering & Rapee, 2002; 2004b).

CHILDREN'S NEGATIVE COGNITIVE ERROR QUESTIONNAIRE-REVISED (CNCEQ-R)

The CNCEQ-R (Maric, Heyne, van Widenfelt, & Westenberg, *in press*) is a 16-item self-report measure based on the Children's Negative Cognitive Error Questionnaire (Leitenberg, Yost, & Carroll-Wilson, 1986). It assesses negative cognitive errors in youth aged 9 to 17 years. Two to three line descriptions of hypothetical situations or events are followed by a statement in the form of a thought about the situation or event. Using a 5-point scale from "not at all like I would think" (1) to "almost exactly like I would think" (5) children and adolescents rate the extent to which the statement represents how he or she would think if experiencing that same situation or event. Using exploratory and confirmatory factor analytic approaches Maric et al. identified five subscales measuring the following negative cognitive errors: 'underestimation of the ability to cope' (e.g., Because you are moving, you will go to a different school after the summer, make new friends and get used to a new place. You think, "I will not be able to handle all these new things."), 'personalizing without mind reading' (e.g., You and three other students completed a group science project. Your teacher did not think it was very good and gave your group a poor grade. You think, "If I hadn't done such a lousy job, we would have gotten a good grade."), 'selective abstraction' (e.g., You are trying out for the school softball team. You get up four times and get two hits and make two outs. You think, "What a lousy practice I had."), 'overgeneralizing' (e.g., Your class is starting a new unit in math. The last one was really hard. When it's time for math class you think, "The last stuff was so hard I just know I'm going to have trouble with this too."), and 'mind reading' (e.g., You are giving a talk in your class at school. You have just begun when some of your classmates suddenly start to laugh. You think, "They think I am not doing a good job."). The total scale has good internal consistency and the internal consistency of the five subscales is moderate to good (Maric, Heyne, van Widenfelt, & Westenberg, *in press*).

MULTIDIMENSIONAL ANXIETY SCALE FOR CHILDREN (MASC)

The MASC (March, Parker, Sullivan, Stallings, & Conners, 1997) is a 39-item self-report measure for youth aged 8 to 19 years, assessing anxiety in four domains (i.e., physical symptoms, social anxiety, harm avoidance,

and separation anxiety). Young people rate the extent to which each item is true for them (0 = "never"; 1 = rarely"; 2 = "sometimes"; 3 = "often"). Good internal consistency has been reported for both the English-language version (Rynn et al., 2006) and the Dutch-language version (Muris, Gadet, Moulaert, & Merckelback, 1998; Muris, Merckelbach, & Luitjen, 2002). The Dutch-language version also has good divergent and convergent validity (Muris et al., 2002) and good temporal stability (Muris et al., 1998).

Procedure

The study was carried out according to the regulations and with the approval of the Psychology Ethics Committee of the University. For the school refusal sample, written informed consent was required from adolescents and their parents or primary caregivers. Control sample youth were required to give their written informed consent prior to the administration of study measures. For practical reasons and in keeping with ethics committee guidelines, a passive form of consent was used with the parents. Two of the 183 youth (1.1%) who were approached to participate in the control sample were not administered the measures because their parents did not approve of their involvement in the study. Study measures were completed by youth in the school refusal sample during an individual intake assessment with a psychologist or social worker. The control sample was administered the study measures in a classroom setting, during a free period in school time or after school hours. A teacher and at least one bachelor-level psychology student supervised the administration of the measures.

Data Analytic Strategy

Age and gender have previously been found to be associated with scores on the CATS-N/P (Hogendoorn et al., 2010) and on the CNCEQ (Leitenberg et al., 1986; Weems et al., 2001). Thus, analyses were conducted controlling for the effects of age and gender. We also controlled for level of anxiety given that school refusal is defined in part by the presence of emotional upset (e.g., Berg and colleagues, 1969, 2002; Last & Strauss, 1990), and this is often in the form of anxiety (e.g., Berg et al., 1993; Bools et al., 1990; Egger et al., 2003).

The first research question (addressing differences in cognitive risk factors between youth with and without school refusal) was analyzed using MANCOVAs. In order to compare the two groups on automatic thoughts and cognitive errors, two two-step MANCOVAs were conducted. In the first MANCOVA the five automatic thought subscales of the CATS-N/P were the dependent variables. In the second MANCOVA the dependent variables were the five cognitive error subscales of the CNCEQ-R. In the first step, group (school refuser vs. control) was the independent variable, with gender and age as covariates. In the second step, anxiety was added to the covariates to check for the influence of anxiety on group differences.

