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School of Psychology

Understanding the Relationship between Anxiety, Cognitive Processing, and School Attendance: A Developmental Perspective

by

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I, REBECCA CLARE NEWMAN, declare that the thesis entitled 'Understanding the Relationship between Anxiety, Cognitive Processing, and School Attendance: A Developmental Perspective' and the work presented in the thesis are both my own and have been generated by me as the result of my own original research. I confirm that:

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Abbreviations

α = Chronbach's alpha

β = standardised regression weight

B = Beta value

SE B = standard error Beta

ADHD = Attention Deficit Hyperactivity Disorder

ADIS-C/P = Anxiety Disorders Interview Schedule for Children: child/parent versions

CBCL = Child Behavior Checklist

CBT = Cognitive Behavioural Therapy

CD = Conduct Disorder

GAD = Generalised Anxiety Disorder

OAD = Overanxious Disorder

ODD = Oppositional Defiant Disorder

PA = Persistent absence

PTSD = Post Traumatic Stress Disorder

RCADS = Revised Child Anxiety and Depression Scale

RT = Reaction time

SA = Separation Anxiety

SAD = Separation Anxiety Disorder

SDQ = Strengths and Difficulties Questionnaire

SP = Social Phobia

SRB = School refusal behaviour

SRAS = School refusal assessment scale

SRAS-R-C/P = School refusal assessment scale revised: child/parent versions

SSA = Severe social anxiety

Chapter 1: Literature Review

Understanding the Relationship between Anxiety, Cognitive Processing, and School Attendance: A Developmental Perspective

The Journal of Educational Psychology (Editor: Arthur C. Grasser, PhD) guided the preparation of this paper.

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ABSTRACT

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Understanding the Relationship between Anxiety, Cognitive Processing, and School Attendance: A Developmental Perspective

by Rebecca Clare Newman

This paper considers the relationship between anxiety, cognitive processing, and school attendance with reference to child-motivated school absenteeism (school refusal). School refusal typically represents a complex pattern of behaviours that can affect children of different ages and occur at any time. It has been linked to underlying emotional and behavioural difficulties, and poor short- and long-term outcomes, for the young person (including academic failure and economic deprivation) (e.g. Tramontina et al., 2001). Recent research has revealed a predominance of anxiety symptoms associated with School refusal behaviour (SRB) which appear to follow certain developmental patterns: symptoms of separation anxiety are more common in younger children whereas social anxiety occurs most often in adolescents. Theories of anxiety suggest a role for cognitive processing (e.g. biased attentional control) in understanding the etiology and maintenance of anxiety. For example Kearney and Silverman (1990; 1996) developed a functional model of SRB to explore this relationship. The model demonstrates an association between anxiety symptoms (forms) and cognitions (functions) of SRB and proposes a mediational relationship between these variables and the degree of absenteeism. The authors suggest that a child's behaviour will be consistent with one of four functions (motivations for refusing school), providing positive or negative reinforcement for their absenteeism and linked to the anxiety symptoms they experience. This paper presents current research in the areas of childhood anxiety and cognition, and aims to investigate SRB from a developmental perspective. Methodological issues and directions for future research are discussed.

Introduction

Whilst many children enjoy school and attend regularly approximately 5-28% display SRB which is defined as difficulty attending or remaining at school for the duration of the day (Kearney & Silverman, 1996). Individuals with SRB are of significant concern to professionals due to the heterogeneity in emotional and behavioural difficulties often associated with their absenteeism, and the lack of consensus over how to define and address the problem (Kearney, 2002a; Kearney & Albano, 2004; Kearney & Bensaheb, 2006). A plethora of terms exist to describe different forms of SRB including truancy, school refusal, and school phobia (Thambirajah, Grandison, & De-Hayes, 2008). Truancy refers to a child's unauthorised absence from school usually without the knowledge, approval, or consent of their parents (Thambirajah et al.). It has been linked to problematic and externalised behaviours; associated with juvenile delinquency (Kearney, Eisen, & Silverman, 1995); and is generally considered devoid of emotional difficulties or anxieties (Lauchlan, 2003). The terms school refusal and school phobia have been used interchangeably, and refer to difficulty attending school due to emotional distress (e.g. fear, anxiety, or depression) (Kearney et al., 1995; King & Bernstein, 2001; Lauchlan; Thambirajah et al.). Over time school phobia has become a common term for all types of emotionally-based school refusal, however this has led to confusion and inaccuracy in describing individuals' symptoms (Kearney et al., 1995). Traditional definitions of school phobia describe specific fear of a school situation whereby the individual experiences prolonged absence; separation anxiety; over-involved familiar relationships; and extreme and irrational fear (Kearney et al., 1995; Lauchlan; Thambirajah et al.). However many individuals do not display this range of symptoms (Kearney et al., 1995).

Controversy remains over the definitions and distinctiveness of different types of SRB as children may present with symptoms that cannot be clearly defined as one type or another. For example a child may present as truanting but can also experience emotional distress, or a child may present as being school phobic but can attend school (Lauchlan, 2003). In response to this Kearney and Silverman (1999) proposed the umbrella term School refusal behaviour (SRB) to encompass all types of problematic child-motivated absence.

Research has identified that regardless of terminology many individuals who refuse school show some degree of emotional difficulty, in particular anxiety (e.g. Heyne, King, & Tonge, 2004; Kearney & Albano, 2004; Kearney & Silverman, 1990). Anxiety disorders are one of the most common psychiatric disorders in childhood and adolescence and can occur at any age (Curry, March, & Hervey, 2004). Childhood anxiety has been associated with disruptions to school performance, family, and social functioning (Ialongo, Edelsohn, Werthmaer-Larsson, Crockett, & Kellan, 1994). Anxious children often experience additional problems including hyperactivity (Tannock, Martinussen, & Frijters, 2000); and social skills difficulties (Schwartz, Snidman, & Kagan, 1999); along with somatic symptoms including headaches, nausea, and in some cases recurrent abdominal pain (Heyne et al.; Dorn et al., 2003; Egger, Costello, Erkanli, & Angold, 1999). Physical symptoms often form part of the criteria for childhood anxiety disorders (American Psychiatric Association [APA], 2000). As children develop, the presentation of anxiety symptoms may change. Certain anxiety disorders have been associated with particular age groups (for example separation anxiety in children under 12 years) (Cartwright-Hatton, McNicol, & Doubleday, 2006; Costello, Mustillo, Erkanli, Keeler, & Angold, 2003).

Research examining the link between anxiety and school attendance has found evidence for a reciprocal relationship: anxiety can lead to avoidance of school which in turn can lead to greater anxiety (APA, 2000; Heyne et al., 2004; Kearney & Albano, 2004). In school the effects of anxiety are well recognised and could play a significant role in explaining academic problems (Tomb & Hunter, 2004): anxiety can interfere with learning, attention, test performance, and achievement (Cassady & Johnson, 2002; Covington & Omelich, 1987; Naveh-Benjamin, 1991; Naveh-Benjamin, McKeachie, & Lin, 1987), and may undermine academic performance (Duchesne, Vitaro, Larose, & Tremblay, 2008). Anxiety can also account for school non-completion (drop-out) (Duchesne et al.) with school refusal reported to be one of the most common problems seen by professionals working in clinical, educational, and mental health settings (Heyne et al., 2004; Kearney & Albano, 2004).

To understand anxiety in children, researchers have argued that it is necessary to consider the existence and role of any underlying mechanisms (Waters & Valvoi, 2009). Central to many theories of anxiety is the role of distorted cognitive functioning (e.g. Beck, Emery, & Greenberg, 1985; Williams, Watts, MacLeod, & Mathews, 1997). For example, research with adults has identified that attentional bias can maintain anxiety through causing the individual to become hypervigilant to threat (e.g. Williams et al., 1997).

Kearney and Silverman (1990; 1996) explored the relationship between anxiety, cognition, and school attendance with the development of a functional model. The model proposes an association between an individual's forms of behaviour (e.g. anxiety symptoms); the function of their SRB (the underlying motivation for not attending school); and the degree of absenteeism. Research has

provided some evidence for these associations (e.g. Kearney & Silverman, 1993) with findings suggesting that associations differ according to age (Kearney & Albano, 2004). For example, cognitions and behaviours consistent with anxiety about being separated from caregivers are often reported in children under 12 years of age, but rarely observed during adolescence (Kearney & Albano). This has significant implications for assessing and treating SRB in individuals of different ages. Further research in this area is required as currently there are limited studies which consider this relationship from a developmental perspective (Heyne et al., 2004), or which explore cognitive functioning directly (e.g. through a measure of attentional bias) within this population.

The remainder of this review will consider the relationship between anxiety, cognitive functioning, and school attendance from a developmental perspective. It will consider how Kearney and Silverman's (1990; 1996) functional model can aid understanding of SRB, and will identify areas for future research.

School Attendance

Absence from School

For the academic year 2007/2008 the Department for Children, Schools and Families (DCSF) (2009) carried out an audit of school attendance in UK schools. In this year they estimated 6.2% of half school days were missed due to pupil absence. Absence rates increased with each National Curriculum year group, with the highest being recording for pupils in Years 11, 12, and above (9.44% for Year 11 pupils compared to 5.59% for Year 7 pupils). Persistent Absence (PA) refers to absence from school for 63 sessions (half days) or more per year, equivalent to an attendance level at or below 80%. In 2007/2008 it was estimated that around 233,340 (3.6%) pupils fell

into this category missing 35.15% of school on average. PA is reported to be slightly more common in girls than boys, with prevalence increasing with age. The number of pupils with PA in 2007/2008 was as follows: primary schools 56,750 (1.7% of all pupils on roll); secondary schools 168,140 (5.6%); special schools 8,450 (10.9%). The most common reasons given for school absence were illness, family holiday, and lateness.

Pupil absence from school can be initiated by parents, peers, or the pupils themselves and may be due to a variety of valid reasons (e.g. bereavement, physical illness, religious obligations). Absenteeism may not impact greatly on a child's schooling, however it becomes problematic when it is persistent and /or for illegitimate reasons (Thambirajah et al., 2008; Kearney, 2008). Of particular concern to professionals are those displaying child-motivated absenteeism (school refusal) as this has been associated with a number of adverse developmental outcomes including; academic failure, alienation from peers, delinquency, and school dropout in the short term (Kearney & Bensaheb, 2006); and economic deprivation, violence, injury, substance abuse, and psychiatric disorders in the longer term (Tramontina et al., 2001).

Characteristics of School Refusal Behaviour (SRB)

SRB is thought to affect up to 28% of school aged children and can last 1-2 years before treatment is sought. It is seen between genders and across racial and socio-economic groups (Kearney, 2001). Epidemiology studies suggest that although school refusal occurs throughout the school years it may peak prior to major school transition points (Heyne et al., 2004; King & Bernstein, 2001; Last & Strauss, 1990). For example, Hersov (1985) found increased prevalence of SRB between the ages of

5 to 7 years, at 11 years, and 14+ years; which roughly correspond to the start of early schooling, transition to secondary school, and nearing the end of education (transition to National Curriculum key stage 4). Similarly both King and Bernstein, and Last and Strauss, discovered peaks for clinical referral of SRB at 10-11 years and 13-15years respectively.

An Interdisciplinary Approach to Understanding Problematic School Absenteeism

Problematic school absenteeism has been studied across several different fields (most prominently social/criminal justice, psychology, and education) leading to considerable variation in terminology and lack of consensus regarding approaches to assessment and intervention (Kearney, 2008a).

Social/criminal justice approaches focus on rule-breaking behaviour and broader contextual factors (such as family set-up and neighbourhood organisation). Here interventions are predominantly at the systemic and/or legal levels and include; early education (e.g. early language development); family and health services (e.g. parenting); and court referral (e.g. truancy court proceedings). This approach has also been criticised for its narrow focus and neglect of school variables and parental attitudes (Kearney, 2008a). In contrast, psychological approaches have focussed on child symptoms (e.g. anxiety, depression, fear) and immediate proximal factors (e.g. avoidance of situations which induce negative affectivity; or pursuit of attention or tangible reinforcers, such as television or play). Intervention is focussed on these key symptoms and factors with the aim of helping children to manage their anxiety and increase their attendance at school (Kearney, 2008a). Psychological interventions include cognitive behavioural therapy (CBT) and relaxation training (Heyne et al., 2004; Kearney & Silverman, 1999). Evidence has been found for the success of such

treatments when tailored to take into account the individual's motivations for refusing school (Kearney & Silverman, 1990); although research in this area is limited (Heyne et al., 2004).

Educational approaches are greatly influenced by psychological and social approaches but can also draw upon counselling and similar methods. Intervention includes school-based therapy groups to address low levels of self-esteem and to help children manage peer conflict (Kearney, 2008a). Whilst some success with such treatments has been reported (e.g. Kearney & Silverman, 1990), research is in its infancy.

Kearney (2008a) proposed a comprehensive, interdisciplinary model to conceptualise children and adolescents with problematic school absenteeism. The model aims to establish a clear, common starting point for professionals and to identify all pertinent factors impacting on school attendance (see Figure 1). It is clear from Kearney's interdisciplinary model that a number of variables may influence school absenteeism. One area of growing interest within research is the intra-personal, child factors (e.g. age and personality) which lead to child-motivated SRB.

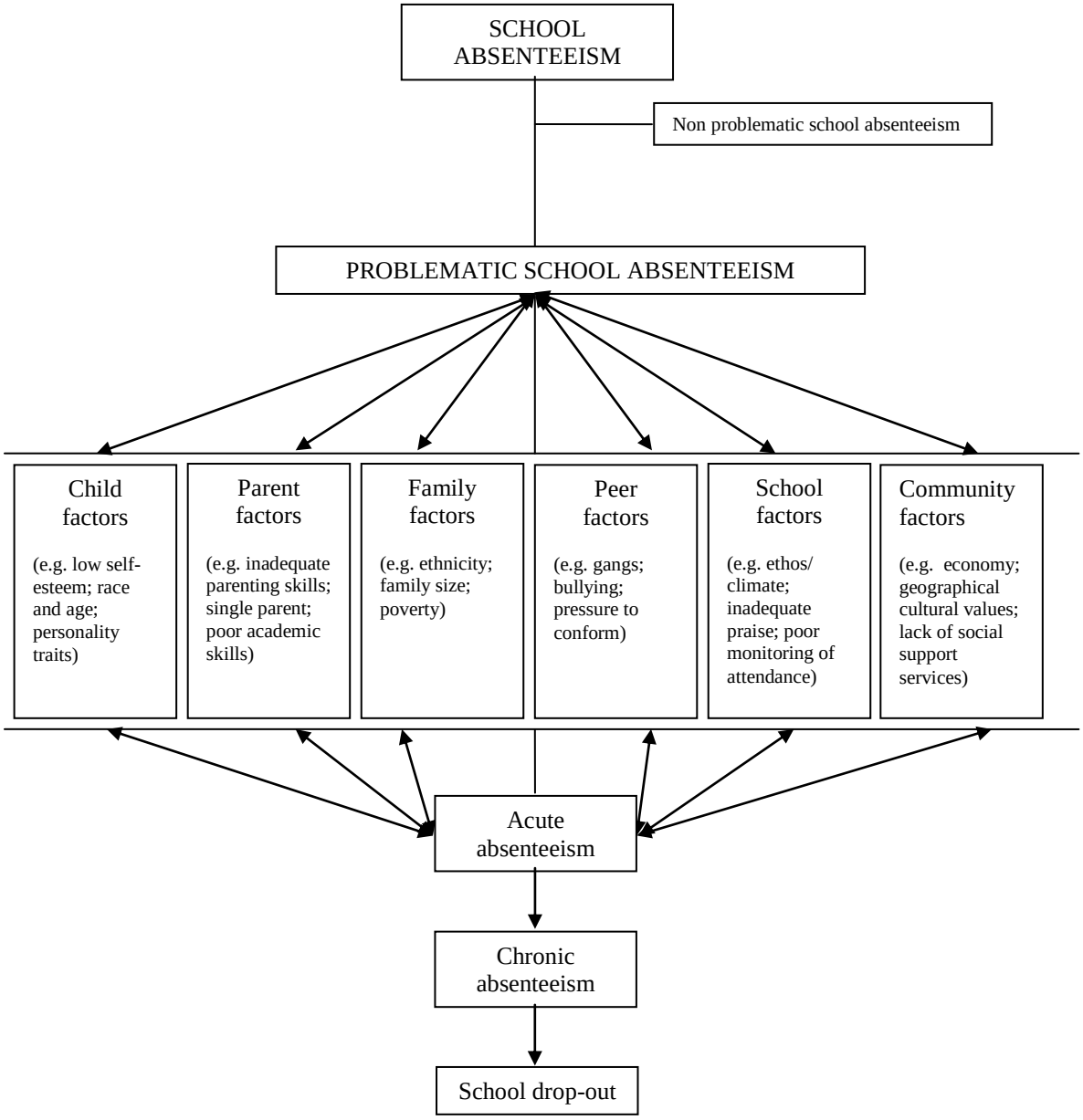

Figure 1. A representation of the interdisciplinary model of school absenteeism presented by Kearney (2008a).

