Social anxiety disorder in children and adolescents: assessment, maintaining factors, and treatment

Rio Cederlund
To life.
Abstract

The present dissertation consists of three empirical studies on social anxiety disorder (SAD) in a sample of Swedish children and adolescents. Based on findings made in a large behavior treatment study, the thesis contributes to the field of research on childhood SAD by investigating a factor that maintains the disorder, ways to assess and screen for diagnosis, and the treatment of the disorder. Study I investigated whether giving an educational course to the parents of socially anxious children would lead to a better outcome of a behavior-treatment study consisting of individual and group treatment components such as exposure in-vivo and social skills training, compared to a condition where children only were treated and the parents received no educational course. Another purpose of Study I was to investigate what influence, if any, co-morbidity has on treatment outcome. The results showed that there was no significant difference between the two treatment groups on any of the primary or secondary outcome measures. Further, the comorbid disorders did not impair the SAD treatment but was rather associated with further improvement, and despite the sole focus on SAD, there was significant improvement in the comorbid disorders. Study II tested the psychometric properties of the Social Phobia and Anxiety Inventory for Children in a sample of children with SAD. The results indicated that the instrument is a valid and reliable measure. Further, a three-factor solution represented the three areas of SAD commonly found in adult studies, i.e., fear of performance, observation, and interaction situations. Study III explored threat perception and interpretation bias by means of an ambiguous stories task. The results showed that children with SAD deviated significantly from a non-anxious control peer group with regard to their interpretations. Post treatment the threat perception bias was altered in a normal direction, and one year after treatment termination, the SAD sample ratings were comparable to those of the non-anxious children.
Acknowledgements

It took me ten years to complete this thesis. Perhaps if there was a litmus test you could use to detect differences in clinical trials, I could have made it in five. But I’m not so sure. It’s been hard work – some hard times, and some very fun ones. Many people have been important to me during these years, and a few have been very important.

Lars-Göran Öst: my supervisor. I don’t think I can find words.

Lotta Reuterskiöld: a great work companion during the first half of this adventure, a great friend during the second half. So much fun we’ve had Lotta, and so many hours of sweat and tears. It was an unlikely friendship but I know it’ll last forever. Liv Svirsky, Ulrika Thulin: two more precious friends from the Department of Psychology. Jonas Ramnerö: my co-supervisor. I have not forgotten how you slashed my first manuscript to shreds. I am very grateful for being allowed to share the theoretical sharpness only you possess, and your wits. Håkan Nyman: sharing your knowledge generously, ever since I wrote my Master thesis. Bertil Törestad: a mentor since the very beginning. Kia Åsberg and Erik Berntson: invaluable input and help with my manuscripts. Anonymous peer reviewers. Ann-Charlotte Smedler and Tomas Furmark, the not-so anonymous reviewers. Indebted to you all.

Reidun Larsson and Kerstin Karlsson: friends from the five year Psychologist programme. Do you remember that we did one of our first assignment together? Friendship love at first sight. Reidun… we cannot stop until we have at least reached RORR 66. Carl Wilkens/Val Kilkens: from the dusty assembly room of the student union headquarters, via Berlin and a few kick-ass parties, to Curçay-sur-Dive. Sten Skånby, Per Simonsson, Ulrika Berg Olofson, Caroline Olsson: all dear friends from my years at the student union.

My big family: parents, parents-in-law, siblings, siblings-in-law, and their spouses. S.Y. Very grateful for you. My daycare child minders: Eleni Kesisoglu, Susanne Larsson, Lena Magnusson, Susanna Bergström. You are invaluable and if it weren’t for you it would have taken me five more years to finish this thesis.
So many friends I am happy to have. Former and current colleagues that brighten my day and make me learn. Family away from home at Hamnen: Charlotte Hammerfeldt, Tora Nordström, Lotta Malm, Charlotte duRietz, Inger Hanérus. Thank you so much.

My children: you continuously teach me what it means to be ‘good enough’ and by that, what it actually means to be a good enough mother. Will I make it all the way? (The million dollar question.) Yes, I will. Braeden: you found me when I was on my way to give in, and by some kind of magic you were able to pick me up and inject me with new hope. I can never thank you enough. Kaa, for all the support, thank you. So much love to Jóhann Freyr Björgvinsson: you are the definition of friendship. Thank you Tom Kaulitz for making me laugh, and Bill Kaulitz for making me remember.

My greatest thank-you goes to you, Jens Eriksson.
I don’t think I can find words.

September 1, 2013
List of studies


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## Abbreviations

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<tr>
<td>ADIS-C/P</td>
<td>Anxiety Disorders Interview Schedule, Child and Parent versions</td>
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<td>CBCL</td>
<td>Child Behavior Checklist</td>
</tr>
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<td>CDI</td>
<td>Child Depression Inventory</td>
</tr>
<tr>
<td>FSSC-R</td>
<td>Fear Survey Schedule for Children-Revised</td>
</tr>
<tr>
<td>MASC</td>
<td>Multidimensional Anxiety Scale for Children</td>
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<td>QOLI</td>
<td>Quality of Life Inventory</td>
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<td>SCL-90</td>
<td>Symptom Checklist 90</td>
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<tr>
<td>SPAI-C/P</td>
<td>Social Phobia and Anxiety Inventory, Child and Parent versions</td>
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1. Introduction

Social anxiety disorder (SAD) is a highly impairing disorder. A person with social anxiety disorder is afraid of several everyday situations. Small things non-phobic people might not even think twice about, such as eating or drinking in public or writing when someone is watching become near impossible challenges for the phobic individual. Even if a performance or test-situation, or being in the center of attention, can be anxiety inducing to most the anxiety often passes rather fast and won’t cause either extensive worry beforehand, or out-draw rumination afterwards. Examples of what a socially phobic person fears will happen are feeling embarrassed, being judged as stupid or weak, being judged as being crazy, getting a panic attack, feeling confused, feeling ashamed of oneself, feeling that they have to vomit, fearing losing control of the bladder, and fearing that they will blush (Burstein et al., 2011; Essau, Conradt, and Petermann, 1999).