For the second research question (addressing the prediction of school refusal on the basis of unique cognitive risk factors), the data was analyzed using logistic regression analyses. A three-step hierarchical logistic regression analysis was performed with school refusal as the outcome and with demographic factors (age, gender) as predictors (*Model 1*). To determine the unique contribution of cognitive risk factors to the prediction of school refusal, the five automatic thoughts subscales and the five cognitive error subscales were added to the model (*Model 2*). Finally, to determine whether cognitive risk factors contributed uniquely to the prediction of school refusal even when controlling for anxiety, anxiety was added to the model (*Model 3*). To compare the sizes of the different effects, *standardized regression weights* were presented for each predictor in addition to unstandardized regression weights and odds ratios. Standardized regression weights in logistic regression analysis were computed by the authors following the procedure described in Menard (2009).

Results

Differences in Cognition between Youth with and without School Refusal

The results arising from the MANCOVAs are presented in Table 3.1. In the first series of analyses investigating the five automatic thoughts subscales, the multivariate test in step 1 was highly significant, Wilks' lambda = .82, $F(5, 223) = 9.95$, $p < .001$. Univariate *F* tests (Table 3.1) revealed that the school refusal group had significantly higher levels of thoughts concerning social threat, $F(1, 227) = 10.18$, $p < .01$ ($M = 9.93$ vs. 6.60) and personal failure, $F(1, 227) = 23.07$, $p < .001$ ($M = 9.89$ vs. 4.88); significantly lower levels of thoughts concerning hostility, $F(1, 227) = 6.16$, $p < .05$ ($M = 9.61$ vs. 12.42); and significantly lower levels of positive thoughts, $F(1, 227) = 12.06$, $p < .001$ ($M = 16.19$ vs. 20.71). The groups did not differ with regard to the thoughts concerning physical threat. When anxiety was added as a covariate in step 2, the school refusal group was still found to report significantly higher levels of thoughts concerning personal failure, and significantly lower levels of thoughts concerning hostility and of positive thoughts. However, there was no longer a difference between the school refusal group and the control group with respect to thoughts concerning social threat.

In the second series of analyses investigating the negative cognitive error subscales, the multivariate test in step 1 was significant, Wilks' lambda = .95, $F(5, 223) = 9.95$, $p < .05$. The two groups differed significantly with respect to overgeneralizing, $F(1, 227) = 8.38$, $p < .01$, whereby the school refusal group displayed more overgeneralizing relative to the control group ($M = 6.73$ vs. 5.65). This difference was no longer observed when anxiety was added as a covariate in step 2.

All effect sizes of differences in cognitions between the two groups were small to medium except for the effect size for negative automatic thoughts of personal failure which was large.

Table 3.1

Group Differences on Measures of Negative and Positive Automatic Thoughts and Negative Cognitive Errors

	Mean (SD)		F^1	d	F^2	d
	SR	C				
Automatic Thoughts[a]						
Negative: Physical Threat	5.88 (6.44)	5.45 (5.32)	.8	.14	2.23	.24
Negative: Social Threat	9.40 (10.48)	6.75 (4.86)	10.18**	.51	.28	.08
Negative: Failure	9.60 (9.81)	4.96 (5.12)	23.07***	.77	8.42**	.47
Negative: Hostility	9.70 (7.32)	12.39 (7.11)	6.16**	.40	7.66**	.44
Positive	16.38 (9.72)	20.66 (7.59)	12.06***	.57	5.88*	.39
Negative Cognitive Errors[b]						
Underestimation of the ability to cope	6.74 (3.24)	6.38 (2.43)	2.41	.25	.48	.11
Personalizing without mind reading	7.14 (3.00)	6.62 (2.40)	3.38	.30	.00	.00
Selective abstraction	6.70 (2.67)	6.65 (2.45)	.17	.07	1.56	.20
Overgeneralizing	6.66 (3.01)	5.67 (2.03)	8.38*	.46	1.35	.19
Mind reading	9.36 (4.10)	8.93 (3.07)	3.41	.30	.02	.02

Note. SR=school refusal sample, C=control sample; F^1: age and gender as covariates; F^2: age, gender, and anxiety as covariates; SD=standard deviation; d=effect size.