School Refusal

Understanding School Refusal Behaviour: A Theoretical Framework

Researchers and professionals concerned with the problem of SRB have recognised the need for effective classification, assessment, and treatment strategies (Kearney & Albano, 2004). However progress in this area has been restricted due to a lack of consensus on how to define and tackle school refusal (Kearney & Bensaheb, 2006). Kearney (2008) proposed that one way to address this lack of consensus is to classify pupils according to the reasons they have difficulty attending school. This approach would enable the development of intervention programmes which could be based on the factors that maintain child-motivated school refusal (Lauchlan, 2003).

In line with this proposal Kearney and Silverman (1990; 1996) developed a functional model of SRB (Figure 2). The model highlights the association between anxiety and cognition by proposing, for example, that if a child with SRB is experiencing symptoms of Separation Anxiety Disorder (SAD), he or she may be motivated to refuse school in order to remain with caregivers (pursue attention). Anxiety symptoms and cognitions regarding school interplay resulting in school refusal. The model identifies forms of behaviour associated with SRB (e.g. phobic, anxiety, and mood disorders) and attempts to understand cognition by categorising individuals according to function (motivation or reason) of refusing school. Refusing school is conceptualised as providing a means of meeting one of four outcomes: (1) avoidance of specific fearfulness or general overanxiousness related to the school setting; (2) escape from aversive social/evaluative situations; (3) pursuit of attention from significant others; (4) pursuit of tangible reinforcers outside school. The former two functions provide negative reinforcement for SRB by removing the child away from a perceived fearful or threatening school situation. The latter two functions

provide positive reinforcement for the child's SRB by eliciting opportunities for favourable experiences (e.g. play).

The four functions were derived from the clinical experience of Kearney and colleagues and the research literature available to them (Kearney & Silverman, 1990). Further research using the model revealed that the first functional category was not an accurate description of children with SRB: they generally did not identify one particular aspect of school of which they were phobic rather they reported vague symptoms of negative affectivity (Kearney et al., 1995). As such function (1) was renamed as follows: avoidance of stimuli that provoke negative affectivity. For efficiency these four functional categories will hereafter be referred to as: 'Avoidance', 'Social', 'Attention', and 'Tangible' respectively. The authors proposed that these four functions mediate the relationship between forms of behaviour and degree of absenteeism from school. They argued that where school refusal is a child's primary need, the child's behaviour will be consistent with one or more of these functions.

As the model suggests, there can be great heterogeneity within a population of individuals refusing school. Kearney and Silverman (1990) noted that whilst previous research studies had demonstrated the effectiveness of different, individualised approaches, to assessing and treating SRB, none had attempted to identify the specific characteristics of the individual which might enhance treatment effectiveness, and many were reliant on only one source of information (e.g. the parents).

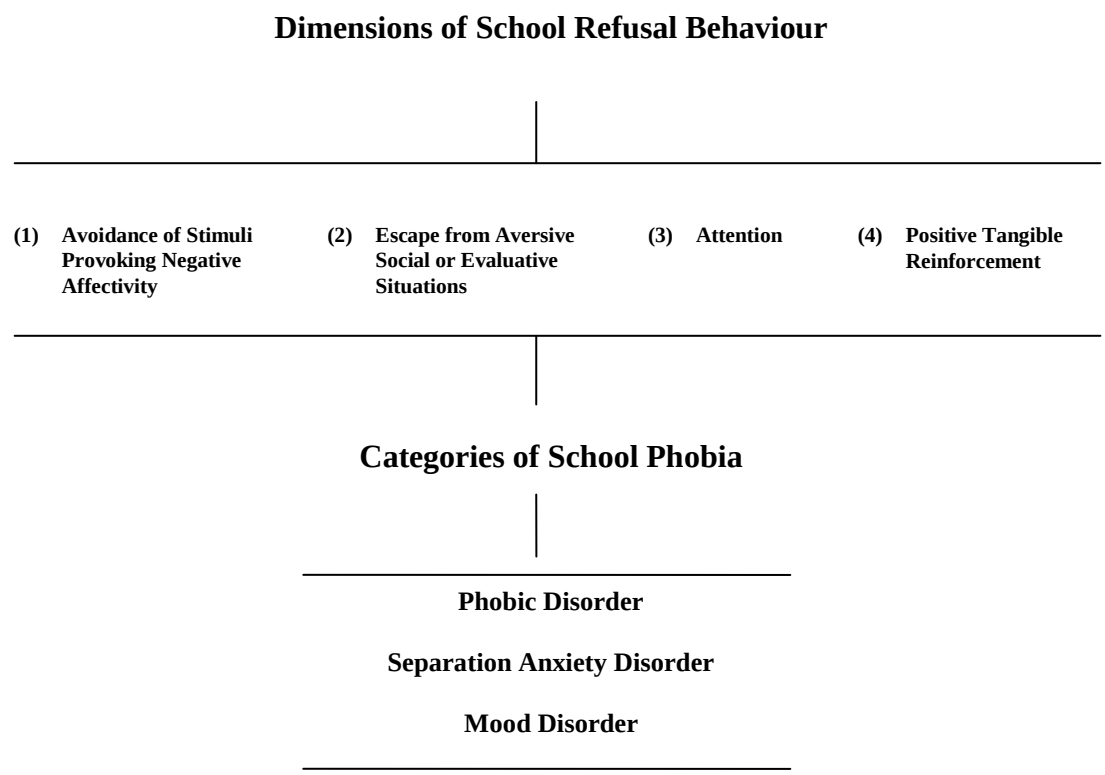

Figure 2. A functional analytic model of school refusal behaviour (Kearney & Silverman, 1996).

In response to this Kearney and colleagues designed an explicit method of tapping into a child's cognition and identifying the function of his or her SRB: The School Refusal Assessment Scale (SRAS). The SRAS is a self-report questionnaire designed to measure the existence of the four hypothesised functions. The authors produced three versions of the SRAS to elicit information from children, their parents, and their teachers. The development and construction of the SRAS is described by Kearney and Silverman (1993): it consists of 16 questions (4 per functional category) where each question is rated on a 7-point Likert-type scale from 0 (never) to 6 (always). Scores derived from the child, parent, and teacher

questionnaires are combined and averaged, and the functional category with the highest average score is considered to be the primary function of SRB for the child.

Psychometric Properties of the SRAS

Kearney and Silverman (1993) tested the reliability and validity of the SRAS in a study of 42 children (mean age 11.26 years) with SRB. The children, their parents, and their teachers completed the SRAS along with a number of self-report, checklist, and interview measures to identify the presence of emotional and behavioural symptoms (e.g. internalising and externalising behaviours; anxiety; and depression).

Children and parents completed the SRAS on two occasions, 7-14 days apart. Test-retest reliability for the SRAS revealed moderate correlation for child and parent ratings on all items except two. Where both parents were present and completed individual questionnaires, inter-rater reliability was calculated and found to be adequate with the exception of two items in the Avoidance category and one in each of the Attention and Tangible categories. The authors suggest that these results compliment the inter-rater reliability of the teacher SRAS, although these data are not reported.

Significant correlations were found between scores in the two negative reinforcement categories (Avoidance and Social), and in the two positive reinforcement categories (Attention and Tangible), but not between negative and positive reinforcement functions (e.g. Avoidance and Attention) as expected. These correlations suggest that although the negative and positive reinforcement categories are distinct, there may be some overlap between the functions in each (e.g. items which assess negative affectivity leading to Avoidance may also assess Social cognitions).

Correlations were also found between the SRAS subscale scores and the majority of relevant additional measures, as reported by the child, parent, and teacher. Correlations were found between the negatively reinforced SRAS functions and symptoms of anxiety, depression, low self-esteem, and internalising behaviour problems and diagnoses. Conversely, the positively reinforced SRAS functions correlated with externalising behaviour problems and diagnoses associated with acting-out and oppositional behaviour. These findings were taken as evidence of the concurrent validity of the SRAS and provided evidence that distinct patterns of symptoms are associated with different cognitions regarding school attendance in SRB.

The Development of the Revised School Refusal Assessment Scale (SRAS-R)

Following its use in research, the SRAS was revised to reflect the modified functional model (described previously) and as an attempt to increase the psychometric properties of the scale (Kearney, 2006). The revised questionnaire (SRAS-R) includes 24 items (6 per functional category) to provide greater depth of information about the child and omits the teacher version. This was in response to research which found, for example, poor reliability in individual ratings and inter-rater agreement when SRB was assessed by lesser trained clinicians (Daleiden, Chorpita, Kollins, & Drabman, 1999) and because Kearney and colleagues found teachers to be poor raters of function, especially where children have been out of school for a long time (C.A.Kearney, personal communication, 29 June 2009).

Kearney (2002) examined the psychometric properties of the SRAS-R with two samples of young people (mean age 13.9 and 11.9 years respectively) and their parents. The author found significant test-retest reliability for the child and parent

versions of the SRAS-R, and significant inter-rater reliability on all but two items. Tests of construct validity revealed little distinction between the two negative reinforcement functions, but a more definite distinction between the two positive reinforcement functions. All scale items bar two fit into three factors: negative reinforcement (combining Avoidance and Social); Attention; and Tangible. In the child version of the SRAS and SRAS-R, functional category scores were found to correlate significantly implying the SRAS-R to have good concurrent validity to the original SRAS. Confirmatory factor analysis verified the factor structure of the SRAS-R (Kearney, 2006). For the child version of the SRAS-R, the original four-factor model was supported with the removal of the weakest path coefficients (two items from the Tangible category). This produced Cronbach's alpha values at or above .74 for each function. For the parent version of the SRAS-R, the original four-factor model was supported with the removal of the weakest path coefficients (the same two items from the Tangible category and one item from the Social category). Cronbach's alpha values were at or above .78 for each function.

Testing the Functional Model

Associations between forms and functions of SRB. Kearney and colleagues have attempted to find evidence for the relationships proposed in Figure 2 by exploring associations between forms and functions of SRB. Kearney and Albano (2004) explored the occurrence of forms and functions with 143, 5-17 year olds. The young people and their parents completed the SRAS to identify the primary function of SRB: a significant effect for age was found with the function for younger children generally being assessed as Avoidance or Attention, and for older children Social or Tangible. The Anxiety Disorders Interview Schedule for Children, child and parent

versions (ADIS-C and ADIS-P; Silverman & Nelles, 1988), were used to elicit forms of behaviour (diagnoses) and severity of symptoms: the diagnosis with the highest severity was considered the primary diagnosis of the young person. Separation Anxiety Disorder (SAD) was the most common primary diagnosis (22.4%) although many of these individuals also met criteria for other disorders, and 32.9% of young people did not meet criteria for any diagnosis at all. Similar patterns were found by Kearney (2007) using a comparable participant group (*n*=222, 5-17 years): SAD was the most common diagnosis (22.5%) and 24.3% of young people received no diagnosis.

Kearney, Chapman, and Cook (2005) explored the forms and functions of SRB for younger children (*n*=55, 5-9 years). The SRAS revealed Attention to be the predominant function within this participant group (55.1%) followed by Avoidance and Tangible (both 20.4%). No child was categorised as Social and 4.1% received a mixed functional profile (equal scores on two or more functions). The ADIS-C/P revealed similar patterns of anxieties to other studies: SAD was the primary diagnosis for 53.7% of the children and 22.2% received no diagnosis at all. Further information was gathered from the parents using self-report measures. These revealed the majority of children (50.9%) to display internalising behaviours within the clinical range and only 11.3% to show externalising behaviours within the clinical range. Taken together the findings from these studies suggest an association between internalising disorders and negatively reinforced SRB; and externalising disorders and positively reinforced SRB. They imply that SAD is commonly the primary diagnosis amongst individuals with SRB and that this form of behaviour may be associated with the Attention function.

Evidence for a mediational relationship between forms and functions of SRB. Kearney (2007) conducted a further study to examine whether a mediational relationship existed between forms and functions of behaviour. Children and their parents completed the SRAS and a number of self-report measures to identify symptoms of anxiety, depression, and fear. The author used Hierarchical Regression Analysis to determine whether forms and functions of school refusal behaviour predicted the level of school absenteeism, and Structural Equation Modelling (SEM) to determine the mediational role of function between forms of behaviour and degree of school absenteeism. Statistical analysis of the child measures revealed that no forms of behaviour were significant predictors of absenteeism but each of the four functions were. SEM revealed that the proposed A-B-C model (where A is predictor/form; B is mediator/function; and C is outcome/degree of absenteeism) met the goodness-of-fit criteria (see Figure 3). Mediational analysis and criteria for mediation were met. This revealed adequate fit for A-C and A-B-C models. The constrained A-B-C model did not differ significantly from the unconstrained model implying function to have a mediational relationship between forms and degree of absenteeism.

The statistical analysis for the parent measures also revealed that no forms of behaviour were significant predictors but each of the four functions were significant in predicting the degree of school absenteeism. SEM did not reveal the A-B-C model a good fit (Figure 4). Model trimming was conducted and the Tangible function along with related behavioural subscales (delinquent behaviour and aggressive behaviour, as measured by the Child Behavior Checklist: Achenbach & Edelbrock, 1978) were removed. This produced an improved fit but the model still did not meet criteria for goodness-of-fit, or criteria for mediational analysis. A post hoc addition

of the Tangible function to the final model revealed one that met criteria for goodness-of-fit. The author concluded from this that functions may be a better indicator of a child's degree of school absenteeism than forms of behaviour (i.e. diagnoses), although both should be considered, and that functions could mediate the relationship between forms of behaviour and absenteeism.

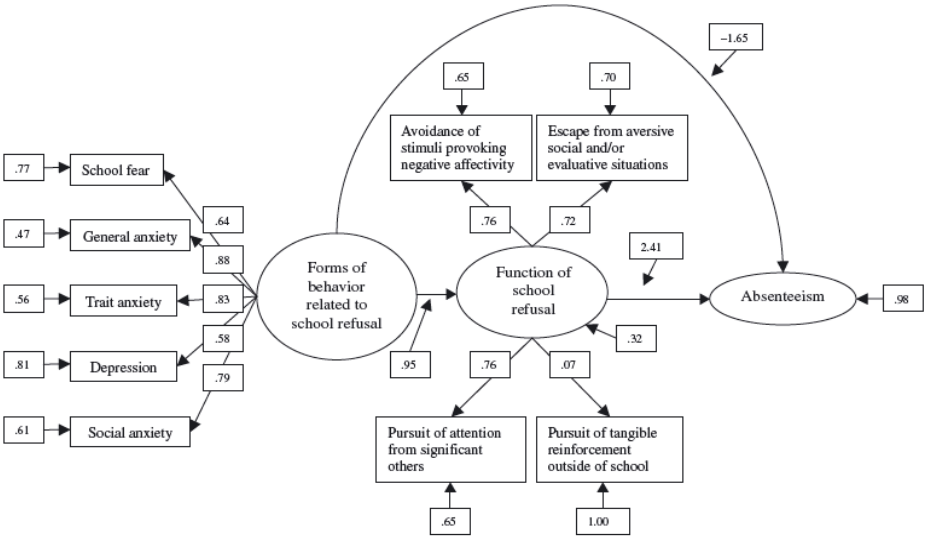

Figure 3. SEM with standardized path coefficients for child-based forms of behaviour related to SRB, functions of SRB, and degree of school absenteeism (Kearney, 2007).

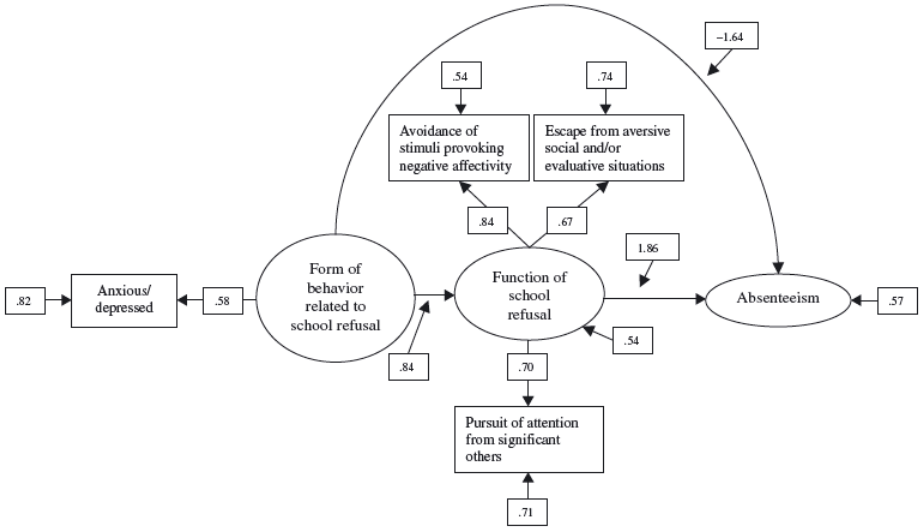

Figure 4. SEM with standardised path coefficients for parent-based forms of behaviour related to SRB, functions of SRB, and degree of school absenteeism (Kearney, 2007).