Many areas of life are affected for those who suffer. Extensive use of alcohol and drugs is common, as well as marriage and employment difficulties, and educational underachievement (Amies, Gelder, & Shaw, 1983; Liebowitz, Gorman, Fyer, Campeas, et al., 1985; Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992; Turner, Beidel, Dumoulin, et al., 1986). In a group of people seeking treatment for their social anxiety, 91 % reported lack of academic advancement due to social phobic fears (Turner, Beidel, Borden, et al., 1991). Some individuals are unable to work, are at higher risk to be unemployed, cannot work at their full capacity, and lack career advancement (LeCrubier et al., 2000; Van Ameringen, Mancini, & Streiner, 1994; Zhang, Ross, & Davidson, 2004; Zhang et al., 2004). Individuals with SAD have are also at higher risk to be dependent on financial support and suffer from severe social restriction. (Kessler, 2003; LeCrubier et al., 2000; Liebowitz, Gorman, Fyer, Campeas, et al., 1985; Schneier, Johnson, et al., 1992; Turner, Beidel, Dancu, et al., 1986).

SAD is highly impairing also during the adolescent years. Exposure to social fears is associated with avoidance; 17 % of the youth with any social fears reported that they often or always avoided social situations (Essau et al., 1999). Counting children who reported avoiding at all, the numbers increased to 61.6 % of the children with any social fear. Four out of ten children (38.9 %) with any social fear found their fear and/or their avoidance excessive or unreasonable. In a sample of 784 adolescents with SAD, two thirds (68 %) reported to have been bullied. Only one out of five youth in the same sample had been in contact with a health professional (Ranta, Kaltiala-
Heino, Rantanen, & Marttunen, 2009). In a study where 3211 Swedish high-school students were screened for SAD and victimization (e.g. maltreatment, sexual victimization and victimization from peer/siblings), self-reported SAD was associated with lifetime victimization to a significantly higher degree, than it was in adolescents who did not fulfill criteria for SAD (Gren-Landell, Aho, Andersson, Svedin, 2011).

The aim of this study was to explore measurement, maintaining factors, and treatment of childhood social anxiety disorder. It was carried out by evaluating the psychometric properties of an instrument that assesses social anxiety disorder, and by investigating the occurrence of threat interpretation bias in a sample of carefully diagnosed children and adolescents. Further, the efficacy of an extensive treatment program for social anxiety disorder was examined, the added benefit of parent involvement to that program, and the influence of the treatment on co-occurring disorders.
2. The disorder

It is possible that the first literature mention of what we call social anxiety disorder today should be from 400 before Christ: A person who loves darkness as life and thinks every man observes him (Hippocrates, 400 B.C. in Marks, 1965). The terms “social phobia” and “social neurosis” were used by psychiatrics already in the 1920s, but the disorder was then regarded as one of the simple/specific phobias. In 1949, mental problems were included for the first time in a section of their own in the World Health Organization’s sixth revision of the International Statistical Classification of Diseases and Related Health Problems (ICD), and three years later the first edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) was published by American Psychiatric Association (APA). In 1960 the British psychiatric Isaac Marks proposed that social fears should be distinguished from the simple phobias, and made into a category of their own, but in the DSM-II (published 1968), social phobia was still defined as a specific fear: “A specific phobia of social situations or an excessive fear of being observed or scrutinized by others” (...) “that causes significant distress”. It was not until 1980 and the publishing of DSM-III that social phobia became a separate diagnosis, still, it was defined only as fear of performance situations. People with broader or more numerous social fears were diagnosed with avoidant personality disorder and further, these two diagnoses could not be met simultaneously. In 1985, psychiatrist Michael Liebowitz and clinical psychologist Richard Heimberg (e.g. Liebowitz, Gorman, Fyer, & Klein,1985) drew attention to the lack of research on social phobia and encouraged colleagues to take the challenge and initiate empirical and experimental studies. Up to this point research on social phobia had been most limited, rendering it the nickname “the neglected anxiety disorder”.  

With the revision of the DSM-III in 1987, a few changes were made in the diagnostic criteria. Rather than just symptoms causing “significant distress”, the definition was changed to “interference or marked distress”. From then on, it was possible for the same patient to be diagnosed with both social phobia (i.e. fear of performance situations) and avoidant personality disorder. At the same time, the term generalized social phobia was introduced, which referred to a broader spectrum of social fears of a more severe and pervasive kind.