[a]Total scores for each of the 5 automatic thoughts subscales range from 0 to 40, with higher scores indicating more negative or positive thoughts.

[b]Total scores for the first four negative cognitive error subscales range from 3 to 15, and the total score for the 'Mind reading' subscale ranges from 4 to 20, with higher scores indicating a greater level of the negative cognitive error in question.

*p<.05, **<.01, ***<.001.

Predicting School Refusal

The results of the logistic regression analyses are presented in Table 3.2. *Model 1*, incorporating the demographic variables age and gender, was highly significant, $X^2(2) = 11.89$, $p < .01$, *Nagelkerke* $R^2 = .077$. The only significant predictor was age, *Wald*(1) = 10.58, $p < .001$, $B^* = .203$, indicating that older children were more likely to be school refusers (Table 3.2). *Model 2,* in which the ten subscales for automatic thoughts and cognitive errors were added to the demographic variables, was highly significant, $X^2(12) = 60.45$, $p < .001$, *Nagelkerke* $R^2 = .355$, and significantly better than model 1, $X^2(10) = 48.56$, $p < .001$. Of the ten cognitive predictors, three made a unique contribution to the prediction of school refusal. More automatic thoughts concerning personal failure, $B^* = .421$, *Wald*(1) = 14.09, $p < .001$, fewer automatic thoughts concerning hostility, $B^* = -.301$, *Wald*(1) = 12.56, $p < .001$, and a greater tendency towards the cognitive error of overgeneralizing, $B^* = .182$, *Wald*(1) = 5.86, $p < .05$, were associated with an increased likelihood of being classified as a school refuser. *Model 3,* in which anxiety was added as a predictor, was highly significant, $X^2(13) = 67.30$, $p < .001$, *Nagelkerke* $R^2 = .390$, and significantly better than model 2, $X^2(1) = 6.85$, $p < .01$. Anxiety was a significant predictor of school refusal, $B^* = .231$, *Wald*(1) = 4.51, $p < .01$, indicating that after correction for demographic and cognitive variables, higher anxiety levels were associated with an increased likelihood of being classified as a school refuser. Importantly, after correction for anxiety, cognitive risk factors were still significantly related to school refusal, namely: automatic thoughts concerning personal failure, $B^* = .419$, *Wald*(1) = 14.01, $p < .001$, automatic thoughts concerning hostility, $B^* = .257$, *Wald*(1) = 8.84, $p < .01$, and the cognitive error of overgeneralizing, $B^* = .175$, *Wald*(1) = 5.15, $p < .01$.

Table 3.2
Hierarchical logistic regression analysis with automatic thoughts and cognitive errors as constructs to distinguish between school refusal youth (n = 50) and control group youth (n = 181)

Predictor	B	B*	OR	Wald
Model 1: Demographic only				
Gender	-.042	-.007	.959	.02
Age	.318	.203	1.374	10.58 ***
Model 2: Demographic plus cognitions				
AT: Physical Threat	-.088	-.147	.916	2.54
AT: Social Threat	.004	.008	1.004	.01
AT: Failure	.208	.421	1.231	14.09 ***
AT: Hostility	-.137	-.301	.872	12.56 ***
AT: Positive	-.007	-.017	.993	.07
CE: Underestimate coping ability	-.089	-.071	.915	.69
CE: Overgeneralizing	.261	.182	1.298	5.86 *
CE: Personalizing	-.106	-.012	.984	.03
CE: Selective abstraction	-.088	-.066	.916	.92
CE: Mind reading	-.060	-.060	.942	.41
Model 3: Demographic plus cognitions plus anxiety				
Anxiety	-.047	.231	1.048	4.513 **

Note. AT=Automatic Thought, CE=Cognitive Error.
*p < .05, **p < .01, ***p < .001

Discussion

Cognitive therapy is suggested to be an important component in the treatment of school refusal, but knowledge about the role of cognitions in school refusal is virtually absent. This study represents the first systematic investigation of cognitive risk factors (automatic thoughts and cognitive errors) potentially associated with school refusal. The two instruments which were used to assess the cognitions of school refusers and youth not refusing to attend school are important adaptations of earlier measures used to assess cognitions in anxious and depressed young people. The CATS-N/P (Hogendoorn, et al., 2010) permits assessment of negative as well as positive automatic thoughts, and the CNCEQ-R (Maric, et al., *in press*) comprises empirically-derived categories of negative cognitive errors.