The utility of the model and implications for treatment. To assess the utility of the model as a means of identifying an individual's function of SRB and of prescribing treatment, Kearney and colleagues conducted a number of case studies (Kearney & Silverman, 1990; 1999). In each case the function of SRB was identified through the SRAS.

Kearney and Silverman (1990) assessed and treated 7 children (mean age 12.5 years) with acute SRB (their difficulties attending school had been present for less than one year) who had been referred to a School Refusal Program Centre by school psychologists. They had missed an average of 24.8 days of school (range 6-80) since the beginning of the school year. The children, their parents, and their

teachers were given a number of self-report measures pre- and post-treatment to assess symptoms of fear and anxiety.

Treatments were prescribed based on the child's primary function of SRB: imaginal desensitisation procedures and relaxation (Morris & Kratochwill, 1987) for Avoidance; Cognitive Behavioural Therapy (CBT) and/or modelling procedures (Beck, Emery, & Greenberg, 1985) to increase social skills and performance for Social; differential reinforcement of behaviour (Luiselli, 1978) to reduce somatic complaints and tantrums for Attention; and negotiating specific positive and negative contingencies for behaviours for Tangible. The authors measured the success of the treatment on the following outcomes: attendance at school; and child and parent ratings of the child's distress as measured through scaling and self-report measures. Six of the seven children returned to school full time; five children reported decreased levels of distress; and parent ratings revealed decreased levels of distress, anxiety, and depression, for all but one child. This indicated that tailored treatment based on the child's primary function of SRB was effective for most children.

Kearney and Silverman (1999) conducted a similar study with 8 children (mean age 11.2 years) who had been referred for treatment of their SRB. The children had missed an average of 36.9% school time (range 1.9% - 88.5%). Children, their parents, and their teachers completed a number of self-report measures to identify symptoms of fear, anxiety, and depression, and self-concept. In addition children and parents kept a log book of daily ratings for the child's anxiety and depression. Using the functional categories ascertained through the SRAS, four participants were prescribed treatment based on their primary function and the other four received treatment based on their least influential function. All participants showed a reduction in absence rates and child- and parent-rated anxiety and

depression, although these reductions were most prominent in the prescribed treatment group. Ratings for one measure of depression (Children's Depression Inventory; Kovacs, 1992) increased in the prescriptive group and decreased in the non-prescriptive group. This was largely due to one participant who experienced increased sadness at leaving her mother to attend school more frequently. The findings of this study indicate that whilst any type of treatment may help children refusing school, treatment is most effective when it is prescribed to the child's individual primary function of SRB, hence providing evidence for the utility of the SRAS(-R) and functional model in assessing and treating SRB.

Summary and Limitations

Kearney and Silverman's (1990; 1996) functional model and SRAS-R provide an effective way to explore the relationship between forms and functions of SRB, and the degree of school absenteeism. Initial findings for the model's utility seem promising and research with young people has identified the benefits of being able to accurately assess and prescribe treatment for their SRB. However, caution should be taken when generalising these findings to the wider population as the sample sizes used in the studies were very small. Further, treatment was not successful for all participants, indicating that the effectiveness of prescribed treatment would benefit from further exploration. In particular Kearney and Silverman (1990) identified that treatment success may be lessened where the child presents with a mixed functional profile: further exploration with this particular subgroup of children with SRB is required. In addition, there are some limitations with the model and SRAS-R itself. Assessment of the child's forms and function of behaviour are derived through self-report measures, which can be highly subjective and lead respondents to give

socially desirable responses or inaccurately described symptoms (e.g. Daleiden et al., 1999; De Los Reyes & Kazdin, 2005; Gullone, 2000). In addition, child and parent reports can show discrepancies, with parents often underestimating their children's fears (Achenbach, McConaughty, & Howell, 1987; Comer & Kendall, 2004; De Los Reyes & Kazdin, 2005; Gullone, 2000). These issues may be overcome by including information from a third perspective (e.g. a professional working with the child) in order to provide a more representative perspective of the young person's difficulties across settings. In addition, incorporating an inexplicit measure of cognition (e.g. a measure of dysfunctional cognitive processing such as attentional bias) may compliment the information gathered through the SRAS-R and anxiety questionnaires, whilst overcoming some of the difficulties associated with self-report measures.

Nevertheless, Kearney's research has found evidence for clear associations between SRB and subtypes of anxiety. Further, some evidence has been found to suggest that these associations follow a developmental pattern: for example, symptoms of SAD and cognitions of Attention have been observed in younger children; and cognitions of Social and Tangible functions in adolescence. It may be hypothesised that, given the associations between content-specific behaviours and different functions of SRB, adolescents who refuse school to escape social situations or seek tangible reinforcement may also display anxieties and behaviours consistent with social anxiety and Oppositional Defiant Disorder respectively. In order to fully understand this relationship and the phenomenon of SRB it is important that practitioners understand the trajectories of childhood anxiety which may underpin it.

Anxiety

The term ‘anxiety’ refers to a fear-like emotional state which typically leads to the avoidance of a stimulus or situation perceived to be threatening. It is characterised by cognitive components (worry and thoughts), affective components (physiological and emotional reactions), and behaviour (avoidance) (Sweeney & Pine, 2004). Unlike fear, anxiety is defined by the duration of the emotional state, the degree of avoidance of the stimuli, or the level of an individual’s distress, being “out of proportion...to the current level of danger” (Sweeney & Pine, 2004, p.34). In many cases anxiety can be seen as part of normal human adaptation with the functional purpose of protecting oneself from perceived danger (Sweeney & Pine). It becomes atypical (or clinical) when it begins to interfere with normal functioning, and the presence of particular symptoms or behaviours may indicate an anxiety disorder (APA, 2000; World Health Organization [WHO], 1992).

Developmental Patterns of Anxiety

Typical anxiety begins at an early age and follows a developmental pattern (Sweeney & Pine, 2004). Early fears are thought to be innate (for example a fear of strangers may emerge at 6-24 months) and fears emerging later in childhood are thought to reflect the individual’s developing cognitive abilities and exposure to new environmental experiences (Gullone, 2000). For example, fear of sleepovers may occur once sleepovers are familiar to the child, and fear of death may occur when the child’s cognitive capacity is such that he or she understands the notion of death (Sweeney & Pine). As children grow they respond to new fears and typically begin to develop their own self-regulation coping strategies (e.g. attention switching), becoming less dependent on reassurance from caregivers (Fox & Calkins, 2003).

Anxiety disorders can also occur at early age (mean age of onset considered to be 6-7 years of age) (Costello, Egger, & Angold, 2004) and show developmental patterns in prevalence of different anxiety disorders at different ages (e.g. Costello et al., 2003). In particular, Separation Anxiety Disorder (SAD) is reported to be the most common individual diagnosis in children under 12 years of age (Cartwright-Hatton et al., 2006), where Social Anxiety Disorder is more common in adolescence (Essau, Conradt, & Petermann, 1999; Van Roy, Kristensen, Groholt, & Clench-Aas, 2009).

Separation Anxiety Disorder (SAD). According to APA (2000) diagnostic criteria, SAD is present when "excessive anxiety concerning separation from the home or from those to whom the person is attached" (p.12) is beyond that expected for the child's developmental level. SAD is thought to affect 4% of children with prevalence decreasing from childhood through adolescence. Onset may occur at any point but is particularly common after a stressful life experience (e.g. a death or transition of schools) (APA, 2000). According to the APA, symptoms of SAD include; extreme home-sickness; preoccupation with fear of harm befalling themselves or the attachment figure; clingy behaviour and reluctance to travel anywhere alone; and physical, somatic, and/or cardiovascular complaints. SAD can cause "clinically significant distress or impairment" (APA, 2000, p.121) in social, academic, or other areas of functioning. When separated from an attachment figure the individual may exhibit social withdrawal, apathy, sadness, and difficulty concentrating on work or play (APA). They may refuse school resulting in social avoidance and academic difficulties (APA; Perwein & Bernstein, 2004).

Social Anxiety Disorder. Social Anxiety Disorder (also known as Social Phobia) is identified by "a marked and persistent fear of social or performance situations in which embarrassment may occur... [and where] exposure to the social or performance situation almost invariably provokes an immediate anxiety response" (APA, 2000, p.450). Social Anxiety Disorder is thought to affect 3-13% of the population and occur at any age, although typically begins in the mid-teens (APA). It can emerge out of childhood social inhibition or shyness, may follow a stressful or humiliating experience, or equally appear in absence of these (Albano & Hayward, 2004; APA). Individuals with Social Anxiety Disorder may avoid situations they perceive to be threatening, or face them with high levels of anxiety and sometimes panic (APA). They may be hypersensitive to rejection, negative evaluation, or criticism from others (APA); display symptoms such as low self-esteem (APA); and present with poor social skills and difficulty in being assertive (Albano, 1995; APA). Children with Social Anxiety Disorder may underachieve at school due to test anxiety or avoidance of classroom participation, or refuse school to avoid social activities. As a result they often develop fewer friendships (Albano, 1995; Albano & Hayward, 2004; APA).

Developmental Research

A number of studies have explored developmental patterns of anxiety in children and adolescents. Weems and Costa (2005) found a developmental effect on the expression of anxiety symptoms in a sample of 6-17 year olds. Separation anxiety was prominent amongst 6-9 year olds; fears relating to death and danger in 10-13 year olds; and social anxiety and fear of failure and criticism in 14-17 year olds. Similar age-related differences were found by Costello et al. (2003). In a longitudinal

community study of 1420 young people aged 9-16 years, Costello et al. found the prevalence of social anxiety, panic, depression, and substance misuse increased with age, whilst SAD and Attention Deficit Hyperactivity Disorder (ADHD) decreased. They noted a particular rise in social anxiety and depression at the onset of adolescence for girls, and an increase in substance misuse, panic, and Generalised Anxiety Disorder (GAD) for both genders during middle adolescence. The prevalence of serious emotional disturbance (defined by the authors as "any diagnosis accompanied by significant functional impairment" (p.839)) increased with age, particularly for boys. Overall prevalence of any anxiety disorder was highest at 9-10 year old; lowest at 12 years; and gradually increased from 12 to 16 years. At 12 years old, the authors commented that many disorders "almost disappeared" (p.839), especially for boys.

Age-related differences were also found in further studies that assessed the demographic characteristics and patterns of comorbidity associated with SAD and overanxious disorder (OAD) (Last, Hersen, Kazdin, Finkelstein, & Strauss, 1987). In a clinical sample of 69 young people aged 5 to 18 years the authors found that children with SAD or SAD and OAD were predominantly female, and significantly younger than those with just OAD (mean ages 9.1; 9.6; and 13.4 years respectively).

Van Roy et al. (2009) examined symptoms of severe social anxiety (SSA) in 8-13 year olds (n=16,480). Their cross-sectional community study identified that 2.3% of participants showed symptoms of SSA and a further 0.9% reported fear of at least three social situations. The authors reported that the extent of SSA difficulties were greater for their older participants, with the younger children not reporting significantly more SSA-related problems than individuals without SSA. Similarly a community sample of 1045, 12-17 year olds carried out by Essau et al. (1999)

revealed the presence of social phobia (SP) or social fears in almost half the young people. The authors reported an increased prevalence with age and a dominance of SP and social fear symptoms in females.

The findings of these studies imply specific age differences in the experience of childhood anxiety. In line with the developmental patterns of typical childhood fears and anxieties (e.g. Gullone, 2000), it would appear that clinical anxiety follows a similar pattern: younger children being more inclined towards symptoms of separation anxiety and older children more susceptible towards social anxiety. Weems and Costa (2005) suggest that greater attention should be paid to developmental differences in efforts to understand and classify childhood anxiety disorders.

Anxiety and Cognitive Processing

Over the past twenty years a number of cognitive models were developed which aimed to explain the relationship between cognitive processing and the etiology or maintenance of anxiety. Based predominantly on research with anxious adults, these models acknowledged the role of cognition in anxiety and agreed upon a number of key features: 1. There is a relationship between anxiety and cognitive processing; 2. Anxiety disrupts cognitive processing (either through bias towards or bias away from the perceived threatening stimuli); 3. The extent of this disruption is dependent on a number of variables including the type of emotional state being experienced by the individual and the threat-value they assign to the stimuli; and 4. Attentional systems or processes play a role in the maintenance or etiology of anxiety.

Beck, Emery, and Greenberg (1985), for example, presented a cognitive model of threat reaction: on presentation of a potentially dangerous situation the

individual is proposed to scan the situation to decide which aspect (if any) to focus on. The cognitive process focuses on limited dimensions of the situation, "sacrificing" information and creating a "distorted" picture (p.38). Beck et al. propose that anxiety is maintained by these "mistaken" or "dysfunctional" appraisals of different situations (p.168). Similarly Williams, Watts, MacLeod, and Mathews (1997) proposed a "reciprocal relationship" (p.3) between cognition and mood. They suggested that anxious individuals show a preoccupation with anxiety-inducing situations. Like Beck et al. (1985), the authors suggested emotional disorders may increase vigilance towards stressful events or increase the frequency with which events are recalled.

Mogg and Bradley's (1998) cognitive-motivational analysis of anxiety extends this further by proposing 'preattentive' and 'attentional' biases in anxiety. They suggest that a lower threshold for appraising threat may increase vulnerability to anxiety, and that the relationship between subjective threat value and attentional bias is curvilinear: when a situation is perceived as non-threatening, no attentional bias occurs; when it is considered mildly threatening, attention is directed away from the threat (in order to regulate mood and maintain attention on the current task); but situations considered highly threatening, result in attentional bias towards the threat.

Attentional aspects of anxiety are further addressed in Attentional Control Theory of anxiety and cognitive processing (Eysenck, Derakshan, Santos, & Calvo, 2007). Eysenck et al. identify two attentional systems: the goal-directed system (aimed towards overall outcome) and the stimuli-driven system (focused upon smaller details). The authors postulate that anxiety disrupts the balance between the two by increasing the influence of the stimuli-driven system at the expense of the goal-driven system, meaning that processing resources are diverted towards task-

irrelevant stimuli. Conversely, the authors suggest that in certain situations anxiety may not impair performance effectiveness, if compensatory strategies are employed.

Recently a theoretical model for child and adolescent anxiety has been developed to aid understanding of the relationship between distorted cognitive processing and anxiety (Muris & Field, 2008). The model demonstrates the influence of cognition on the processing of threat-information for anxious children, and how different stages of information processing (e.g. initial scanning of the situation; encoding stimuli; interpreting stimuli) provide opportunities for the emergence of three types of cognitive bias: attention; interpretation; and memory. Whilst each cognitive function can play a role in the maintenance of anxiety it is the attentional system which deals with the initial presentation of stimuli (at the encoding stage), and may influence further information processing (Muris & Field, 2008). Attention can be biased in two ways: through selectivity (the allocation of attention to specific stimuli over others); and through intensity (the amount of attention provided to specific stimuli). It is the former which is commonly identified in cognitive models of anxiety and has been most commonly assessed with children (Daleiden & Vasey, 1997).

Attentional Bias in Children

Approaches used to investigate attentional bias in children with emotional disorders typically include Attentional and Interference tasks. Attentional tasks (e.g. the visual probe) involve the brief presentation of emotional stimuli (e.g. happy and angry faces) at different locations, followed by small visual probes (e.g. a dot). The participant is required to identify the probes as quickly as possible, and attentional bias is assessed by comparing latencies across different probe locations. This

provides information of the extent to which the child's attention was directed towards the stimuli. Faster latencies to detect the probe following the presentation of threat stimuli rather than neutral stimuli indicate attentional bias towards threat. Interference tasks (e.g. the emotional Stroop) involve the presentation of threat- and non-threat stimuli (e.g. fearful and neutral words) with a distractor variable (e.g. text presented in different colours). The participant is required to complete the distractor task whilst ignoring the stimuli. For example, words may be presented in different colours and the participant is asked to name the colour whilst ignoring the word itself. Reaction times and/or task errors may be recorded with the hypothesis that threat stimuli will interfere with task performance. If the participant takes longer to complete the distractor task or makes more errors (e.g. in naming the colour of the text) during presentation of threatening stimuli rather than neutral stimuli, he or she is considered to show attentional bias towards threat.

Typically, research studies have found evidence to support the preposition that anxious individuals attend for longer to threat stimuli than neutral stimuli, and that they attend for longer than their non-anxious peers (Muris & Field, 2008). Telzer et al. (2008), for example, examined the relationship between nonclinical trait anxiety and attentional bias in 16 healthy children (11-18 years) using an fMRI, with a visual probe task. The task involved the presentation of angry-neutral or happy-neutral pairs of faces and a probe appearing on the same or opposite side of the screen. The authors found a positive association between trait anxiety and attention bias to angry faces, and no relationship between attention bias and trait anxiety for happy faces, implying that anxiety increases attention to threat. Similar patterns have also been observed in children with clinical levels of anxiety: Roy et al. (2008) conducted a similar task with 7-18 year olds (n=101) with diagnosed anxiety

disorders (GAD; SP; and/or SAD) and 51, 9-18 year olds with no diagnoses. The anxious children showed a greater bias towards angry (and not happy) faces than the non-anxious group, although the authors found no association between anxiety severity and bias or differences between types of anxiety disorder, implying that bias towards threat occurs with the presence of any type or severity of anxiety.