Until 1980s, childhood anxiety was largely seen as something of transitory nature and a natural part of being a child. It was also largely held that children did not feel the same degree of discomfort as adults in phobic situa-
tions. Further, it was in the third edition of the Diagnostic and Statistical Manual for Psychiatric Disorders (DSM-III; APA, 1980) that childhood anxiety got more extensive recognition, and a diagnostic nomenclature of its own (Last, Perrin, Herzden, & Kazdin, 1996). In the fourth edition of the DSM, published in 1994, diagnostic criteria were only slightly modified from the 1987 revision. The term “social anxiety disorder” was introduced as an alternative to the term “social phobia”, to emphasize the severity and impairment of the fears associated with the disorder (DSM-IV, APA, 1994). In DSM-5, published in spring, 2013, there have been further changes. First and foremost, the disorder is now known as “social anxiety disorder”. Former criterion A has been divided in two and each of the new criteria A and B reflect current research of the disorder. The new criterion A reflects the findings from factor of three subtypes of feared situations. New criterion B reflects the fact that showing anxiety symptoms is a key fear in SAD. The inclusion of the example “to offend others” adds cultural sensitivity (Lewis-Fernandez R et al., 2010).
<table>
<thead>
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<th>Criteria</th>
<th>Social Phobia (Social Anxiety Disorder) E 04 According to DSM-IV</th>
<th>Proposed revisions for the DSM-5: Social Anxiety Disorder (Social Phobia) Proposed for DSM-5</th>
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<tr>
<td>A</td>
<td>A marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. The individual fears that he or she will act in a way (or show anxiety symptoms) that will be humiliating or embarrassing. Note: In children, there must be evidence of the capacity for age-appropriate social relationships with familiar people and the anxiety must occur in peer settings, not just in interactions with adults.</td>
<td>Marked fear or anxiety about two (or more) of the following five situations: ne or more social situations in which the person is exposed to possible scrutiny by others. Examples include social interactions (e.g., having a conversation, meeting unfamiliar people), being observed (e.g., eating or drinking), or performing in front of others (e.g., giving a speech). Note: In children, the anxiety must occur in peer settings and not just during interactions with adults.</td>
</tr>
<tr>
<td>B</td>
<td>Exposure to the feared social situation almost invariably provokes anxiety, which may take the form of a situationally bound or situationally predisposed Panic Attack. Note: In children, the anxiety may be expressed by crying, tantrums, freezing, or shrinking from social situations with unfamiliar people.</td>
<td>The individual fears that he or she will act in a way or show anxiety symptoms that will be negatively evaluated (i.e., be humiliating or embarrassing, will lead to rejection or offend others).</td>
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<td>C</td>
<td>The person recognizes that the fear is excessive or unreasonable. Note: In children, this feature may be absent.</td>
<td>The social situations almost always provoke fear or anxiety. Note: In children, the fear or anxiety may be expressed by crying, tantrums, freezing, clinging, shrinking, or failing to speak in social situations.</td>
</tr>
<tr>
<td>D</td>
<td>The feared social or performance situations are avoided or else are endured with intense anxiety or distress.</td>
<td>The social situations are avoided or endured with intense fear or anxiety.</td>
</tr>
<tr>
<td>E</td>
<td>The avoidance, anxious anticipation, or distress in the feared social or performance situation(s) interferes significantly with the person’s normal routine, occupational (academic) functioning, or social activities or relationships, or there is marked distress about having the phobia.</td>
<td>The fear or anxiety is out of proportion to the actual threat posed by the social situation and to the sociocultural context.</td>
</tr>
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<td>F</td>
<td>In individuals under age 18 years, the duration is at least 6 months.</td>
<td>The fear, anxiety, or avoidance is persistent, typically lasting for 6 months or more.</td>
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<tr>
<td>G</td>
<td>The fear or avoidance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition and is not better accounted for by another mental disorder (e.g., Panic Disorder With or Without Agoraphobia, Separation Anxiety Disorder, Body Dysmorphic Disorder, a Pervasive Developmental Disorder, or Schizoid Personality Disorder).</td>
<td>The fear, anxiety, or avoidance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.</td>
</tr>
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<td>H</td>
<td>If a general medical condition or another mental disorder is present, the fear in Criterion A is unrelated to it, e.g., the fear is not of Stuttering, trembling in Parkinson’s disease, or exhibiting abnormal eating behavior in Anorexia Nervosa or Bulimia Nervosa.</td>
<td>The fear, anxiety, and avoidance are not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition.</td>
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According to the DSM-5 anxiety work group (Bögels et al., 2010) there were discussions whether subtypes of SAD should be classified qualitatively or quantitatively. The discussion relied on studies investigating types of social fears and their connection to impairment, rather than “generalized” versus “non-generalized” subtypes. Despite findings that tentatively support such a classification, the evidence for a new subtype system (either a divide into performance versus interaction fears, or a divide into performance, interaction, and observational fears) was not deemed to be sufficient (Bögels SM et al., 2010). Although the term “generalized” is no longer used in the DSM, the term is widely used in previous research and literature, and will be used in this thesis.
2.1. Prevalence

In a critical overview over 23 prevalence studies, Fehm, Pelissolo, Furmark, and Wittchen, (2005) investigate the prevalence of social anxiety disorder as measured by “modern diagnostic criteria” (DSM-III and DSM-IV). They conclude that the median lifetime prevalence of SAD in Europe is 6.6 %, and the 12-month prevalence is 2-3 %. In the US, numbers are reported to be higher; 12.1 % estimated lifetime prevalence, and 7.1 % estimated 12-month prevalence. In the largest study conducted to date on adolescents, the National Comorbidity Survey Replication-Adolescent Supplement (Ruscio, Brown, Chiu, Sareen, Stein, & Kessler, 2008) 0.123 adolescents aged 13 to 18 years, USA, were surveyed eye-to-eye. 8.6% of the participants met criteria for SAD sometime during their lives. Out of these, 55.8 % met criteria for the generalized subtype (4.8 % of the total sample), and 44.2% met criteria for the non-generalized subtype (3.8 % of the total sample) (Burstein et al, 2011). Same as in the adult sample from the US, rates are higher than in samples from Europe and the rest of the world: In a study from Puerto Rico (Canino et al., 2004): n= 1886, 4-17 years, parent and child report, 2.5 % met DSM-IV criteria for SP. In Germany, 1.6 % estimated lifetime prevalence of SAD and near half the sample reported any social fear: 47.2 % (Essau, Conradt, and Petermann, 1999). In a more recent study however, Knappe, Beesdo-Baum, Fehm, Stein, Lieb, and Wittchen (2011), n=3021 14-24 year olds, in Germany found that 6.6 % of total sample fulfilled the criteria for DSM-IV SAD, and 43.3 % at least one social fear. In the total sample, 20.2 % had one fear, 11.6 % 2 fears, and 11.7 % 3 or more. Ranta, Kaltiala-Heino, Rantanen, and Marttunen (2009): n = 784, Finland, 3.2 % met criteria for DSM-IV SAD and 4.6 % criteria for subclinical SAD. A cross-sectional study was conducted on 3211 Swedish high-school students. The prevalence rate of self-reported SAD was 10.6% (n = 340) (Gren-Landel, Aho, Andersson, & Svedin, 2011).