The hypothesis that school-refusing youth would have more negative automatic thoughts and more negative cognitive errors than youth without school refusal was partially supported. The school-refusing youth had significantly higher levels of negative automatic thoughts concerning social threat, negative automatic thoughts concerning personal failure, and the negative cognitive error of overgeneralizing. At the same time, the school-refusing youth also reported significantly lower levels of negative automatic thoughts concerning hostility, which is not in keeping with the hypothesis that they would have more negative automatic thoughts. Regarding positive automatic thoughts, the school-refusing youth had significantly lower levels relative to youth without school refusal. After controlling for anxiety, they continued to have significantly higher levels of negative automatic thoughts concerning personal failure, significantly lower levels of negative automatic thoughts concerning hostility, and significantly lower levels of positive automatic thoughts. We also examined the unique contribution of cognition (negative and positive automatic thoughts, and negative cognitive errors) in the prediction of school refusal. Negative automatic thoughts concerning personal failure and hostility, and the negative cognitive error of overgeneralizing were found to independently distinguish between youth with and without school refusal, even after controlling for anxiety.

School Refusal and Negative Automatic Thoughts

Even when controlling for anxiety, negative automatic thoughts concerning personal failure were found to differentiate between school-refusing youth and those not refusing school, and to uniquely predict school refusal. It is conceivable that the experience of regularly or consistently failing to attend school gives rise to thoughts of personal failure as measured by the CATS-N/P (e.g., "I've made such a mess out of my life"; "I will never overcome my problems"). Such thoughts may exacerbate a school refuser's sense of hopelessness and hinder efforts towards school return. Of course, longitudinal research is required in order to determine the extent to which such thoughts contribute to the development of school refusal and the extent to which they are a consequence of school refusal.

The school refusal group also reported a relative absence of

negative automatic thoughts concerning hostility with lower mean score for these thoughts (i.e., M = 9.70) than the community sample (i.e., M = 12.39) in this study, and in previous studies (i.e., mean score of the community sample in Schniering and Rapee's [2002] study was 13.30). This result is further in contrast to prior research in which no differences in automatic thoughts concerning hostility were found between anxious and nonanxious youth (Micco & Ehrenreich, 2009; Schniering & Rapee, 2002). The difference in results may be explained by the selection criteria used in the current study, whereby school refusal was defined in part by the absence of severe antisocial tendencies (following the criteria of Berg et al. [2002; 1969]). The same criterion did not apply to the recruitment of the youth in the control sample. It is also possible that school-refusing youth are, in general, less inclined towards hostile thoughts, even relative to young people who are anxious but who do not refuse to attend school. The fact that school refusal is characterized by lower levels of hostile intent is also important for discussions about the classification of school attendance problems. While some authors (e.g., Kearney, 2007) discourage differentiation between school refusal and truancy based on the form of clinical symptoms (which could be taken to include type of cognitions), others regard differentiation between school refusal and truancy as meaningful, especially with respect to treatment planning (e.g., Heyne, 2006). Comparing the cognitions of school-refusing youth with those of youth who truant but who do not display other antisocial tendencies could further our understanding of the cognitive differences (or similarities) between school refusal and truancy.

School Refusal and Negative Cognitive Errors

The negative cognitive error of overgeneralizing predicted school refusal. This result mirrors previous research in which it was found that overgeneralizing predicted youth anxiety (e.g., Epkins, 1996; Weems et al., 2001). Overgeneralizing resembles the 'persistent' and 'pervasive' ways of thinking that are associated with pessimism (Seligman, 1991), and indeed the pessimistic thinking style has been found to be related to school refusal (Place et al., 2000; 2002). Thus the present study is part of a small body of literature suggesting that an expectation of negative

events is characteristic of school refusers. It should be noted, however, that the hypothetical scenarios associated with the CNCEQ-R items assessing overgeneralizing pertain to academic and sport situations at school. It remains to be seen whether school refusal is associated with overgeneralization in general, and not just with an overgeneralization of school-related experiences.