Further work has found an effect for anxiety severity (Waters, Mogg, Bradley, & Pine, 2008). They used a visual probe with anxious (GAD, *n*=23) and non-anxious (*n*=25) children aged 7-12 years. Results revealed that anxiety severity was associated with increased attentional bias: children with severe anxiety showed a bias towards faces of both valence (angry and happy), whereas children with mild or no anxiety did not. Interestingly the authors noted bias towards angry faces was significantly associated with the presence of SP as a secondary diagnosis, and bias towards happy faces correlated with a secondary diagnosis of specific phobia. The authors also found that children with lower levels of anxiety presented with a bias away from the emotional stimuli (although this effect was not significant). This study has important implications for considering the impact of anxiety severity and suggests that biases in attention may only be evident beyond a particular level of anxiety. It also implies that in severe anxiety, attentional control may be biased towards any emotional stimuli, regardless of valence.

A later study by Waters and colleagues using a visual probe task found similar results (Waters, Henry, Mogg, Bradley, & Pine, 2010). In this study the anxious group had diagnoses of SP, SAD, or specific phobia. Anxiety severity increased bias towards angry faces: mildly anxious and non-anxious children did not show this bias. This finding supports earlier work by Waters et al. (2008) and Roy et al. (2008). However all groups in this study showed a bias towards happy faces,

which contradicts earlier work. Collectively, the findings of these studies provide evidence for the presence of attentional bias towards threat in anxious young people. Generally as anxiety severity increased, bias increased accordingly and extended to include non-threatening stimuli. Although there are some contradictions between the findings of different studies, there does appear to be evidence of an effect for anxiety type on bias, particularly regarding bias towards stimuli of different valence.

Further work has considered the inhibitory processes associated with attentional control and found similar trends. Waters and Valvoi (2009) explored the attentional control processes in paediatric anxiety disorders using an emotional Go/No Go task (e.g. Hare, Tottenham, Davidson, Glover, & Casey, 2005). The Go/No Go task involved the presentation of threatening (angry) and non-threatening (happy) face stimuli, and requires participants to attend to faces of a particular emotional valence as instructed on the screen. The authors assessed attentional control in 20 anxious children and 20 non-anxious children. They found significant interaction between face type (emotional valence), anxiety, and gender. Anxious girls were slower to respond when neutral faces were embedded in angry faces, compared to when neutral faces were embedded in happy faces. Non-anxious girls and both anxious and non-anxious boys showed the opposite response. The authors concluded that angry faces selectively interfered with performance on a neutral task, and that anxious children generally have difficulty controlling attention to neutral stimuli when interference by threatening stimuli is high and frequent. In addition, anxious girls also have difficulty controlling attention when interference is low.

This study builds on earlier research that assessed attentional bias using word stimuli. Kindt and colleagues, for example, have conducted a number of studies using emotional Stroop tasks to assess attentional bias in children with and without

spider-phobia. Kindt, van den Hout, de Jong, and Hoekzema (2000) used threat word and picture stimuli with children aged 8-11 years old. They found a relationship between fear and attentional bias for threat words which decreased with age for non-fearful children and remained stable for fearful children. In addition the authors noted that all children aged 8 years displayed attentional bias toward threat words, regardless of fearfulness. No bias was observed for threat pictures. The authors suggested that bias to threat words is a normal characteristic of 8 year olds and during development non-fearful children inhibit this bias whereas fearful children do not. These findings replicate those in a previous study by Kindt and Brosschot (1999) which identified a moderate bias for threat words but not pictures in fearful children.

Similar trends have been found in children with other forms of anxiety. Kindt, Brosschot, and Everaerd, (1997) examined whether attentional bias was elicited by a stressor (anticipation of a vaccination) in two studies with children aged 8-9 years with non-clinical anxiety (*n*=47/56). Each sample was subdivided into 'high' and 'low' anxious groups based on scores derived from self-report anxiety measures. The first study took place in a stressful environment (a medical centre); the second study in a neutral environment (school). The authors found that all children showed a bias towards context-related threat stimuli (e.g. referring to physical/medical harm), independent of the stressor, and for girls or highly anxious boys this bias also occurred towards general threat stimuli. The authors suggested that this provides evidence for a cognitive developmental difference in the ability to inhibit processing of meaningful information. In contrast, Kindt, Bögels, and Morren (2003) did not find bias to threat (general or context-specific) in their study of children aged 7-18 years (mean age 12.2 years) with or without clinical anxiety

(*n*=40 and 14 respectively) as identified through diagnoses of SAD, SP, or GAD. This may reflect a developmental difference (e.g. a bias was present for younger children but this was masked by the older children), however this could not be explored as the groups were too small. Alternatively the authors suggested that the inhibitory processes and 'sensitive periods' may vary across anxiety types. For example in earlier studies with spider-phobic children, bias towards threat was present for all at 8 years of age and the most severe above this age. For SAD, SP, and/or GAD, this age may be different, implying that processing bias for different anxieties may follow differential developmental patterns.

Summary and Limitations

Research with children has provided evidence for a relationship between anxiety and attentional bias towards threat stimuli, which is influenced by age (e.g. Waters et al., 2008). Some studies have proposed the direction of the bias (towards or away from stimuli) and its valence (towards threatening or non-threatening stimuli) may be influenced by anxiety severity (e.g. Waters et al., 2008; Waters & Valvoi, 2009; Waters et al., 2010). In severe cases of anxiety bias may not diminish with age (e.g. Kindt et al., 2000). Distinct patterns of bias may correlate with differential anxiety diagnoses (Waters et al., 2008) and although some studies did not find this effect (e.g. Telzer et al., 2008; Roy et al., 2008), it is likely this is due to the high levels of comorbidity amongst participants making it difficult to distinguish between anxiety subtypes. Evidence for content-specificity is at present limited, and it may be that younger children show more general cognitive distortions (Muris & Field, 2008).

Conclusions and Implications for Future Research

Young people with SRB present a challenge to professionals. They may be of any age, race, gender, or socio-economic class, and their behaviour may present in a number of different ways (e.g. regarding the timing, frequency, and duration of their absenteeism). Research with this population of young people has revealed great heterogeneity in the forms (anxieties and behavioural difficulties) and functions (cognitions) associated with their SRB, leading to confusion over the best way to assess and treat the needs of these individuals.

Previous research has utilised self-report measures (predominantly gathering information from the child and parent) to identify the behaviours and cognitions associated with SRB. There are a couple of difficulties with this approach: discrepancies between child and parent reports are common (e.g. Daleiden et al., 1999), and relying solely on information from family members may lead to biased or insufficient reporting of the child's difficulties (e.g. with reference only to the home environment). Self-report is highly subjective and can lead participants to provide socially desirable responses or inaccurately describe symptoms (De Los Reyes, & Kazdin, 2005; Gullone, 2000). These issues can be somewhat averted through the inclusion of information from an additional, external person (e.g. a professional who works with the child). The benefit of multi-faceted information gathering has been acknowledged (e.g. Kearney & Silverman, 1993) and to compliment this approach further, the addition of an objective measure may be useful. For example, distinct anxieties and behaviours of children with SRB may be identified through behavioural observation, whilst differential cognition may be explored through a measure of cognitive processing (e.g. attentional or interpretation bias).

The research available to date has unveiled certain commonalities between individuals who refuse school. First, SRB appears to peak at certain points in development: research has found increased prevalence of clinical referrals for children with SRB at ages which coincide with school transitions. Education literature suggests that transferring to a new school or phase of schooling can be stressful and may cause emotional difficulties for the individual (West, Sweeting, & Young, 2008). Further research is required to ascertain whether the peaks in SRB at particular ages relate to transition specifically or whether they are due to other age-related factors (e.g. intrapersonal, social, or environmental influences specific to children or adolescents at different stages of schooling). Future research may take the form of longitudinal studies to examine the trajectories of SRB, or cross-sectional studies to examine how the presentation of SRB alters for children at different stages of schooling.

Second, research has provided evidence of an association between anxiety, cognition, and attendance. This association appears to be content-specific; for example, if a young person presents with symptoms of social anxiety it is likely their motivation or refusing school will be to escape from social situations. Evidence is emerging to suggest that these associated anxieties and cognitions follow certain developmental pathways, similar to those seen in typical childhood anxiety: separation-related anxieties and cognitions in younger children and socially-related anxieties and cognitions in older children. Currently, however, research from a developmental perspective is limited, with few studies explicitly examining age-related differences (Weems & Costa, 2005). Further research is required to fully understand how SRB affects young people at different stages of development. This is

necessary to inform the development of effective assessment and intervention practice.

Third, studies investigating the role of cognition in the etiology and maintenance of childhood and adolescent anxiety are emerging providing evidence to suggest that anxious children display similar distorted cognitive processing as anxious adults. Some studies have found age-related differences in cognitive processing (for example regarding attentional bias towards threat) however research studies have yielded somewhat contradictory results and this warrants further investigation. Kearney and Silverman's (1990; 1996) functional model of SRB provides an effective way of exploring the relationship between anxiety, cognition, and absenteeism, with research providing some evidence to suggest that cognition acts as a mediator between these variables (Kearney, 2007). To compliment and expand upon these findings, a developmental exploration of cognitive processing (e.g. attentional bias) with young people displaying SRB may help ascertain these age-related patterns.

Future research may wish to explore SRB and the associations between behaviour, cognition, and attendance from a developmental perspective. Much research to date has considered SRB in young people in clinical settings and whilst this is beneficial in order to fully understand the aetiology and maintenance of SRB, it is important to explore this in the wider population. Future research may utilise participants with problematic attendance in the community. This could help inform professional practice and preventative work.

Chapter 2: Empirical Paper

The Motivational Factors of Anxiety-Based School Refusal:

A Cross-Sectional Study

The Journal of Educational Psychology (Editor: Arthur C. Grasser, PhD) guided the preparation of this paper.

UNIVERSITY OF SOUTHAMPTON

ABSTRACT

FACULTY OF MEDICINE, HEALTH AND LIFE SCIENCES

SCHOOL OF PSYCHOLOGY

Doctor of Educational Psychology

The Motivational Factors of Anxiety-Based School Refusal:

A Cross-Sectional Study

by Rebecca Clare Newman

School absenteeism can have serious implications for the individual. Young people who display school refusal behaviour (child-motivated absence that is often underpinned by anxiety) present an ongoing challenge to professionals. Previous research has found an association between anxiety, cognition, and absenteeism. The current study extends this research by exploring the relationship from a developmental perspective. 36 young people (aged 7–16 years) with school attendance ≤93%, their parents/carers (*n*=31), and teachers (*n*=18) participated in the study. They completed a number of self-report measures to assess symptoms of anxiety; behavioural difficulties; and the young person's motivation for refusing school. In addition, young people completed an emotional Stroop task to assess attentional bias associated with separation and social anxiety. Bivariate correlations revealed association between attendance and a number of behavioural symptoms, highlighting certain developmental trends. Hierarchical Regression Analysis provided evidence that cognition mediates the relationship between behaviour (anxiety and behavioural difficulties) and school attendance. Directions for future research and implications for clinical and educational practice are discussed.

Introduction

It is estimated that between 5% and 28% of individuals will display school refusal behaviour at some point during their school lives (Kearney, 2001). In the short term school refusal can lead to academic failure, alienation from peers, delinquency, and school dropout (Kearney & Bensaheb, 2006); in the longer term it is associated with economic deprivation, violence, injury, substance abuse, and psychiatric disorders (Tramontina et al., 2001). Research has revealed symptoms of school refusal behaviour (SRB) for children as young as 5 years of age (Kearney, Chapman, & Cook, 2005), and suggested these symptoms may accumulate around school transition points (Heyne, King, & Tonge, 2004; King & Bernstein, 2001).

The term school refusal behaviour (SRB) has been used to incorporate all types of problematic child-motivated absence (Kearney & Silverman, 1999) including traditional notions of truancy (unauthorised absence from school usually without the knowledge, approval, or consent of the child's parents), and school phobia (a specific fear of a school situation with an emotional basis) (Kearney, Eisen, & Silverman, 1995; Lauchlan, 2003; Thambirajah, Grandison, & De-Hayes, 2008). Direct work with this population of children and adolescents has uncovered great heterogeneity in the symptoms, difficulties, and behaviours associated with SRB. However, one commonly reported symptom is that children who display school refusal often experience elevated levels of anxiety (Kearney & Albano, 2004). Anxiety has been identified as a key factor associated with SRB, with parents often reporting a wide range of anxiety and somatic symptoms (e.g. nausea, headaches) associated with their child's difficulty attending school. SRB is reported to be one of the most common problems seen by professionals working in clinical,

educational, and mental health settings (Heyne et al., 2004; Kearney & Silverman, 1990; Kearney & Albano).

Kearney and Silverman (1990; 1996) developed a functional model for SRB which proposes a relationship between the forms (underlying anxieties) and functions (motivations or cognitions) of a child's school refusal (Figure 1). The authors suggest that an individual refuses to attend school in order to meet one of four outcomes. These outcomes (or functions) provide either negative reinforcement for the child's SRB: 1. Avoidance of school-based stimuli that provokes negative affectivity, 2. Escape from aversive school-related social/evaluative situations; or positive reinforcement for the child's SRB: 3. Pursuit of attention from significant others, 4. Pursuit of tangible reinforcers outside school. For efficiency these functions will hereafter be referred to as Avoidance; Social; Attention; and Tangible. Kearney and colleagues suggest that these four functions mediate the relationship between forms of behaviour seen in children who refuse to attend school and their degree of absenteeism from school. The authors argued that where school refusal is a pupil's primary need (i.e. not secondary to special educational needs) his or her behaviour will be consistent with one or more of these functions. The School Refusal Assessment Scale (later revised: SRAS-R) was developed to assess the function of an individual's SRB (Kearney & Silverman, 1993), and is a self-report questionnaire with child and parent versions (SRAS-R-C and SRAS-R-P respectively). The SRAS-R consists of 24 items (6 per functional category) scored on a Likert scale. Child and parent scores for each function are combined and averaged: the functional category with the highest score is considered to be the primary function of the child's SRB.

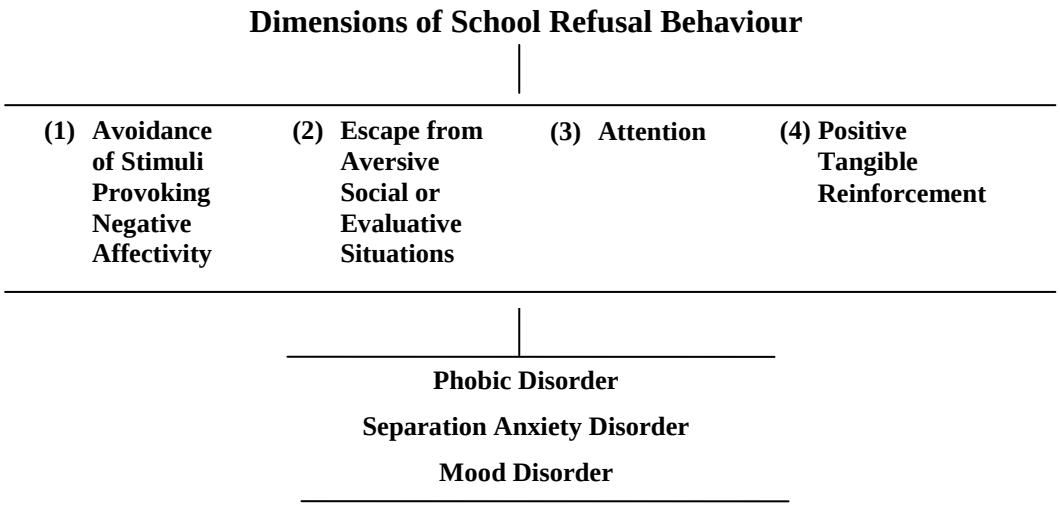

Figure 2. A functional analytic model of school refusal behaviour (Kearney & Silverman, 1996).