There is a relatively large difference between prevalence rates in the US and Europe. Hofmann, Asnaani, & Hinton (2010) discuss cultural aspects of social anxiety and social anxiety disorder. The largest gap in prevalence rates of SAD, the authors note, is between the US and Asian countries. They suggest that individualistic versus collectivistic orientation in society, an individual’s perception of social norms, how the image of ‘self’ is construed, gender roles, and gender role identification, are factors that contribute to this difference.
2.2. Gender

More girls than boys suffer from social anxiety disorder. Essau, Conradt, and Petermann (1999) found SAD 1.6 % of their sample of 1035 children and youth (2.1 % in the female population, 1.0 % in the male population). The authors also investigated the presence of any social fear, and found that near half of the sample reported any social fear 47.2 %). Divided into physical gender groups, 42.0 % boys reported any social fear, and 50.8 % of the girls, which was a significant difference.

Canino et al. (2004) found in their sample of 1886 children and youth between 4-17 years that 2.5 % met DSM-IV criteria for SAD; 1.1 % were boys, and 2.4 % girls. In the American national study by Bernstein et al. (2011), it was found that girls were more likely than boys to be affected by the generalized subtype of SAD. The difference might be more evident from adolescence and on. In study of 71 adult patients with SAD (33 men, 38 women), no differences were found between gender groups with regard to comorbid Axis I or Axis II diagnoses (Turner, Beidel, Borden, Stanley, & Jacob, 1991). The same result (that is, a 1:1 ratio between boys and girls) was in a study with 350 youth with diagnosed SAD. When divided into age groups, however, it was found that 12-14 year olds had a ratio of 0.7:1 and 15-17 year olds had a ratio to 1.5:1 (Ranta, Kaltiala-Heino, Rantanen, & Marttunen, 2009). This is similar to Cohen et al. (1993) and Schniering et al. (2000), where equal rates of SAD were found in girls and boys until adolescence, but from then on, more girls than boys show symptoms. It is not clear why this difference exists. It has been suggested that hormonal changes or different social expectations are possible explanations (Vasey & Dadds, 2001).

2.3. Age of Onset

Social anxiety disorder typically presents in late childhood or early adolescence and it may have a slow onset, or a debut after a traumatic experience. In a study by Essau, Conradt, and Petermann (1999), prevalence of SAD in three age groups was investigated, as well as occurrence of any social fear in these age groups. Results showed that in 12-13 year olds, SAD was found in 0.5 % of the sample. The number for 14-15 years of age was 2.0 % and for 16-17 the number was 2.0 %. Any social fear was found in 40.0 % of the 12-13 year olds, 55.4 % of the 14-15 year olds, and 46.9 % of the 16-17 year olds. In a Finnish study, (Ranta, Kaltiala-Heino, Rantanen, & Marttunen, 2009): n = 784, 3.2 % met criteria for DSM-IV social phobia. A higher rate
of SAD was found in the age group 15-17 years old, compared to 12-14 year olds, but the younger group presented with a higher rate of subclinical SAD. In a sample from Puerto Rico Canino et al. (2004), “later age” was associated with onset of SAD (sample was 4-17 years of age). Mean age of onset was 13.1 years in a German community sample (Knappe et al., 2011; n = 3021), the age of onset for 14-24 year olds was divided into subgroups depending on what fears the adolescents had, predominantly. Age of onset for interaction fears with performance fears was 11.6 years, and for interaction fears only, 11.4 years. For youth with isolated performance fears, the mean age of onset was 12.9 years. In the Burstein et al study (2011), the median age of onset was 9.2 years (n = 10,123). For generalized SAD, the median age of onset was 8.7 years and for non-generalized SAD it was 9.4 years, that is, slightly higher.

This brief literature review indicates that the median age of onset might be going down, at least in US samples. In the section on prevalence, the issue of cultural differences was discussed. Could a tentative explanation to the earlier age of onset be that Western cultures are moving towards even greater emphasis on individualism, even from an early age? As a result, children would turn their focus towards themselves and their appearances rather than outwards, and they would assign greater value to their output, and base their self-worth on the estimated quality of this output to an excessive degree.

2.4. Clinical course

There is a “waxing and waning” tendency in social anxiety disorder; the diagnosis is characteristically unstable over longer periods of time (Last, Perrin, Hersen, & Kazdin, 1996; Wittchen & Fehm, 2003). On the contrary, sub-threshold SAD (where many, but not all, criteria are fulfilled) and social phobic symptomatic expression is persistent over the course of many years, and total remission is very rare (Beesdo-Baum, Knappe, Fehm, Hofler, Lieb, Hofmann, & Wittchen, 2012). The difference between the median lifetime prevalence of SAD in Europe (6.6 %) and the 12-month prevalence (2-3 %) is suggested to indicate a natural variability in social anxiety (Fehm, Pelisso-lo, Furmark, & Wittchen, 2005).

Typical onset for SAD happens during late childhood or early adolescence. In some cases, the disorder has a slow onset and some adults with social anxiety disorder say in retrospect that they were “always” shy. The onset can also be sudden and in those cases it is sometimes preceded by a traumatic event (i.e. intense feeling of shame or fear in front of others). Traumatic, sudden onset is associated with slightly later age of onset, or
even onset in adulthood. It seems that earlier age of onset is connected with a broader range of symptoms and often with interaction fears. Adolescent boys with the generalized subtype of SAD in the National Comorbidity Survey Replication-Adolescent Supplement study (Burstein et al., 2011) were younger at the age of onset, compared with boys who suffered from one limited social fear. On average, participants with SAD were moderately disabled. Those with the generalized subtype showed higher degree of clinical severity on a variety of measures: disability, longer duration, were more often classified as severe cases, and had contacted a professional more often due to their social fears. Further, they fulfilled criteria for other disorders to a notably greater degree than adolescents with the non-generalized forms of the disorder (in other words: adolescents with few social fears).

In a large study where the authors investigated six types of social fears in adolescents and young adults (fear of eating or drinking, writing, going to a party or meeting, taking tests or exams, speaking in front of others, talking to others), it was found that “taking tests or exams” and “speaking in front of others” were the only two fears that appeared in isolation. Isolated fear of speaking in front of others was more frequently associated with low/no impairment, while all other social fears were associated with moderate/severe avoidance and moderate/severe impairment. Children with interaction fears were found to have an earlier disorder onset, and these children also had higher rates of parental SAD and alcohol use disorders in parents, while those cases of SAD with one isolated fear of any performance situation had substantially lower rates of parents with SAD and alcohol use (Knappe, Beesdo-Baum, Fehm, Stein, Lieb, Wittchen, 2011).