None of the other cognitive errors were found to predict school refusal, even prior to controlling for anxiety. In one sense, we may have expected to find that the error 'underestimation of the ability to cope' was characteristic of the school-refusing youth, given the suggestion that youth with school refusal report low levels of self-efficacy (Heyne, et al., 1998; Heyne et al., 2002). However, prior suggestions that school refusal is characterized by low self-efficacy were based upon the use of a domain specific measure of self-efficacy; that is, specific to school attendance (e.g., being able to cope with answering classmates' questions about absence from school). In the current study, only one of the three items assessing 'underestimation of the ability to cope' pertained to school situations. It is also possible that the sampling procedure in the current study explains, to some extent, the fact that more cognitive errors were not found to be predictive of school refusal. Our sample of school refusers comprised young people varying in the severity of school refusal. Cognitive errors such as 'underestimation of the ability to cope' and 'mind reading', for example, may be more characteristic of severe cases of school refusal relative to less severe cases.

School Refusal and Positive Automatic Thoughts

Several prior studies comparing anxious and nonanxious youth found no differences with respect to positive cognition (Bögels & Zigterman, 2000; Miers, et al., 2008), although a more recent study found that positive automatic thoughts were negatively associated with anxiety (Hogendoorn et al., 2010). In the current study, school-refusing youth were found to have significantly lower levels of positive automatic thoughts relative to youth not refusing to attend school. Importantly, this difference held even when controlling for anxiety. Thus, while previous literature is unclear with respect to the relationship between anxiety and positive

automatic thoughts, there is now support for the notion that school refusal is associated with a low level of positive automatic thoughts, and the relative absence of positive automatic thoughts seems to be more than an epiphenomenon of anxiety. At the same time, the results of the logistic regression analyses in the current study suggest that positive automatic thoughts are not important in the prediction of school refusal. This is in line with the notion of 'the power of non-negative thinking' (Kendall & Chansky, 1991; Kendall & Korgeski, 1979) and with research examining the role of positive cognitions in the prediction of youth anxiety (Kendall and colleagues, 1996, 2007).

Limitations and Directions for Further Research

The cross-sectional nature of the study precludes inferences about causality. For example, it remains unclear as to whether the tendency for school refusers to overgeneralize negative events contributes to the development of refusal to attend school, or whether this style of thinking emerges as a result of chronic difficulties attending school. Longitudinal studies are needed to understand the order of the associations found between school refusal, automatic thoughts, and cognitive errors. A second limitation concerns the absence of a measure of depression. School refusal has been associated with depression (Heyne, 2006), and in order to ensure that the results of the current study are not merely epiphenomena of depression, depression should be included as a control variable. It would be important to know, for example, that negative automatic thoughts concerning personal failure continue to characterize school refusal, even when controlling for depression. Third, the greater proportion of school refusers was drawn from an academic centre specializing in the treatment of school refusal. It is unclear whether the current results are generalizable to all school-refusing youth. Future research using larger samples would permit investigation of factors which might moderate the relationship between school refusal on the one hand and automatic thoughts and cognitive errors on the other, such as referral type, severity of school refusal, and chronicity. In future treatment outcome research, the assessment of school refusers' automatic thoughts and cognitive errors before, during, and after treatment would also permit investigation of the

role that cognitions play in predicting, mediating, and moderating the outcome of treatment for school refusal. Finally, given that age has been found to moderate the relationship between cognitions and internalizing problems in youth (Alfano, Beidel, & Turner, 2006; Weems et al., 2001), developmental factors should be considered in such investigations.

Conclusion

In conclusion, the current study provides some support for the notion that negative cognition is a risk factor for school refusal. Even when controlling for anxiety, school refusers reported more negative automatic thoughts of personal failure, and the presence of school refusal was predicted by thoughts of personal failure and by the cognitive error of overgeneralizing. Irrespective of whether such cognition is involved in the development of school refusal or is a consequence of school refusal, it is likely that such cognition contributes to the maintenance of a refusal to attend school. Thoughts of personal failure and the tendency to overgeneralize negative events may hinder school refusers in undertaking action towards regular school attendance. Such cognitive products and cognitive process may be important targets for therapists working with school-refusing youth. Negative automatic thoughts of hostility also appear to be a risk factor for school refusal. In this case, however, school refusers were observed to report fewer thoughts concerning hostility. Given that higher levels of thoughts concerning hostility are related to aggressiveness in youth (Schniering & Rapee, 2004b), it is plausible that relatively low levels of hostility thoughts among school-refusing youth are associated with some degree of subassertiveness. In this case, school refusers may profit from social skills training, helping them become more competent in assertively responding to the challenging situations associated with school attendance.