Kearney and Silverman's (1990; 1996) functional model represents an effective way of considering the relationship between anxiety, cognition, and attendance. In support of this model, previous research has found associations between specific disorders and reasons for school nonattendance. For example, Separation Anxiety Disorder (SAD) is often reported as the primary diagnosis for children whose SRB has an emotional basis (e.g. worry or anxiety) (Egger, Costello, & Angold, 2003; Evans, 2000; Flakierska-Praquin, Lindstrom, & Gillberg, 1997). It has been linked with cognitions which associate school refusal with gaining attention from caregivers (Kearney, 2007; Kearney & Albano, 2004). Other internalising emotional disorders such as Generalised Anxiety Disorder (GAD) have been reported in children who refuse school in order to avoid particular school situations (e.g. assemblies) (Evans, 2000; Kearney, 2002a; Kearney & Albano, 2004), whereas social anxiety has been associated with avoidance of social or evaluative situations at school (e.g. playtimes) (Kearney, 2007). Where children are reported to refuse

school in order to gain tangible reinforcement (e.g. to watch television; play with toys), the child is often reported to display externalising behavioural problems consistent with diagnoses of Oppositional Defiant Disorder (ODD) or Conduct Disorder (CD) (Egger et al., 2003; Evans, 2000; Kearney, 2007; Kearney & Albano, 2004). Interestingly, the associations between specific disorders and cognitions regarding school nonattendance appear to follow certain developmental patterns, consistent with those seen in typical childhood anxiety. Separation anxiety and cognitions regarding attention from caregivers are more commonly reported for younger children (Kearney & Albano, 2004; Kearney et al., 2002a) whereas social anxiety and cognitions regarding escape from social situations are more commonly reported in adolescence (Kearney & Albano, 2004). The presentation of anxiety disorders and symptoms associate in different ways with different cognitions for refusing school (Egger et al., 2003). One advantage of Kearney and Silverman's model is that it enables the practitioner to understand how different anxieties link to diverse motivations or cognitions in order to understand SRB.

Related research has found similar evidence to demonstrate that specific anxiety disorders are associated with cognitive or attentional biases towards anxiety related phenomena. Consistent with Kearney's model, different emotional disorders have been shown to share the common feature of a sensitivity to, or preoccupation with, environmental stimuli representing the concern of the disorder: for example, an anxious individual may be hypervigilant towards cues of impending danger in their environment (Beck, Emery, & Greenberg, 1985; Williams, Watts, MacLeod, & Mathews, 1997). It has been proposed that information processing biases are more than just a by-product and may play a role in the development and persistence of anxiety disorders (Dalgleish & Watts, 1990; Williams et al., 1997). Whilst these

assumptions derive from research with adults, similar biases have been found in children. For example, previous research has found that anxious children attend longer to angry faces than neutral or happy faces (Telzer et al., 2008; Roy et al., 2008; Waters, Henry, Mogg, Bradley, & Pine, 2010) and that this bias is not present in non-anxious children (Roy et al., 2008; Waters et al., 2010; Waters, Mogg, Bradley, & Pine, 2008). Research has also found associations between anxiety-type and bias. For example, anxious children and adolescents have been found to show greater attentional bias towards threat-related, rather than depression-related, material (Dalgleish et al., 2003). Further, children with social anxiety have been found to show a bias towards angry faces, whereas children with specific phobia show a bias towards happy faces (Waters et al., 2008). One common method uses an emotional Stroop task to examine attention bias and inhibitory processing in motivationally relevant and irrelevant words. The Stroop task has been used to investigate the association between attentional bias and clinical anxiety (Williams, Mathews, & MacLeod, 1996) and social phobia (Hope, Rapee, Heimberg, & Dombeck, 1990). It is considered reliable and to have reasonable validity (MacLeod, 1991). Kindt and colleagues have used emotional Stroop tasks to examine attentional bias to threat and anxiety words. The authors found presence of attentional bias where the threat-context was both general (Kindt, Brosschot, & Everaerd, 1997) and motivationally relevant (e.g. words related to spiders for spider-phobic children) (Kindt & Brosschot, 1999). Further, they identified distinct patterns in cognitive processing according to age: for example all children aged 8 years of age, regardless of whether they are anxious or not, showed a bias towards threat-related words (Kindt, van den Hout, de Jong, & Hoekzema, 2000). Older children only showed this bias if anxious (Kindt, Brosschot, & Everaerd, 1997). The authors conclude that

these findings indicate developmental differences in the cognitive processing of meaningful information.

Summary of Findings from Previous Research

Previous research with young people displaying SRB has identified a relationship between anxiety, cognition, and school attendance. Young people are described as refusing school in order to achieve one of four functions, which are associated with their individual anxiety symptoms and behavioural difficulties. A functional model of SRB has been developed to help understand these associations which appear to follow distinct developmental patterns: younger children show a tendency towards behaviours and cognitions consistent with separation anxiety, whilst in adolescence these are consistent with social anxiety. Evidence for motivationally relevant and developmentally distinct patterns of cognitive processing is starting to emerge through the assessment of attentional bias with anxious young people: a common assessment approach being the emotional Stroop task.

Current Study

The current study builds on previous research by proposing an extended model of SRB (Figure 5). The model replicates Kearney and Silverman's functional model by proposing a relationship between anxiety, cognition, and attendance, but extends it by incorporating behavioural difficulties alongside anxiety (referred to in the model as 'Behaviour'), and cognitive processing (attentional bias) alongside function (referred to as 'Cognition'). In addition the model incorporates chronological age as a variable, based on previous research findings of developmental differences in the

presentation of SRB. Age is considered as a direct influence on attendance, and also as a mediating factor in the relationship between anxiety, cognition, and attendance.

The current study will test this proposed model by exploring associations between age, behaviour, cognition, and attendance, from a developmental perspective. Based on previous research the study will specifically look for the presence of separation-related factors in younger children, and socially-related factors in adolescents. It is hypothesised that young people will display distinct age-related patterns in their presentation of behaviour and cognition, relating to their absenteeism.

Method

Ethics

Ethical approval for this study was obtained and granted by the University of Southampton, UK, School of Psychology Ethics Committee and Research Governance Office. (See Appendix A).

Design

A correlational design was used to highlight the motivational factors (forms and functions of behaviour) and related cognitions underlying pupil school refusal, and to investigate the relationships between them. A cross-sectional approach with between groups (Primary, Lower Secondary, Upper Secondary) comparisons was used to identify developmental differences.

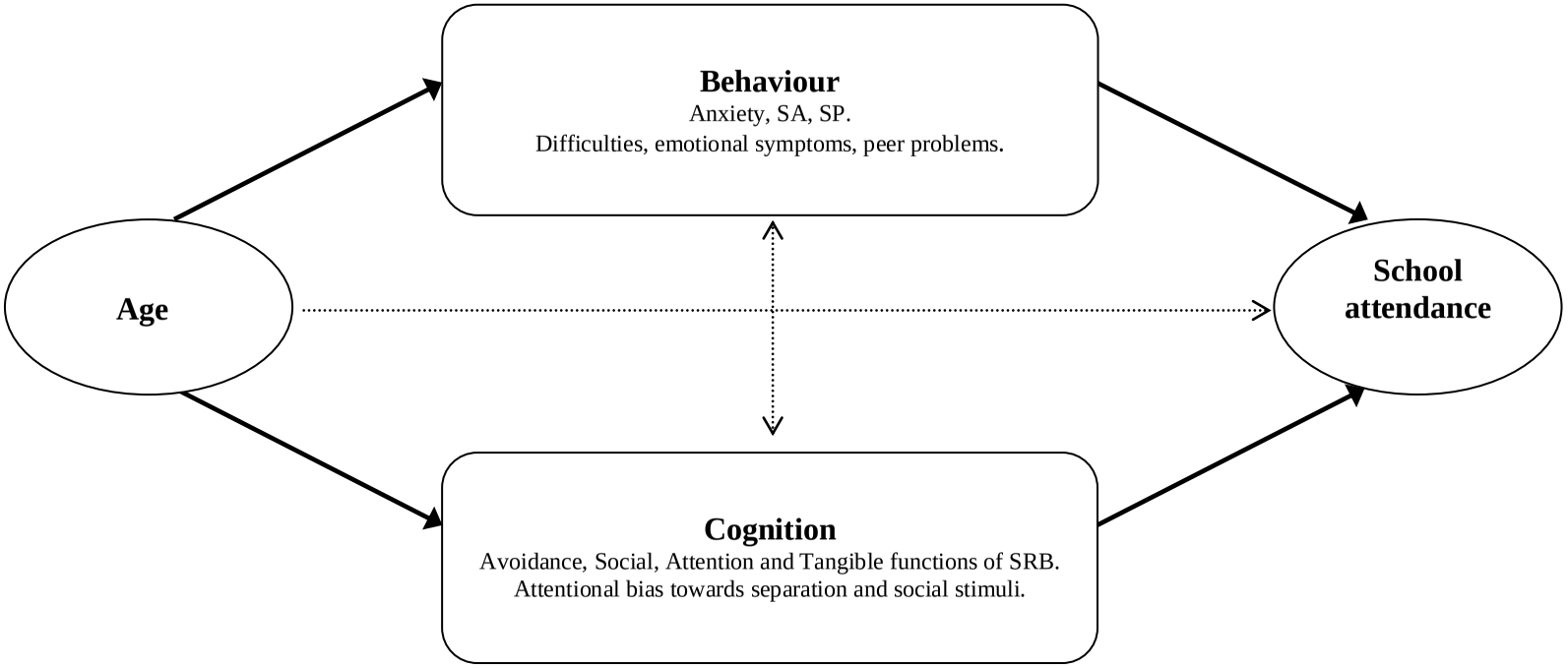

Figure 5. An extended, developmental model for school refusal behaviour

Participants

36 children and adolescents of school age (12 boys and 24 girls; mean age 13 years 1 month, range 7 years 2 months to 16 years 3 months, SD 3) were recruited through schools (*n*=5), alternative educational provisions (*n*=7), and professional services (*n*=4) across the local authorities of Dorset and Hampshire, in the United Kingdom. Criteria for inclusion in the study included the pupil's current school attendance level being at or below 93%, with absence not knowingly being due to family holiday or physical illness. Attendance level represents the cumulative percentage of half days of school attended in the current academic year. In the case of pupils (*n*= 9) who had not attended school or an alternative education provision at all since September 2009, attendance was recorded as 0%.

Pupil participants were grouped for analysis according to their stage of schooling: pupils in National Curriculum key stages 1 and 2 comprise the Primary group; pupils in key stage 3 comprise the Lower Secondary group; and pupils in key stage 4 comprise the Upper Secondary group. A measure of reading accuracy was taken. This was to ensure the reading ability of each pupil participant was sufficient to complete the cognitive measure used in the study (emotional Stroop task). Table 1 presents the mean chronological age, reading age, attendance level, and sample size of pupil participants for each group. The parents or carers (hereafter referred to as parents) and current or most recent teacher of each pupil were also invited to participate. A total of 31 parents and 18 teachers took part.

Recruitment Procedure

A total of 58 mainstream schools, alternative education provisions, and professional services across Dorset and Hampshire were contacted and invited to take part in the study. 17 agreed to participate (see Appendix B for a complete list). Each school, provision or service (hereafter referred to as setting) was asked to identify pupils known to them who met the criteria for inclusion previously stated. A representative from each setting approached the pupils and their parents either by distributing a letter produced by the researcher (see Appendix C) or in person (face-to-face or telephone contact) to explain the study and obtain consent. Parental and pupil consent was acquired by return of a written consent form (Appendix D) or given verbally to the representative.

On receipt of consent the researcher contacted the parents or setting, as appropriate, to arrange a time to meet with the participants. Once data were collected from the pupil and his or her parent, a letter explaining the study was sent to the pupil's teacher, including a copy of the teacher questionnaire and a consent form to be returned should he or she wish to take part. All participants were debriefed at the end of their participation (Appendix E).

Table 1

Pupil Participant Variables by Group

Group	**M**	**SD**	**Range**
Chronological age (years and months)			
Primary	9:3	2	7:2 – 11:4
Lower Secondary	13:1	1	11:9 – 13:10
Upper Secondary	15:5	3	14:8 – 16:3
Reading age (years and months)[1]			
Primary	9	3	5:0-15:4
Lower Secondary	12:9	2	9:4 -14:10
Upper Secondary	12:7	3	8:7-18:0
Attendance level (%)			
Primary	80	14	50-93
Lower Secondary	52	44	0-93
Upper Secondary	51	38	0-93
	Total	**Males**	**Females**
Sample size			
Primary	9	3	6
Lower Secondary	13	5	8
Upper Secondary	14	4	10

Note. All values rounded to the nearest whole number.

[1] *Mean reading age was lower for pupils in the Upper Secondary group compared to those in the Lower Secondary group, due to a larger range. Reading age did not correlate with any variable other than chronological age (see Appendix H).*

Measures

Behavioural Measures

Revised Child Anxiety and Depression Scale (RCADS) (Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000). The RCADS is a 47-item self-report questionnaire which assesses symptoms of DSM-defined anxiety disorders and major depression. Participants rate the frequency with which they experience different symptoms on a Likert scale (0=never, 1=occasionally, 2=sometimes, 3=always) and total scores are obtained for different subtypes of anxiety or depression. The measure provides typical, borderline and clinical cut-offs, standardised for age and gender to enable assessment of symptom severity. In the current study the RCADS was administered in its published format, with the omission of one item ("I think about death") which was considered too emotive given the vulnerability of the participant group. The whole scale was administered in order to obtain a Total Anxiety score which was considered for analysis along with two subscales: Separation Anxiety (SA) containing 7 items such as "I worry about being away from my parents", and Social Phobia (SP) containing 9 items such as "I feel afraid to talk in front of my class".

The RCADS has been found to have a good level of internal consistency and factorial validity. Compared to traditional anxiety measures, the RCADS shows greater correspondence to specific syndromes (Chorpita, Moffitt, & Gray, 2005). All subscale alpha's for the RCADS in this study were calculated at or above .82 with the exception of the 'Obsessions and Compulsions' subscale (α=.70). The overall reliability of the RCADS was calculated at α=.97.

Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997). The SDQ is a behavioural screening questionnaire for 3-16 year olds which measures psychological attributes and prosocial behaviour. It consists of 25 items which correspond to 4 areas of difficulty: emotional symptoms (e.g. "I worry a lot"); conduct difficulties ("I get very angry and often lose my temper"); hyperactivity ("I am restless, I cannot stay still for long"); peer problems ("Other children or young people pick on me or bully me"); and 1 area of ability: prosocial skills ("I have one good friend or more"). Participants rate each item on a Likert scale (0=Not at all like me, 1=Somewhat like me, 2=Always like me). The scores from the 4 areas of difficulty are combined to obtain a Total Difficulties score (out of 40). The measure provides normal, borderline and clinical cut-offs based on raw scores.

The SDQ was administered in its published format and completed by parents, teachers, and pupils aged 11 years or older, as suggested by the measure. This provided a multi-faceted source of information regarding the young person's general behaviour. There can be discrepancy between raters regarding interpretation and report of difficulties (e.g Achenbach, McConaughty, & Howell, 1987). Therefore in the current study all three versions were administered, and composite scores calculated to provide a more representative picture of the pupil's difficulties. The complete scale was administered to obtain a Total Difficulties score. In addition scores from the emotional symptoms and peer problems subscales were also considered for analysis.

The SDQ has been found to have good internal consistency, test-retest stability, and parent-youth agreement, and scores obtained on the SDQ correlate with other measure of psychopathology (Muris, Meesters, & van den Berg, 2003). It is

comparable to the Child Behavior Checklist (CBCL) at detecting internalising and externalising problems, and considered the preferred measure by some parents (Goodman & Scott, 1999). Compared to the other measures (e.g. the Rutter questionnaires), the SDQ offers better coverage of inattention, peer relationships and prosocial behaviour (Goodman, 1997). All subscale Cronbach's alphas for the child questionnaire were at or above .76 with the exception of the conduct difficulties subscale (α=.74) and prosocial subscale (α=.45). All subscale alphas for the parent questionnaire were at or above .76 with the exception of the conduct difficulties subscale (α=.72). All subscale alphas for the teacher questionnaire were at or above .81 with the exception of the peer problems subscale (α=.60). Overall reliabilities for the SDQ were calculated at α=.79 (child), α=.75 (parent) and α=.48 (teacher).

Cognitive Measures

Emotional Stroop task (Stroop, 1935). An emotional Stroop task was carried out to assess the presence of attentional bias towards separation- and social-related words. The Stroop task used in this study consisted of words related to separation anxiety (*n*=12); social anxiety (*n*=12); and neutral words (*n*=12) (see Appendix F for a complete list). To select the most relevant words for each category, inter-rater reliability procedures were carried out in line with those used by Kindt, Bögels, and Morren (2003): 40 threat words (20 separation anxiety and 20 social anxiety) were presented to 7 doctoral psychology students who were asked to rate each from 0-5 as to how well they "fit" with the assigned threat category (e.g. how well is the word 'bully' related to social anxiety?). The 24 words with the highest ratings were selected (12 per threat category). For each threat word a neutral word was included. Neutral words were matched for word length and number of syllables. Words in each

category, wherever possible, were selected from one of the following primary school teaching resources: the Primary National Literacy Strategy key vocabulary (Department for Education and Skills [DfES], 2001); National Curriculum word lists (Department for Education and Employment [DfEE], 1999); and the SEAL programme (Department for Children, Schools and Families [DCSF], 2005), which are widely used in primary schools across Dorset and Hampshire. This was to ensure that, as far as possible, the words used would be familiar to the pupil participants and of an appropriate reading level. As an additional test of reliability the same 7 doctoral psychology students were presented with a randomised list of the 36 words and asked to assign each word to one of the three categories: social, separation or neutral. This was to test for inter-rater agreement. Agreement percentages were calculated as follows: social words 100%; separation words 85%; neutral words 93.3%. Overall agreement was calculated at 92.8%, where 38.7% agreement could be expected by chance. Cohen's Kappa was calculated at .89.