There is further evidence pointing at the connection between a wider range of social anxiety symptoms (in other words: SAD with multiple fears) and more severe clinical course. In a prospective, longitudinal program of research, the links between SAD symptoms and antisocial as well as depressive symptoms were examined in boys during two time periods; junior high school and high school (Tillfors, El-Khoury, Stein, & Trost, 2009). Results showed, as expected, that non-generalized SAD and antisocial behaviors were not linked, also, the boys in the non-generalized group were unlikely to develop comorbidity over time. The boys found in the generalized subgroup, on the contrary, were likely to develop either comorbid depressive symptoms, or depressive and antisocial symptoms.

2.5. Comorbidity

In a study of 71 patients with SAD (Turner, Beidel, Borden, Stanley, & Jacob, 1991), generalized anxiety was the most common comorbid disorder, affecting 33 % of the sample. Specific (simple) phobia was found in 11 %.
Altogether, 43% of the sample suffered from one or more secondary diagnosis. Suffering from SAD with an additional anxiety diagnosis is significantly associated with greater anxiety and even depression as measured with both self-report scales and clinician ratings, than patients suffering from SAD alone (ibid). Ranta, Kaltiala-Heino, Rantanen, and Marttunen, (2009) investigated a sample of 350 persons with social anxiety disorder and in 41% of the cases, comorbidity with another anxiety disorder was found, and in 41% cases comorbidity with mood disorders (depression). Burstein et al (2011): roughly one third to one fifth of the adolescents with SAD suffered from another anxiety disorder during their lifetime. Oppositional Defiant disorder (17.8%) and drug use disorders (20.1%) were more frequently observed in adolescents with SAD. Even though mood disorders were found in 18.6% of the SAD subsample, this association did not remain when adjusted odds ratios were analyzed. The authors suggest that mood disorders are more likely to be due to other anxiety or behavior disorders, than SAD. Further, Burstein et al (2011): the rates of comorbidity were higher with probands suffering from the generalized subtype of SAD. Most notable differences reported are as follows: specific phobia (comorbid in 12.8% of the generalized subgroup versus 7.3% in the non-generalized subgroup), agoraphobia (27.0% vs. 5.5%), panic disorder (20.5% vs. 6.7%), separation anxiety disorder (18.1% vs. 9.3%), oppositional defiant disorder (12.5% vs. 5.3%), and drug use disorders (13.0% vs. 7.2%). Onset of social anxiety disorder tends to precede other disorders.

Generalized social phobia showed unique associations with agoraphobia and panic disorder, and non-generalized social phobia showed unique associations with posttraumatic stress disorder and a unique negative association with alcohol use disorders in results from the Burstein et al. (2011) study. A pronounced pattern of higher rates of comorbid disorders for individuals with generalized SAD became evident in this study.

With the current system of mental disorder nosology, the “splitting rather than lumping” of symptoms increases the possibility that a person will be diagnosed with a set of disorders rather than diagnosed in terms of for example, one or more basic vulnerabilities with certain unique expressions. Following from the splitting of shared symptoms into different diagnoses, there will by necessity be disorders where one or a few symptoms overlap. For example, in a patient with social anxiety disorder, panic disorder, and generalized anxiety disorder there might be several symptoms overlapping. Panic attacks are not uncommon in SAD, even though the concerns in SAD and panic disorder are about different objectives. Excessive worry can be present in SAD as it is in GAD, but the focus of the worry differs. In a hierarchal model of disorder symptomatology, the higher-order symptoms shared between disorders would account for the overlap and explain the high rates of comorbidity. Genetic correlation between disorders, and shared trait disposition (such as disposition to experience negative affect) are further possible explanations to high rates of comorbidity (Noyes Jr., 2001; Zbozinek et al.,
2012). Whether or not co-morbidity is due to diagnostic criteria artifacts or etiological relationships, presence of co-morbid disorders mustn’t necessarily equal case severity. Further, given the broader symptomatology in the generalized subtype of SAD, it is not too surprising that co-morbid disorders are less commonly found with the non-generalized/performance-only subtype.
3. Etiology

3.1. Genetic factors

There seems to be a genetic component that is unique to SAD; 13% of the variance in social fears was accounted for by genetic factors in a study of male twin pairs, while only 5% of the genetic factors common across all fear types was accounted for by the variance in social fears (Kendler, Myers, Prescott, & Neale, 2001). This suggests that other than the genetic predisposition for anxiety in general, individuals with SAD share a unique genetic encumbrance that predisposes them for social fears specifically. Twin studies suggest a moderate but significant genetic component in the development of SAD. In a meta-analysis of twin studies (Beatty, Heisel, Hall, Levine, La France, 2002) the authors reported a “heritability estimate” of 0.65 for social anxiety. This is similar to studies by Ollendick and Hirshfeld-Becker (2002), and Albano and Detweiler (2002) who reported estimates of 0.4 and 0.5 respectively. In addition to these numbers, current research suggests that the influence of genetics on our behavior is a dynamic process with different influence during different time periods. This should be logical, considering the varying environmental challenges during for example early childhood and puberty. A meta-analysis of twin studies (Bergen, Gardner, & Kendler, 2007) investigates age-related changes in heritability during adolescence and young adult years. The study revealed that while the genetic influence (heritability) was 0.10 in childhood (age 10), it had increased to 0.60 at age 25. The authors suggest a variety of possible reasons for this increase, including “rising importance of active genotype-environment correlation, an increase in gene expression, or proportional reductions in environmental variance” (ibid).

3.2. Neurobiological factors

When we are afraid, neuroimaging techniques such as PET scan and fMRI can register increased activity in the amygdala, an “almond-shaped set of neurons” in the medial temporal lobe region of the brain. The amygdala is involved in the regulation of fear, and also, emotional memory consolida-
tion. The amygdala reacts to input from the sense-organs by sending signals that trigger physiological responses in the body, and after communication with the cortex region of the brain, initiates increased or decreased fear-related behavior in response to the sensory input. The initial input from the amygdala to the cortex has an advantage compared to the returning input from the cortex to the amygdala, since the pathways are more developed from the amygdala to the cortex regions. In the cortex the sensory input is analyzed and in some cases dismissed, but due to the less developed pathways back to the amygdala, the messages from the cortex aren’t as effective as the other way round. Some people are believed to have a more reactive amygdala than others, or in other words, a heightened “alarm system” in the brain. Further, the effectiveness of the cortical activity in regulating the activity in the amygdala increases with successful psychotherapy, indicating that the influence of the cortex on the amygdala might be even smaller in people with anxiety disorders. These findings seem to part explain how excessive fear is developed and maintained. Less effective transmission of serotonin and dopamine has also been found in people with social anxiety, adding to the understanding of the development of the disorder from neuro-psychological perspective (Furmark, 2009). Biological and cognitive changes in adolescence and early adulthood, such as a developing ability to reflect on one’s experiences and thoughts, and to take other people’s perspective, might be part explanation to increase in onset of social anxiety disorder during this time (Roberson-Nay & Brown, 2011).

3.3. Temperament

Behavior inhibition (BI) is a type of "temperament" (stable behavioral trait) that is found in children with SAD. BI is displayed in the child by its consequent emotion and behavior (motor) reactions to uncertain and/or novel situations (Kagan, Reznick, Clarke, Snidman, & Gracia Coll, 1984; Robinson, Kagan, Reznick and Corley, 1992). Cautiousness, fearfulness, avoidant behavior/withdrawal, and vigilance/wariness to interact are typical behaviors (Kagan, Reznick, & Snidman, 1988). The children with BI also display more physiologically reactivity than infants without signs of behavioral inhibition; it has been suggested that they are more easily aroused and stay on a chronically high level of sympathetic arousal (Kagan, 1989). Further, suggestions have been made that these individuals display a faster activation of the amygdala/lower threshold for amygdala activation and enhanced amygdala activation (LeDoux, Iwata, Cicchetti, & Reis, 1988). Infants that are fearful and avoidant in novel situations are at higher risk to remain fearful and avoidant, i.e. behaviorally inhibited, later on in childhood (Sanson, Pedlow, Cann, Prior, & Oberklaid, 1996). Children who are behaviorally inhibited
are also at higher risk to suffer anxiety disorders later in life (Gladstone, Parker, Mitchell, Wilhelm, & Mahli, 2005). One reason for this might be that the proneness for fear in novel situations leads to avoidant behavior, and this leads to negative reinforcement of the avoidant/withdrawal behavior. Temperamental factors, such as negative affect have emerged as one notable source of commonality among child internalizing disorders (e.g., Brown et al., 1998; Chorpita, 2002; Chorpita & Daleiden, 2002; Fergusson, Horwood, & Boden, 2006). Moderate stability has been found in “emotion dysregulation” and anxiety symptoms, from infancy to adolescence (Gullone et al., 2001; Bosquet and Egeland, 2006).

There might be evidence for the discontinuity or instability in behavior inhibition (Kathryn, Amey, Degnan & Nathan, 2007); certain children who are extremely inhibited as infants become less withdrawn as school children and have a lower incidence of anxiety disorders in adolescence. Factors that are believed to contribute to the waning of behavioral inhibition are emotion modulation (attention, inhibitory control), parenting behavior, and contextual changes in the child’s life (ibid). As the authors point out, learning more about these factors could contribute to better knowledge of what maintains SAD.

3.4. Biological factors

Individuals with SAD experience physiological reactions to socially challenging situations. The beta-adrenergic system is involved and invokes physical reactions such as heart palpitations, trembling, sweating, and blushing. (Gorman & Gorman, 1987). In a study by Essau et al. (1999), all the cases with SAD (N =17) and 308 (63%) of those with any social fears experienced at least two physical symptoms such as palpitations, sweating, shortness of breath and trembling during socially challenging tasks. In another study (Levin, Saoud, Strauman, Gorman, Fyer, Crawford, Liebowitz (1993) the socially phobic subjects reported less confidence in their abilities to perform a social task (10 minute speech) than normal controls, and the subjects with generalized social phobia exceeded the controls in both manifest and subjective anxiety. Subjects with non-generalized social phobia had higher heart rate than normal controls before and during the task. This type of reaction is not uncommon in any person however; most normal controls also get these physical reactions to socially challenging situations. There seems to be a few differences, though. One is that in socially phobic individuals, the physiological reaction to a socially challenging situation is more persistent than it is in normal controls (Beidel, Turner, & Dancu, 1985). Another difference seems to be that individuals with social phobia interpret the symptoms differently. A limited yet consistent literature base indicates that youth and adults with
SAD experience increased physiological arousal during social-evaluative situations, measured objectively, and are more aware of this arousal, than non-anxious persons. For example, when socially phobic, socially high-anxious, and non-socially phobic subjects were measured on physical reactions during a social conversation task, there was no difference in objectively measured physical arousal between the three groups, but the socially phobic group rated their subjective experience of hearts racing during the task significantly stronger than the other two groups, and higher than the control group with regard to body heat and sweaty hands (Edelmann & Baker, 2002). In a community youth sample, objective physiological arousal, perceived physiological arousal, and “anxiety sensitivity” was examined and compared to non-anxious youth. Interestingly, there was no difference found on measures of objectively measured levels of arousal, but the youths’ perception of increases in arousal differed significantly. The social phobic youth were more aware of these increases in physiological reactions and also, these youth were more afraid of what these reactions could mean with regard to negative social evaluation than the non-anxious youth (Anderson & Hope, 2009).