The Stroop stimuli were presented on the researcher's laptop computer using Presentation version 13.1. Stimuli words appeared one at a time in the centre of the screen, in lower case letters, and in one of four colours (red, blue, green, yellow). Words remained on the screen until the participant responded (or time exceeded 4 seconds). The participant was required to respond as quickly and accurately as possible, by pressing corresponding keys on the keyboard. The target keys (numerals 1, 2, 3, 4) were labelled with coloured stickers. The participant completed a series of practice items before beginning the task. The Presentation software recorded response times (RTs) for each item: a response was recorded as an error if the participant failed to respond whilst the word was on the screen, or if the participant responded by pressing the wrong key. Errors were removed before analysis. A mean

RT for each category of word was calculated. Two bias scores were generated by subtracting the mean RT for neutral words from the mean RT for separation or social words. Increased bias scores reflect greater attention to emotion words when colour matching.

School Refusal Assessment Scale-Revised (SRAS-R) (Kearney, 2002). The SRAS-R is a self-report measure which assesses the function of SRB. It has child (SRAS-R-C) and parent (SRAS-R-P) versions to provide a holistic picture of the young person's difficulties (Kearney & Silverman, 1993). It measures the degree to which an individual misses school to fulfil each of the four functions: Avoidance, Social, Attention, or Tangible. The SRAS-R helps identify primary and secondary factors of a child's SRB and can be used to predict appropriate treatment packages (Kearney & Albano, 2004). Empirical findings are encouraging for inter-rater and test-retest reliability and concurrent validity (Kearney & Silverman, 1990; 1993) with internal consistencies ranging from α=.56 to α=.78 for each of the four functional categories (Kearney, 2002). For the current study, wording on three items of the SRAS-R was changed. These items made reference to the child's activity when "not in school during the week (Monday to Friday)". It was felt that these items may be interpreted as meaning during school holidays or after school hours and so were reworded (e.g. "When you are not in school during the week (Monday to Friday), how often do you leave the house and do something fun?" was changed to "When you stay off school on a school day, how often do you leave the house to do something fun?").

The SRAS-R consists of 24 items (6 per functional category: e.g. Avoidance: "How often do you have bad feelings about going to school because you are afraid of

something related to school (for example, tests, school bus, teacher, fire alarm)?"; Social: "How often do you stay away from school because it is hard to speak with the other kids at school?"; Attention: "How often do you feel you would rather be with your parents than go to school?"; Tangible: "When you stay off school on a school day, how often do you leave the house and do something fun?") which participants are required to rate from 0-6, where 0=never and 6=always. As per the procedure set out by Kearney and Silverman (1993), child and parent scores for each function are combined and the category with the highest score is considered to be the primary function of the pupil's SRB. Cronbach's alphas for all functional categories were at or above α=.79 for both child and parent questionnaires, with the exception of Tangible which had alphas of α=.75 (SRAS-R-C) and α=.69 (SRAS-R-P). The overall reliability of the SRAS-R was calculated at α=.87 for child and α=.91 for parent questionnaires.

Reading Ability

The British Ability Scales, 2nd Edition (BAS-II) Word Reading subtest (Elliot, Smith, & McCulloch 1997) was administered in its published format to assess pupil reading accuracy. This was to ensure that all pupils participating in the study had a reading ability which would allow them to complete the emotional Stroop task (reading age > 6 years). The BAS-II has good concurrent validity (Elliott, 1997) and has been linked to the Horn-Cattell theory, described as "the most statistically robust psychometric explanation of the structure of human cognitive abilities" (Hill, 2005, p.94). Where pupils (*n*=7) requested not to complete the reading task their current assessed reading age was obtained from the setting, wherever possible. These data were unavailable for 4 pupils due to their duration of time out of school.

Procedure and Apparatus

The majority of pupil participants were visited at school (*n*=20). The researcher met with each pupil individually in a quiet room where the purpose and procedures of the research were explained, and the pupil was asked some basic information (e.g. date of birth, name of teacher). The pupil was then asked to complete the emotional Stroop task, following instructions as they appeared on the screen (Appendix G).

Following the Stroop, each pupil completed the SDQ (if 11 years of age or older) and either the SRAS-R or RCADS. Pupils were told "You are now going to complete some questionnaires about school and things you find easy or difficult. I can read the questions aloud to you if you would like". Where pupils requested this (*n* = 9), questionnaire items were read aloud verbatim and repeated once if necessary. Next they completed the reading test, followed by the final questionnaire. The order of the questionnaires was counterbalanced and the reading test was used to 'break up' the questionnaires to reduce the likelihood of boredom effects. Pupils were given the opportunity to ask questions at any point during the study. At the end of the study, all pupils were debriefed and handed a sealed envelope for their parents. The envelope included a letter thanking them for their participation and the parental questionnaires to be completed and returned by post.

Alternatively, some participants requested a home visit (*n*=16). In these instances the researcher visited the pupil and parent at home for up to one hour. During this time the pupils were asked to complete the measures as outlined above, whilst the parent completed his or her own questionnaires. Pupils and their parents sat apart from each other and did not share their answers whilst completing the questionnaires. As before, the questionnaires were read aloud to the child if desired. In some cases it was necessary for the questionnaires to be read aloud to the parent

(*n*=2) as well (e.g. where the parent had poor eye sight or literacy difficulties). Following data collection from the pupil and parent, the pupil's most recent teacher was sent a letter and a postal questionnaire, inviting participation in the study. The pupil's attendance level was obtained from the setting.

Mann-Whitney analysis revealed a highly significant association between location of visit (home or school) and attendance percentage. Participants visited at home had significantly lower attendance percentages than those visited at school (U=47.5, p <.001).

Results

Data management and analysis

All analyses were performed using the Statistical Package for Social Sciences (SPSS) version 17.0. Non-parametric tests were used where all or many data sets were non-normally distributed. Results are considered at three levels; across the whole sample, between stage of schooling and within individual stages.

Attendance

Overall attendance ranged from 0% to 93% (SD 37) with the mean attendance level being greater in Primary (80%) than Lower Secondary (52%) and Upper Secondary (51%) groups. Attendance was not significantly affected by stage of schooling (group), $H(2) = 3.30$, *ns*, although there was evidence of a small negative correlation between age and attendance, $r_s = -.15$, *ns*, indicating that as pupils with SRB get older, they are less likely to attend school on a regular basis.

Behaviour

Anxiety (RCADS)

A significant negative correlation was found within the Primary group, between age and SA (r_s = -.93, p < 0.01), indicating that as children at this stage of schooling get older, symptoms of SA decrease. No measure of anxiety was significantly affected by stage of schooling (range $H(2)$ = .977 to 5.077, *ns*) however mean scores for each measure were greatest in the Lower Secondary group. Within this group, 15.4% of participants reported clinical levels of Total Anxiety; 30.8% reported clinical levels of SA; and 7.7% reported clinical levels of SP. By comparison, percentages for the Upper Secondary group were: 7.7% (Total Anxiety); 15.4% (SA); 7.7% (SP). Only one participant in the Primary group (11.1%) reported clinical levels for anxiety (Total Anxiety, SA, and SP). Table 2 shows mean anxiety scores for each group.

Difficulties (SDQ)

Inter-rater correlations were calculated and revealed significant correlations on the peer problems scale, between parent- and teacher-rated scores (r_s=.60, p <.05) and between parent- and child-rated peer scores (r_s=.42, p < .05), but not between child- and teacher-rated scores (r_s=.17, *ns*). All inter-rater correlations for emotional symptoms and Total Difficulties scores were nonsignificant.

To use the three measures of behaviour in analysis (Total Difficulties, emotional symptoms, peer problems), composite scores were created. In order to create composite score, each child-, parent- and teacher-rated symptom score (x) was first converted into a z-score using the equation $z = \frac{x - \bar{X}}{s}$. This provided three z-scores per symptom, which were added together and divided by three to create a composite score.

Table 2.

Anxiety Scores as Measured by the RCADS

Group	**M**	**SD**	**Range**
	Total Anxiety		
Primary	47	21	31-96
Lower Secondary	51	15	31-80
Upper Secondary	48	17	30-81
	Separation Anxiety		
Primary	45	23	5-91
Lower Secondary	60	16	37-94
Upper Secondary	59	21	40-102
	Social Phobia		
Primary	48	18	31-88
Lower Secondary	49	12	35-70
Upper Secondary	44	14	27-75

Note. Values reported are T scores. A T score of 65+ indicates anxiety within the borderline clinical range; 70+ indicates anxiety within the clinical range.

Composite scores comprised of child-, parent-, and teacher-reports[2] where available (*n*=10). Where data were missing (e.g. where children were under 11 years of age

[2] *Teacher-rated scores were included in composite scores to allow for multi-faceted information gathering. The inclusion of these scores was particularly necessary where participant data was only available from the teacher. It is noted that the reliability the Cronbach alpha for the teacher scale is low, however in this study significant correlation was found between teacher and parent scales indicting a good level of agreement.*

and did not complete the SDQ; or where parents and/or teachers failed to return questionnaires), composite scores were created from the data available. This resulted in composites comprising of child- and parent-reports (*n*=13); parent- and teacher reports (*n*=6); child-report (*n*=3); parent-report (*n*=2); child- and teacher-report (*n*=1); and teacher-report (*n*=1).

The presence of emotional symptoms was significantly affected by stage of schooling $H(2) = 6.35$, $p < .05$. Total Difficulties and peer problems were not significantly affected, $H(2) = 5.92$ and $H(2) = 5.36$, *ns*, respectively. Mann-Whitney tests were used to follow up these findings, and a Bonferroni correlation was applied and so all effects are reported at $p < .01$ level of significance. The Mann-Whitney test revealed no significant between group differences however Jonckheere-Terpstra tests revealed a significant trend in the data: the higher the stage of schooling, the greater Total Difficulties ($J = 269$, $z = 1.65$, $r = -.49$, $p < .05$). Peer problems ($J = 253$, $z = 1.18$, $r = -.47$ *ns*) and emotional symptoms ($J=251.5$, $z=1.14$, $r=-.49$, *ns*) also increased with stage of schooling, but these trends were not significant. Table 3 displays mean composite scores, per group, for each measure of the SDQ.

Table 3.

Composite Scores of Difficulties, as Measured by the SDQ

Group	M	SD	Range
		Total Difficulties	
Primary[1]	-.68	.78	-1.85 - .21
Lower Secondary	.25	.88	-.95-1.87
Upper Secondary	.08	.73	-1.20-1.41
		emotional symptoms	
Primary	-.65	.77	-1.44 – 1.13
Lower Secondary	.28	.80	-.94-1.53
Upper Secondary	-.05	.86	-1.39-1.89
		peer problems	
Primary	-.57	.45	-1.25-.11
Lower Secondary	.19	.84	-1.23-1.84
Upper Secondary	.00	.93	-1.20-1.87

[1]Children in the Primary group did not complete the SDQ. Composite scores are based on data from parents and/or teachers.

Cognitive measures

Attentional bias (Emotional Stroop task)

Mean reaction times (RTs) were calculated for each participant, for each category of word (separation; social; neutral). Outlier RTs of ±3 SD were removed before calculation. Bias scores for each participant were created by subtracting their mean RT for neutral words from their mean RT for threat words. Two bias scores were

created for each participant: separation bias (mean RT for separation words – mean RT for neutral words); and social bias (mean RT for social words – mean RT for neutral words). Using this method, a positive score indicated attentional bias towards threat.

Data were excluded from analysis where the participant failed to complete the task (*n*=1); displayed an elevated number of errors (*n*=1; +3 SD); or where the bias score was considered an outlier (*n*=1; ±3 SD). The pupil who displayed elevated errors was the youngest participant (7 years 2 months) and had the lowest reading age (5 years). All other participants had a reading age ≥ 6 years 4 months, which was considered sufficient for completing the Stroop task. A total of 34 separation bias scores and 33 social bias scores were included in the final analysis.

Neither separation nor social bias was significantly affected by stage of schooling $H(2) = 2.22$ and 2.64, *ns*, respectively. Table 4 presents mean number of errors and bias scores for each group. For separation words, only the Lower Secondary group showed a mean positive bias, indicating higher levels of separation-bias for this group; for social words the Primary and Lower Secondary groups showed a positive bias, indicating higher levels of social-bias in these groups.

Table 4.

Mean Stroop Errors and Bias Scores across Groups

Group	**M**	**SD**	**Range**
Number of errors			
Primary	8	7	1-20
Lower Secondary	5	8	0-29
Upper Secondary	4	4	0-11
Bias score for separation words			
Primary	-8	40	-88 – 40
Lower Secondary	11	39	-85 – 57
Upper Secondary	-9	49	-101 – 77
Bias scores for social words			
Primary	24	51	-42 – 115
Lower Secondary	5	41	-59 – 108
Upper Secondary	-4	32	-32 – 90

Note. Values reported correct to the nearest whole number.

Function (SRAS-R)

Correlations between individual child and parent scores for each function were calculated. This revealed significant correlation between scores for Avoidance (r_s=.61, p <.01); Social (r_s=.80, p < .01); and Attention (r_s=.71, p < .01). The correlation between Tangible scores was nonsignificant (r_s=.20).

Combined child and parent scores provided the primary function for the pupil's SRB. The primary function was considered to be the functional category with the highest mean score. Where a combined score could not be calculated (i.e. where the parent did not complete the measure) (n = 6), the child's score was used. Primary function was not significantly affected by stage of schooling, $H(2) = 3.91$, *ns* (see Figure 6).

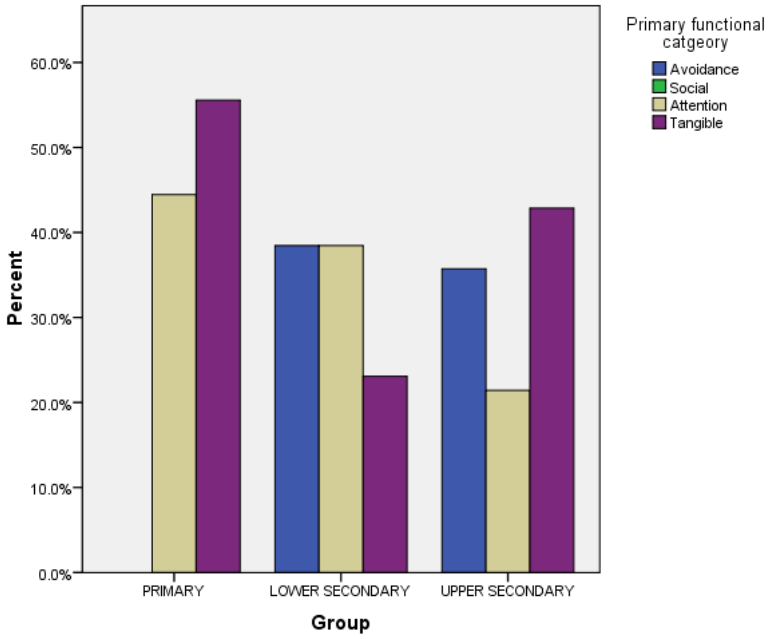

Figure 6. Distribution of SRAS-R primary functions across groups.

For each participant scores were also calculated for each functional category individually (based on combined child- and parent-ratings). This resulted in a score for Avoidance, Social, Attention, and Tangible, for each pupil. Mean functional category scores for each group of participants are displayed in Table 5.

Table 5.

Mean Scores for SRAS-R Functional Categories

Group	M	SD	Range
		Avoidance	
Primary	11	7	4-24
Lower Secondary	18	9	6-33
Upper Secondary	17	10	0-33
		Social	
Primary	5	5	0-15
Lower Secondary	14	10	3-32
Upper Secondary	12	9	3-30
		Attention	
Primary	16	11	2-33
Lower Secondary	19	9	3-31
Upper Secondary	14	9	4-34
		Tangible	
Primary	13	8	2-30
Lower Secondary	11	5	4-20
Upper Secondary	14	6	1-23

A One-way ANOVA revealed a between group difference for the Social function F (2, 33) = 3.45, $p < .05$, ω=.35. There was a significant linear trend F (1, 33) = 4.47, $p < .05$, ω=.28, indicating that the presence of the Social function proportionally increased as stage of schooling increased. Table 5 shows higher mean scores in the Lower Secondary group, across three functions (Avoidance, Social, Attention) compared to the Primary and Upper Secondary groups. Tangible was highest in the Upper Secondary group. The functions with the highest mean score per group were as follows: Primary=Attention; Lower Secondary=Attention; Upper Secondary=Avoidance.