3.5. Parent factors

A reciprocal relationship between parent and child behavior has been found in studies on child anxiety (Chorpita and Barlow, 1998, Ginsburg and Schlossberg, 2002, Hudson and Rapee, 2004). Anxious children are more likely to have anxious parents whose behavior may maintain anxiety and avoidance (Last, Hersen, Kazdin, Francis, & Grubb, 1987) A parent with an anxiety disorder is more likely to have anxious offspring (Ginsburg and Schlossberg, 2002). Averaged over a few studies, the risk for anxiety disorders in offspring of anxious parents was 3.5 times that of non-anxious children (range 1.3–13.3) (e.g., Merikangas, Avenevoli, Dierker, & Grillon, 1999; Tillfors, Furmark, Ekselius, & Fredrickson, 2001; Turner, Beidel, & Costello, 1987). In a study by Lieb, Wittchen, Höfler, Fuetsch, Stein, Merikangas (2000), a strong association was found between parental SAD and offspring SAD. Other parental disorders associated with offspring SAD was (in order of association strength) depression, any anxiety disorder other than SAD, and any alcohol use disorder. Knappe, Beesdo-Baum, Fehm, Stein, Lieb, and Wittchen (2011), n=3021 14-24 year olds, investigated six different types of social phobic fears. They found that SAD cases with any interaction fear had higher rates of parental SAD. SAD cases with isolated fear of any performance situation had substantially lower rates of parents with SAD. Adolescents with SAD reported more parental psychiatric treatment contacts (Ranta, Kaltiala-Heino, Rantanen, & Marttunen, 2009; n = 784). Canino et
al. (2004): n 1886, 4-17 years of age found that children with parents that were not married (single, separated, widowed, or divorced), and/or those who lived in urban areas were more likely to meet criteria for any anxiety disorder, including SAD. A link between high level of parental conflict and anxiety disorders including SAD was found in a study by (Laraia et al., 1994).

3.6. Attachment

According to attachment theory and research, a bond is formed between the parent and offspring from the start of life (Bowlby, 1978). An important aspect of parenting is to provide the child with an environment where there is absence of threat, but also, importantly, presence of safety (Bowlby, 1973). A child with a parent who is abusive or aggressive (presence of threat), and also emotionally distant or withdrawn (absence of safety) will offer a foundation for less favorable attachment bonds. In pioneering research by Ainsworth et al. (1989; 1978), four types of attachment styles can be found in infants. These are “secure”, “avoidant”, “ambivalent/resistant”, and “disorganized”. The three latter are commonly denominated “insecure”. Out of these, the secure attachment style is characterized by a child who is certain that their parent is available to the child emotionally and physically, and who grants the child and encourages the child autonomy. These children are more prone than their insecure peers to act proactively, curiously, and independently in novel situations. All these behaviors are counter to anxiety development; the logic given is that the insecure child will behave reactively, avoidant, and dependent on their parents in novel situations. Children with insecure attachment style have been rated as less socially competent than securely attached peers (Cohn, 1990), whereas children with a secure attachment style report higher self-esteem (Clark & Symons, 2009) and increased social problem solving skills (Raikes & Thompson, 2008). Insecure attachment will give the child the predisposition to find others as rejecting and unable to depend on, which will act hindering in novel or threatening situations, where trust in one’s own abilities, and trust in other’s well meaning, are factors that contribute to an active, secure way to approach the novelty.
3.7. Social learning

Why would anxious parents be more prone to have anxious children? Increased heartbeat, sweating, blushing and other physical symptoms of fear can be pinpointed by a parent. A parent can repeat to the child how important it is what others think, how important it is to keep a nice and accepted social appearance. They might be unable to model appropriate behavior in situations they themselves fear, and adequate coping strategies in fearful situations, be less likely to encourage brave and non-avoidant behavior, and reinforce avoidant behavior (Barrett, Rapee, Dadds, and Ryan, 1996; Chorpita, Albano, & Barlow, 1996; Dadds, Barrett, Rapee, & Ryan, 1996; Ginsburg et al., 1995; Muris, Steememan, Merckelbach, & Meesters, 1996). It may be that excessive protection and control signals to the child that the world is dangerous (Rapee, 1997). In a study by Barrett, Dadds, and Rapee (1996), children and their parents were asked to respond to ambiguous scenarios with open-ended questions: “What do you think is happening? What would you (your child) do?” First, the child would respond on their own and later, after a discussion with their parent. Responses were rated and categorized into proactive, aggressive, or avoidant solutions. Results showed that after discussing the scenarios with their parents, anxious children suggested significantly more avoidant solutions to the stories.

3.8. Parenting style

Rapee (1997) summarizes two parenting styles frequently associated with anxiety in offspring, with the terms Rejection and Control. Both styles can be described on a continuum. Rejection stretches from Parental warmth and acceptance on one end, and rejection, emotional withdrawal, and criticism on the other end. Control continuum is described as over-engagement/over-protection on one end, and promotion of autonomy on the other. Child-perceived parent indifference and overprotection has been found to be linked to anxiety and anxious symptoms in several studies ((Bögels & Brechman-Toussaint, 2006; Rapee, 1997; Reuterskiöld, Sverke, Ollendick, & Öst, 2009; Siqueland, Kendall, & Steinberg, 1996). “Overprotection” is one factor that is associated with increased risk of offspring SAD and anxiety, when adult probands with SAD leave accounts of their parents’ (mostly mothers’) rearing style. Overprotection, often in combination with a feeling that the parent was mentally absent/rejecting and cold/uncaring has been reported in retrospective studies when adults with anxiety disorders recall their childhood. Part of overprotection and rejection is frequent negative feedback and parental control, familial factors that have long been considered related to
child psychopathology, including SAD specifically (Bennet & Stirling 1998; Brown et al., 1993; Chorpita & Barlow, 1998, Krohne & Hock, 1991; Ollendick & Hirshfeld-Becker 2002, Rapee, 2002 Siqueland, Kendall, & Steinberg, 1996, Parker, 1979; Knappe, Beesdo-Baum, Fehm, Stein, Lieb, & Wittchen, 2011; Lieb, Wittchen, Hofler, Fuetsch, Stein, & Merikangas, 2000). Overprotection is operationalized as a parenting style where parents are overly keen on keeping control of their child’s behavior, a rearing style characterized of for example constant questioning and decisions being made for the child. Such a rearing style might make the child unable to attain both competence in handling anxiety provoking situations, and give a feeling of lacking control over one’s own life, in other words, a rearing style that hinders “transfer of control” from the parent to the child (e.g. Barmish & Kendall, 2005).