Correlations

To explore the relationship between age, attendance, behaviour and cognition, Spearman's rho was conducted to look for correlations between the relevant variables: age; attendance; behaviour (child-reported Total Anxiety, SA, and SP scores were used as measures of anxiety, and composite scores for Total Difficulties, emotional symptoms, and peer problems were used as measure of difficulty); and cognition (Stroop separation- and social-bias scores, and combined parent- and child-rated function scores). Table 6 shows all significant correlations between variables (see Appendix H for a table of all correlations).

Negative correlations were found between attendance and a number of behavioural and cognitive measures, indicating that the presence of anxieties or difficulties is associated with school absenteeism. Significant positive correlations were found between cognitive and behavioural measures, indicating an association between the function of a young person's SRB and his or her anxieties and difficulties. This was with the exception of the Tangible function, which correlated

negatively with peer problems ($r_{s=}$ -.39, $p < .05$), indicating that young people who refuse school for tangible reinforcement (e.g. to have fun; see friends) have less difficulties with peer relationships. Age did not correlate with attendance, behaviour, or cognition, indicating that anxiety and associated difficulties contribute to school absence over and above age. Because previous analysis had revealed age- or stage of schooling-related differences with regards to Total Difficulties; emotional symptoms; and Social function, partial correlations were also carried out. This provided an additional significant correlation between Attendance and Social (r=-.48, $p < .01$) and increased significance for correlations between a number of cognitive and behavioural measures. It resulted in lost correlations between Attendance and Total Difficulties, and Attendance and peer problems.

Regressions

In order to explore the mediating effects of self-report cognition between behaviour (anxieties and difficulties) and school attendance, 4 models were tested using linear regression. In each, the behaviour was entered on the first step (self-report RCADS scores for SA; composite SDQ scores for total difficulties, emotional symptoms and peer problems); because an association was found between these variables and school attendance. Cognition scores (combined child and parent SRAS scores for Avoidance, Social, and Attention) were considered as independent mediators and entered individually on the second step.

To explore the effect of cognition on each behavioural measure, simple regression analysis was conducted and revealed that SA accounted for 44% variance in Avoidance ($F(1,34)=26.40$, $p<.001$); 31% variance in Social ($F(1,35)=15.04$, $p<.001$); and 24% variance in Attention ($F(1,34)=10.54$, $p<.01$); Total Difficulties

accounted for 43% variance in Avoidance ($F(1,35)=25.37$, $p<.001$); 40% variance in Social ($F(1,35)=22.39$, $p<.001$); and 18% variance in Attention ($F(1,35)=7.67$, $p<.01$); emotional symptoms accounted for 56% variance in Avoidance ($F(1,35)=43.38$, $p<.001$); 40% variance in Social ($F(1,35)=22.39$, $p<.001$); and 25% variance in Attention ($F(1,35)=11.14$, $p<.01$); and peer problems accounted for 35% variance in Avoidance ($F(1,35)=18.54$, $p<.001$); 43% variance in Social ($F(1,35)=25.49$, $p<.001$); and 20% variance in Attention ($F(1,35)=8.51$, $p<.01$).

Table 6. *Correlations between Variables*

		1	2	3	4	5	6	7	8	9	10	11	12	13
Attendance														
1.	Attendance	--												
Cognition														
2.	Avoidance	-.43**	--											
3.	Social	-.33	.73**	--										
4.	Attention	-.45**	.76**	.53**	--									
5.	Tangible	.00	-.14	-.04	-.14	--								
6.	Separation bias[1]	.03	.19	.06	.20	-.06	--							
7.	Social bias[2]	.12	-.05	-.22	.00	-.01	.40*	--						
Behaviour														
8.	Anxiety	-.13	.65**	.63**	.47**	-.03	.11	-.24	--					
9.	SA	-.35*	.68**	.67**	.58**	-.12	.05	-.23	.74**	--				
10.	SP	-.05	.49**	.57**	.41*	-.18	.03	-.12	.87**	.58**	--			
11.	Difficulties	-.36*	.70**	.59**	.47*	.11	.14	.05	.44**	.52**	.25	--		
12.	Emotional	-.36*	.77**	.65**	.54**	-.17	.28	-.07	.44**	.52**	.34*	.67**	--	
13.	Peers	-.37*	.53**	.55**	.36*	-.39*	.18	.02	.26	.40*	.21	.59**	.56**	--

[1]*n*=34. [2]*n*=33. In all other cases, *n*= 35 or 36. *$p < .05$; **$p < .01$; ***$p < .001$

Self-report Separation Anxiety, Cognition, and Attendance

Considering links between self-report SA and attendance, a regression analysis was used to examine the contribution of SA on attendance. SA was entered on the first step producing a significant regression equation ($F(1, 34)=5.07$, $p < .05$) where the beta weight for SA was significant (-.37, $p < .05$), indicating that as self-report SA increased school attendance was reduced; this step accounted for 13% in the variance for attendance. The self-report cognition scores (Avoidance, Social and Attendance) were entered individually on the second step, each producing significant regression equations. For Avoidance ($F(2,34)=8.92$, $p <.001$); this step accounted for 36% of the variance and increased. The beta value associated with SA decreased to .06 ($p>.7$). For Social ($F(2,34)=5.63$, $p<.01$); step 2 accounted for 26% of the variance and increased. The beta value associated with SA decreased to -.07 ($p>7$). For Attention ($F(2,34)=6.73$, $p<.01$), step 2 accounted for 30% of the variance and increased. The beta value for SA decreased to -.14 ($p>.4$).

The increase in scores and reduction in the beta value for SA in all analyses indicated that the SRAS factors associated with nonattendance mediated the relationship between SA and attendance. The beta value for all mediators were significant. See Table 7 for results of this analysis.

Table 7.

Summary of Hierarchical Regression Analysis for Separation Anxiety (SA) Predicting Attendance (N = 34)

	B	*SE B*	*B*
Step 1			
Constant	95.84	17.50	
SA	-0.67	0.30	-.37*
Step 2			
Constant	93.16	15.32	
SA	0.11	0.35	.06
Avoidance	-2.56	0.76	-.64**
Constant	87.33	16.73	
SA	-0.12	0.36	-.07
Social	-1.99	0.8	-.47*
Constant	101.48	16.15	
SA	-0.25	0.31	-.14
Attention	-1.80	0.66	-.46**

Note. R^2=.13 for Step 1; R^2=.36 for Step 2 Avoidance, R^2=.26 for Step 2 Social, and R^2=.30 for Step 2 Attention; ΔR^2=.23 for Step 2 Avoidance ($p < .001$), ΔR^2=.13 for Step 2 Social ($p < .001$) and ΔR^2=.17 for Step 2 Attention ($p < .01$). $^{*}p < .05$. $^{**}p < .01$.

Self-report Total Difficulties, Cognition, and Attendance

Considering links between self-report Total Difficulties and attendance, a regression analysis was used to examine the contribution of Total Difficulties on attendance. Total Difficulties was entered on the first step producing a significant regression equation ($F(1, 35)=4.83$, $p < .05$), where the beta weight for total difficulties was significant (-.35, $p < .05$), indicating that as self-report Total Difficulties increased school attendance was reduced; this step accounted for 12% in the variance for attendance. The self-report cognition scores were entered individually at the second step, each producing significant regression equations. For Avoidance ($F(2,35)=9.22$, $p <.001$), this step accounted for 36% of the variance and increased. The beta value associated with Total Difficulties decreased to .07 (p>.72). For Social ($F(2,35)=6.11$, $p<.01$); step 2 accounted for 27% of the variance and increased. The beta value associated with Total Difficulties decreased to -.10. For Attention ($F(2,35)=7.11$, p <.01) step 2 accounted for 30% of the variance and increased. The beta value associated with Total Difficulties decreased to -.15 (p>.35).

The increase in scores and reduction in the beta value for Total Difficulties in all analyses indicated that the SRAS cognitive factors associated with nonattendance mediated the relationship between Total Difficulties and attendance. The beta values for all mediators were significant. See Table 8 for results of this analysis.

Table 8.

Summary of Hierarchical Regression Analysis for Total Difficulties Predicting Attendance (N = 35)

	B	*SE B*	*B*
Step 1			
Constant	58.04	5.93	
Total Difficulties	-15.28	6.95	-.35*
Step 2			
Constant	99.52	13.01	
Total Difficulties	2.84	7.98	.07
Avoidance	-2.57	0.74	-.64***
Constant	79.89	10.12	
Total Difficulties	-4.27	7.74	-.10
Social	-1.93	0.75	-.46*
Constant	87.38	11.49	
Total Difficulties	-6.63	6.98	-.15
Attention	-1.80	0.62	-.47**

Note. R^2=.12 for Step 1; R^2=.36 for Step 2 Avoidance, R^2=.27 for Step 2 Social, and R^2=.30 for Step 2 Attention; ΔR^2=.24 for Step 2 Avoidance ($p < .001$), ΔR^2=.15 for Step 2 Social ($p < .01$), and ΔR^2=.18 for Step 2 Attention ($p < .01$). $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .05$.

Self-report Emotional Symptoms, Cognition, and Attendance

Considering links between self-report emotional symptoms and attendance, a regression analysis was used to examine the contribution of emotional symptoms on attendance. Emotional symptoms was entered on the first step producing a significant regression equation ($F(1, 35)=8.00$, $p < .01$), where the beta weight for emotional symptoms was significant (-.44, $p < .01$), indicating that as self-report emotional symptoms increased school attendance was reduced; this step accounted for 19% in the variance for attendance. The self-report cognition scores were entered individually at the second step, each producing significant regression equations. For Avoidance ($F(2,35)=9.14$, p <.001), this step accounted for 36% of the variance and increased. The beta value associated with emotional symptoms decreased to .02 (p>9). For Social ($F(2,34)=6.57$, $p<.01$); step 2 accounted for 29% of the variance and increased. The beta value associated with emotional symptoms decreased to -.19. For Attention ($F(2,35)=7.82$, p <.01) step 2 accounted for 32% of the variance and decreased. The beta value associated with emotional symptoms decreased to -.23 (p>1).

The reduction in all analyses in the beta value for emotional symptoms indicated that SRAS factors mediated the relationship between emotional symptoms and attendance. The beta values for all mediators were significant. See Table 9 for results of this analysis.

Table 9.

Summary of Hierarchical Regression Analysis for Emotional Symptoms Predicting Attendance (N = 35)

	B	*SE B*	*B*
Step 1			
Constant	57.28	5.72	
Emotional symptoms	-18.72	6.62	-.44**
Step 2			
Constant	97.86	14.85	
Emotional symptoms	1.01	9.04	.02
Avoidance	-2.47	0.85	-.61**
Constant	76.50	10.71	
Emotional symptoms	-8.03	8.13	-.19
Social	-1.66	0.80	-.40*
Constant	83.91	11.81	
Emotional symptoms	-9.83	7.08	-.23
Attention	-1.62	0.64	-.42*

Note. R^2=.19 for Step 1; R^2=.36 for Step 2 Avoidance, R^2=.29 for Step 2 Social, and R^2=.32 for Step 2 Attention; ΔR^2=.17 for Step 2 Avoidance ($p < .001$), ΔR^2=.10 for Step 2 Social ($p < .01$) and ΔR^2=.13 for Step 2 Attention ($p < .01$). $^{*}p < .05$. $^{**}p < .01$.

Self-report Peer Problems, Cognition, and Attendance

Considering links between self-report peer problems and attendance, a regression analysis was used to examine the contribution of peer problems on attendance. Peer problems was entered on the first step producing a near significant regression equation ($F(1, 35)=3.91$, $p=.056$), where the beta weight for peer problems was near significance (-.32, $p=.056$), indicating that as self-report peer problems increased school attendance was reduced; this step accounted for 10% in the variance for attendance. The self-report cognition scores were entered individually at the second step, each producing significant regression equations. For Avoidance ($F(2,35)=9.19$, $p <.001$) this step accounted for 36% of the variance and increased. The beta value associated with peer problems decreased to .05 (p>7). For Social ($F(2,35)=5.92$, $p<.01$); step 2 accounted for 26% of the variance and increased. The beta value associated with peer problems decreased to .03. For Attention ($F(2,35)=6.76$, $p <.01$) step 2 accounted for 54% of the variance and increased. The beta value associated with peer problems decreased to -.10 (p>5).

The increase in scores and reduction in the beta value for peer problems in all analyses indicated that the SRAS factor associated with nonattendance mediated the relationship between peer problems and attendance. The beta value for all mediators were significant. See Table 10 for results of this analysis.

Table 10

Summary of Hierarchical Regression Analysis for Peer Problems Predicting Attendance (N = 35)

	B	*SE B*	*B*
Step 1			
Constant	57.75	6.01	
Peer problems	-14.31	7.24	-.32
Step 2			
Constant	98.78	12.46	
Peer problems	2.31	7.73	.05
Avoidance	-2.52	0.70	-.63**
Constant	83.52	11.07	
Peer problems	1.18	8.81	.03
Social	-2.23	0.83	-.53**
Constant	88.54	11.75	
Peer problems	-4.65	7.31	-.10
Attention	-1.88	0.64	-.48**

Note. R^2=.10 for Step 1; R^2=.36 for Step 2 Avoidance, R^2=.26 for Step 2 Social, and R^2=.29 for Step 2 Attention; ΔR^2=.26 for Step 2 Avoidance ($p < .001$), ΔR^2=.16 for Step 2 Social ($p < .01$) and ΔR^2=.19 for Step 2 Attention ($p < .01$). $^{*}p < .05$. $^{**}p < .01$.

Summary

The results of the regression analyses provided support for the model by showing cognition to mediate the relationship between behaviour and attendance. For each type of behaviour (SA; Total Difficulties; emotional symptoms; peer problems) three cognitions acted as mediators: Avoidance, Social, and Attention. Avoidance was the strongest and most significant predictor, followed by Attention, and finally Social. This indicates that Avoidance has a particularly strong mediational affect on the relationship between behaviour and school attendance.

Discussion

This study explored the relationship between anxiety, cognition, and school attendance from a developmental perspective. An extended model was presented which proposed associations between age; cognition (attentional bias and motivation for refusing school); behaviour (anxiety and behavioural difficulties); and degree of absenteeism. The author hypothesised that patterns in this relationship would differ according to age: specifically that, younger children would display cognitions and behaviours consistent with separation anxiety, whereas adolescents would display cognitions and behaviours consistent with social anxiety. Results supported the model by identifying associations between cognitive and behavioural measures, and between these measures and attendance level. Hierarchical Regression Analysis confirmed the role of cognition in mediating the relationship between behaviour and attendance. Results found some evidence for developmental trends but did not support the hypothesis that age significantly affects these variables.

Associations between variables were explored through correlational analysis. A negative association was found between attendance and three cognitions related to the individual's motivation to refuse school: to seek avoidance from school situations which cause negative affectivity (Avoidance); to escape from social and evaluative situations (Social); and to seek attention from caregivers (Attention). Further negative associations were found between attendance and self-report separation anxiety, and behavioural difficulties (including emotional symptoms and peer problems). These associations support previous research which identifies the role of anxiety in school refusal (e.g. Heyne et al., 2004; Kearney & Albano, 2004; Kearney & Silverman, 1990).

Positive correlations were found between cognition (Avoidance; Social; Attention) and all the anxiety and behavioural difficulty measures. This provides support for the model by providing evidence of association between cognition and behaviour, as has been found in previous research (e.g. Egger et al., 2003; Kearney 2002a; 2007). However, in this study there was less evidence of clearly defined associations: for example, the author hypothesised that cognitions regarding Attention would be associated with anxieties and behavioural difficulties related to separation. Whilst evidence for this was found, there were also correlations between Attention and other anxieties and behaviours (e.g. social phobia). There are two possible explanations for this: first, the high level of correlation between behavioural measures meant that there was overlap in what symptoms each measure assessed (e.g. 'clingy behaviour' may be representative of both separation anxiety and social anxiety in this participant sample); second, the participants in this study may have been experiencing more general anxieties (e.g. worries regarding a range of

situations) rather than context-specific fears. This is supported by the high level of correlation found between Avoidance, Social, and Attention functions.

As expected and in line with previous research (e.g. Egger et al., 2003; Evans, 2000; Kearney, 2007; Kearney & Albano, 2004), refusing school to seek tangible reinforcement (Tangible function) did not show a correlation with any of the anxiety measures used in this study (RCADS self-reported Total Anxiety; SA; SP). However, Tangible scores did correlate negatively with peer problems, indicating that where individuals refuse school to have fun or play, they have less social difficulties.

The author was interested in exploring relationships between variables from a developmental perspective. Although age was not significantly correlated with any cognitive or behavioural measure, analysis did reveal evidence of certain age-related trends: considering cognition, the most common primary function for refusing school in the Primary group was Attention. This supports previous research indicating a predominance of separation-related cognitions in young children (e.g. Kearney & Albano, 2004; Kearney et al., 2002a). Attention from caregivers was also the most common primary function in the Lower Secondary group. This was somewhat surprising as previous research has implied a predominance of associations with socially-related cognitions in adolescents (Kearney & Albano, 2004). However, this group were aged 11-14 years and therefore may be considered between childhood and adolescence. Further, a number of studies with young people of different ages have found attention from caregivers to be the most common cognition associated with school refusal (e.g. Egger et al., 2003; Evans, 2000; Flakierska-Praquin et al., 1997). Interestingly, although SRAS-R combined scores did not identify any young person in this study as refusing school to escape social situations, a significant age-

effect for the Social function was found: as stage of schooling increased (i.e. the child got older), the presence of Social symptoms increased. This supports previous research (e.g. Kearney & Albano, 2004).

The current study also found behavioural difficulties, emotional symptoms, and peer problems to increase with age (although the latter two nonsignificantly) indicating that older children with SRB present with greater heterogeneity than younger children. Although between group differences for anxiety scores were not significant this may be due to the small sample size and heterogeneity in symptom presentation and degree of absenteeism apparent amongst the participants. The Lower Secondary group (11-14 year olds) displayed, on average, the highest severity of anxiety symptoms. The increase in symptoms at this age may reflect changes in schooling which occur at this age in the UK. At 11 years of age, young people make the transition to Secondary school. Transition is recognised in education literature to be a difficult time for many individuals (e.g. West, Sweeting, & Young, 2008), and previous research has identified peaks in referral for SRB at around this age (e.g. Hersov, 1985; Heyne et al., 2004; King & Bernstein, 2001; Last & Strauss, 1990). Conversely, at the other end of this age range (14 years) pupils are selecting exam and career options, and making the transition into key stage 4, the final stage of formal schooling. This is also recognised to be a particularly difficult time (West, Sweeting, & Young, 2008).

The current study included a measure of attentional bias to provide further information regarding cognitions associated with absenteesim. The emotional Stroop task specifically examined attentional bias towards separation- and social-anxiety related words. No significant correlations for separation bias or social bias were found, accept with each other. Previous studies have also failed to find an effect

using an emotional Stroop task (Kindt, Bögels, & Morren, 2003), although some have found evidence of bias for motivationally-relevant stimuli (Kindt, Brosschot, & Everaerd, 1997). This finding may be due to the high correlations between anxiety and behavioural symptoms, as reported by participants. Alternatively, the task may not have not been sensitive enough to identify bias, or some of the participants may have not been at the appropriate developmental stage: Kindt and colleagues suggested that children under a certain age may show bias towards threat, regardless of the context, and regardless of their anxiety levels (Kindt, van den Hout, de Jong, & Hoekzema, 2000). Other research has suggested that under certain conditions, high levels of anxiety may suppress attentional bias responses (Williams, Mathews, & MacLeod, 1996).

The mediational model was tested using regression analysis, revealing that four measures of behaviour predicted attendance, and that this relationship was mediated by cognition (Avoidance, Social, or Attention functions). These findings support previous research (Kearney, 2007) and provide evidence for the mediating effect of cognition in maintaining absenteeism.

Summary

This current study provided support for previous research by identifying associations between childhood and adolescent anxiety, cognition, and school attendance. It extended previous research by incorporating behavioural difficulties into this relationship. The study found evidence of cognition mediating the relationship between anxiety and attendance, providing further support for the work of Kearney and colleagues. The study also explored developmental differences and although many correlations were nonsignificant, did find evidence for developmental trends.

Of particular importance maybe was the finding that behavioural difficulties generally, and cognitions regarding escape from social situations increase with age, and that higher levels of anxiety culminate around early adolescents (11-14 years).

Limitations and directions for future research

As with all research there are a number of limitations to this study. Most prominently is the sample size (n=36): in order to fully explore developmental trends a larger participant group would have been beneficial. The small sample size may account for there being fewer significant age-related and between group differences, as hypothesised. Recruitment was particularly difficult for this study, especially within the Primary age group. This may indicate there being fewer children of primary age with SRB, however it is more likely to be due to the following: children of this age may be considered less likely to be able to provide informed consent than their older peers, meaning that parents would decide on their behalf. It is foreseeable that parents of younger children may be more protective and therefore not give consent for participation in research; alternatively, primary aged children may display SRB but due to the significant influence of parents at this age, are more likely than their older peers to regularly attend school. This would result in higher attendance levels and hence they would not have been identified as fulfilling criteria for this study. This second point is particularly concerning as it suggests that SRB and associated anxieties and difficulties may in a way be 'masked' during early schooling. Discussion with parent participants suggested that where children had SRB, often a number of professionals were involved in their care/assessment. One parent felt that to include a researcher as a new face would be unfair to the child. Consequently the current study may be lacking a population of children with more severe SRB

(especially in the young age groups). Longitudinal research is recommended to explore patterns in SRB as children progress through their schooling.

As with all opt-in research caution should be taken when generalising findings to the wider population. It should be noted that the settings; parents; and young people who chose to participate were only a selection of those invited. Regarding settings, this may reflect those who have a particular problem with attendance and are seeking help; or those who feel attendance is good and want to contribute to research. Either way, this would result in only a subsection of settings taking part. Similarly with parent and pupil participants, it is foreseeable that they participated in the hope of receiving help – the purpose of the study was made clear to all participants before obtaining consent in order to alleviate this, however it is possible some participants were motivated to take part for personal gain. In this instance it is foreseeable that this may have biased participant answers and led to the exaggeration of symptoms. On a similar thread, although all questionnaires were anonymised there is always the possibility that participants may have provided socially desirable responses. This was controlled for as much as possible by including information from parents, pupils, and teachers.

This study aimed to incorporate a wide range of children with attendance problems, by assessing attendance as ≤93% (the cut-off used by schools) and obtaining a cumulative attendance percentage, to include those who are late; miss particular days; or are absent for blocks of time. Although due care was taken to ensure the children participating in the study had not been absent due to authorised reasons (e.g. holiday; physical illness) it was impossible to fully ensure this, and the author was reliant on setting professionals to make such judgements.

This study took a very 'within-child' approach by considering the child's cognitions, anxieties, and behaviours as they influence school attendance. Whilst this approach is derived from previous research, and offers insight into the intrapersonal factors of absenteeism, it is worth remembering that there may also be a number of external influences on a child's SRB: first the ethos of the setting and support and knowledge of staff with regards to childhood anxiety and SRB are likely to be influential. Whereas some settings may work collaboratively with families to support reintegration packages, others may not. Staff confidence and competence in working with children with SRB are likely to influence their practice. Further research considering different types of provision, and school-related variables would contribute to this field of research; second, family-related factors may play a role in maintaining a child's SRB. There is a wealth of research which associates the emotional wellbeing children with that of their parent(s) (e.g. children of depressed parents often show signs of anxiety; Colletti et al., 2009), and it would be beneficial to explore how parental attitudes and feelings towards school impact on the child. Further, factors related to family composition may offer more insight. For example, whether parents work or stay at home; whether the child has any siblings and what their cognitions towards school are; the demographic location of the home and socio-economic status of the family and whether these factors influence attendance levels.

Finally, the current study did not control for additional intrapersonal variables which may have influenced pupil data. For example, previous research has identified that different life experiences can influence cognitive processing (e.g. past abuse or PTSD) (Pine, Cohen, Gurley, Brook, & Ma, 2005). Future research may consider exploring these factors further, which would contribute to professional understanding of how SRB develops, is maintained, and may be prevented.

Implications for practice

Anxiety and associated behavioural difficulties contribute to school absenteeism, and this relationship is mediated by cognition. Whilst young people of different ages may show developmental trends in the presentation of symptoms and behaviours, anxiety appears to influence attendance over and above age. Within the clinical setting it would be important to consider individual presentations when assessing and prescribing treatment for SRB. The mediating role of cognition in this relationship has important implications for how SRB is understood: it would be necessary to address this alongside anxiety symptoms.

The prevalence of Avoidance as a mediator in school absenteeism has implications for both clinical and educational practice: support around recognising and coping with feelings of general anxiety may be helpful for this group of school refusers, in addition to any personalised intervention programme.

Within schools and educational settings it should be noted that symptoms of anxiety and behavioural difficulties associated with school refusal may appear early on in the school years, but be masked by higher attendance levels. In order for settings to work preventatively, age-related trends should be considered: especially the development of cognitions related to social-anxiety as the young person progresses through school. Education settings may wish to consider preventative work surrounding social skills and peer relationships, particularly in Secondary school. Of particular importance, however, are the implications for key stage 3 (11-14 years old). The heightened levels of anxiety and behavioural difficulties within this age group, as well as the predominance of separation anxiety, may have implications for secondary school transition. Such pupils may benefit from a more nurturing environment during this time.

Interestingly the current study identified little agreement between parent-, child-, and teacher-reports of the pupil's difficulties. Where there was agreement, this was between parents and children, or parents and teachers, but not teachers and children. To ensure professionals can best meet the needs of young people displaying SRB, close home-school communication is advised. This finding has further implications for enhancing professional understanding of the motivational factors behind SRB in order that the needs of these young people can be most effectively met. As proposed by Lauchlan (2003), the most appropriate intervention for young people with SRB will be individualised and multi-disciplinary: involving the young person, parents, schools, and educational and/or clinical psychology professionals.

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Appendix A. Ethical Approval

Your Ethics Form approval
Psychology.Ethics.Forms@ps2.psy.soton.ac.uk
[Psychology.Ethics.Forms@ps2.psy.soton.ac.uk]

Sent: 21 June 2009 23:11

To: Newman R.C.

This email is to confirm that your ethics form submission for "Anxiety related school refusal" has been approved by the ethics committee

Project Title: Anxiety related school refusal
Study ID : 860
Approved Date : 2009-06-21 23:11:59

Appendix B. Participant Recruitment

Type of provision	**Name of provision**	**No. of invitations distributed** (approx)	**No. of returned consents**	**Return rate** (to nearest %)
Mainstream primary school	*Primary a*	23	3	13
	Primary b	18	5	28
	Primary c	9	0	0
Mainstream secondary school	*Secondary a*	73	14	19
	Secondary b	20	0	0
Alternative provision	*Provision a*	3	3	100
	Provision b	80	1	1
	Provision c	3	3	100
	Provision d	6	0	0
	Provision e	10	0	0
	Provision f	6	0	0
	Provision g	4	0	0
Professional Service	*Educational Psychology Service a*	1	1	100
	Education Welfare Service b	30	0	0
	Education Welfare Service a	6	3	50
	Connexions Service a	3	0	0
Other	'Word of mouth'	3	3	100
TOTAL	**17**	**298**	**36**	**12**

Note. An additional 35 mainstream primary schools; 4 alternative provisions; and 2 professional services were invited to participate but declined (*n*=41).

Appendix C. Study Invitation Letter

Dear Sir/Madam,

Thank you for taking the time to read this letter. My name is Rebecca Newman and I am a Trainee Educational Psychologist at The University of Southampton. I am requesting the participation of yourself and your son/daughter in an important study trying to understand the variation in pupil school attendance. You have received this letter via your child's school: please note that I have not had access to your personal details.

I will soon be visiting your child's school to meet with all children who wish to take part in the study. Should you choose to take part, I will meet with your child for up to 45 minutes. meeting your child will be asked to complete a short activity on a laptop. This will involve looking at different words as they appear on the screen and pressing buttons on the keyboard. Following this, your child will be asked to complete three multiple-choice questionnaires about their own strengths, difficulties and feelings, and a short reading task, which involves reading a list of words aloud from a card. I will read the questions aloud to your child and assist them in completing the questionnaires if preferred. Your child will be given a pack of two multiple-choice questionnaires to bring home for you to complete. The questionnaires relate to the strengths, difficulties and behaviours of your child.

If preferred, I can visit yourself and your child at home. If you would rather participate in this way, please indicate 'home visit' on the enclosed consent slip. Personal information will not be released to, or viewed by, anyone other than the researchers involved in this project. Results of this study will not include your names or any other identifying characteristics. I would be very happy to discuss the study further or to answer any questions you may have. To do this, please contact me directly by email to rcn1v07@soton.ac.uk or by telephoning your child's school who will take

your telephone number so that I may call you back.

Your data will be used solely for the purposes of research, and published results of this project will maintain your confidentiality. Your participation is voluntary and you may withdraw your participation at any time. A summary of this research project will be supplied to you upon request. If you have any questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: (023) 8059 5578.

To participate in this study, please read the enclosed Participant Information Sheet and complete and return the enclosed consent slip in the SAE by ***(insert date).***

Thank you for your time in reading this letter.
Yours sincerely

Rebecca Newman
Trainee Educational Psychologist, University of Southampton

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Appendix D. Parental Consent Form

Researcher name: Rebecca Newman
Study reference: 860
Ethics reference: RN2

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet (VERSION 3) and have had the opportunity to ask questions about the study ☐

I agree to take part in this research project and agree for my data to be used for the purpose of this study ☐

I understand my participation is voluntary and I may withdraw at any time without my legal rights being affected ☐

Child's name .....

School.....Class.....

Name of parent/carer participant (print name)…….....

Signature of parent/carer participant…….....

Date…….

FOR HOME VISITS ONLY
If you would prefer me to visit you and your child at home, please tick this box

☐

Please provide your telephone number so that I may contact you to arrange a

convenient time to visit you at home.....

Appendix E. Debriefing Statement

The aim of this research was to investigate the reasons and motivations behind pupil absence from school, which may include worrying about school. It is expected that pupils will present a range of reasons for school absence and that these may differ according to the child's age. The Stroop task completed by the child on a laptop was to explore attentional bias: it is expected that pupils with different motivations for not attending school will focus for longer on different words. The reading task completed by the child was to control for reading ability for the Stroop task. Your data will help our understanding of the motivations children of different ages have for not attending school. Once again results of this study will not include your names or any other identifying characteristics. The research did not use deception. You may have a copy of this summary if you wish and a copy of our research findings once the project is completed.

If you have any concerns regarding the outcomes of this study for yourself or your child, and would like further help or support, please contact your child's school, GP, or Education Welfare Officer (if appropriate). These professionals can refer you to any relevant services. Alternatively you wish to gain further information about anxiety or related issues from the list of organisations provided.

If you have any further questions please contact the researchers on the email address given below.

Thank you for your participation in this research.

Signature _____ Date _____

Name

Appendix F. Stroop Word Lists

Social words	Separation words	Neutral word
Nasty	alone	Water
Bully	away	Magic
Unpopular	separated	February
Embarrass	abandoned	September
Unkind	apart	Began
Shy	gone	Cat
Tease	leave	Their
Mean	left	bear
Disliked	deserted	Suddenly
Nervous	lonely	morning
Ignored	faraway	Another
Failure	distant	Because

Note. Words are matched for number of syllables and number of letters (±1).

Appendix G. Stroop Task Instructions

Thank you for taking part in the study of attention. You will see a series of words displayed on the screen one at a time, coloured in RED, or in BLUE, or in GREEN, or in YELLOW.

Your task is simply to respond to the colour of the words by pressing one of four keys. Whenever the word is in RED, you press the RED key, when it is in BLUE, you press the BLUE key, when it is in GREEN you press the GREEN key, when it is in YELLOW, you press the YELLOW key.

It is important to press the keys as QUICKLY as possible. Please ask if you have any questions. When you are ready, press the space bar to try some practice words.

Appendix H. Table of Correlations between All Variables

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
14.	Age (months)	--															
15.	Reading age	.43*	--														
16.	Gender	.07	.35	--													
Attendance																	
17.	Attendance	-.15	-.04	.01	--												
Cognition																	
18.	Avoidance	.14	.31	.01	-.43**	--											
19.	Social	.23	.37*	.03	-.33	.73**	--										
20.	Attention	-.18	.03	-.15	-.45**	.76**	.53**	--									
21.	Tangible	.17	-.19	-.41*	.00	-.14	-.04	-.14	--								
22.	Separation bias[1]	-.07	.29	-.07	.03	.19	.06	.20	-.06	--							
23.	Social bias[1]	-.24	-.13	-.24	.12	-.05	-.22	.00	-.01	.40*	--						
Behavior																	
24.	Anxiety	.06	.24	-.01	-.13	.65**	.63**	.47**	-.03	.13	-.25	--					
25.	SA	.16	.30	.11	-.35*	.68**	.67**	.58**	-.12	.06	-.23	.74**	--				
26.	SP	-.11	.10	.04	-.05	.49**	.57**	.41*	-.18	.04	-.15	.87**	.58**	--			
27.	Difficulties	.21	.27	-.01	-.36*	.70**	.59**	.47*	.11	.16	.00	.44**	.52**	.25	--		
28.	Emotional	.14	.27	.11	-.36*	.77**	.65**	.54**	-.17	.30	-.12	.44**	.52**	.34*	.67**	--	
29.	Peers	.19	.34	.27	-.37*	.53**	.55**	.36*	-.39*	.19	-.03	.26	.40*	.21	.59**	.56**	--

[1]*n*=33 or 34. In all other cases, *n*= 35 or 36. * $p < .05$; ** $p < .01$; *** $p < .001$.