In sum, the explanation of social anxiety disorder must by necessity be found in a complex biological-environmental interaction. The natural development in humans regarding cognitions, behavior, and emotions interact with influences from gene expression to cultural factors, resulting in different fear expression and persistence in the individual.
4. Assessment

In the wake of empirically supported treatments making their way out of the university labs and into the community clinics, there is an increasing demand for empirically sound assessment. Not only for screening of the presence or absence of a diagnosis, but also to measure treatment success and maintenance of treatment gains. SAD is, as before mentioned, one of the most common mental disorders. This is true also for childhood SAD and there is a lack of psychometrically sound instruments that measure childhood SAD. Research on childhood anxiety disorders had been limited to mainly mixed anxiety groups until the mid-1990s, and the instruments to measure childhood anxiety were not specific, but focused on anxiety in general. Four instruments, still widely used today, were commonly used in the research around 1980-1990: The Fear Survey Schedule for Children-Revised (FSSC-R; Ollendick, 1983) measures fear in 80 specific situations that are, or can often be, distressful for children. Five of the 80 items measure fear in social situations. The State-Trait Anxiety Inventory for Children (STAIC; Spielberger, 1973) measures both the child’s state anxiety, that is, the general distress of the child at the time the inventory is completed, and the child’s “anxiety proneness”, or, the to what extent the child tends to respond to a stressful event in an “anxious fashion”. The Revised Children’s Manifest Anxiety Scale (Reynolds & Richmond, 1978) measures general anxiety and arousal. None of these three instruments were developed to measure any specific anxiety disorder.

The first instruments that measured social phobic fears were the Social Anxiety Scale for Children and its revised version (SASC and SASC-R; LaGreca et al., 1988; La Greca & Stone, 1993) and this instrument it is still used to date. The SASC-R assesses social avoidance, social distress, and fear of negative evaluation, but not the specific construct of SAD as described in the DSM manuals. The Social Phobia and Anxiety Inventory for Children, SPAI-C (Beidel et al., 1995; 1996) was created to measure this construct specifically. It was based on an adult instrument to measure social anxiety and agoraphobia. In the initial item-generating phase, about one third of the questions were originally from the SPAI, but great care was also taken to develop questions that were new, entirely age-appropriate, and designed to measures the construct of SAD as it was described in the DSM-III and DSM-IV. One third of the initial item pool had been generated from structured, clinical interviews with socially phobic children. The interviews were reviewed to find the characteristics of SAD as expressed by children in the age
range the instrument was aimed for. The last third of the items were retained from daily diaries; the same 20 children that went through the structured interview also recorded anxiety-provoking situations in a diary. The diaries were reviewed and items were written that reflected the content of them. In the original 32 item pool, 18 items included alternatives whether the fear occurs with only adults, or with peers the child knows, or with unknown peers. These multiple responses reflect the DSM criteria that the fear must occur not only with adults, but with peers as well. A 26 item version was used to carry out a psychometric investigation in a sample of 154 mixed clinical and control children. Acceptable reliability and validity was found, and later studies have confirmed the reliable and valid structure of the SPAI-C. (Aune, Stiles, & Svarva, 2008; Beidel et al., 1996; Beidel et al., 2000; Epkins, 2002; Gauer, Picon, Vasconcellos, Turner, & Beidel, 2005; Higa, Fernandez, Nakamura, Chorpita, & Daleiden, 2006; Inderbitzen-Nolan et al., 2004; Kuusikko et al., 2009; Storch et al., 2004; Melfsen et al., 1999; Morris & Masia, 1998; Smári, Pétursdóttir, & Porsteinsdóttir, 2001).

One main use for a screening instrument is to distinguish between groups of individuals in a fast, user-friendly still reliable way. It can be during a screening interview where you want to get a rough estimate of a problem before a more thorough assessment, or in a large-scale project to initially identify groups of children to target for an intervention. Because of its satisfactory psychometric properties, the SPAI-C is often used as an outcome measure in treatment studies of SAD. (e.g. Masia-Warner et al., 2005).

The SPAI-C is scored 0-52. Initial normative data for the SPAI-C was used to suggest cutoff scores that would differentiate children with SAD from non-socially phobic children with a certain degree of certainty (Beidel et al., 1995). Cutoff score gives a rough estimate in identifying SAD. How rough? The most commonly used cutoff score is 18. The origin of this cutoff score is the initial study. The normative data was collected from a sample of 52 socially phobic children, and 48 control children (with no disorder) in an age range of 8-17. Findings revealed that 24 % of the control sample scored above 20 (out of 52, which is the maximum score), while 47 % scored below 10. In the socially anxious group, 50 % had scores higher than 20, and 8 % had scores less than ten.

Several investigations of the SPAI-C factor structure in community and mixed samples have been carried out. In the original study (Beidel et al., 1995), an exploratory factor analyses was conducted in a sample with mixed clinical children (n = 154, SAD n = 18). The factor analyses yielded a three factor solution that explained 60 % of the variance. The factors were labeled (a) Assertiveness/General Conversation, (b) Traditional Social Encounters, and (c) Public Performance. In a subsequent study in a sample of both clinical and control children (n = 148, SAD n = 33), Beidel et al. (1996) found a five-factor structure by exploratory factor analyses, explaining 63 % of the variance. The factors were (a) Assertiveness, (b) General Conversation, (c) Physical and Cognitive Symptoms, (d) Avoidance, and (e) Public Perfor-
mance (Beidel et al., 1996). In two consecutive exploratory studies, a German research team (Melfsen et al., 1999) investigated the factor structure of the German version of the SPAI-C. Both samples were community samples (n = 140 and n = 341 respectively). The authors tried a three factor solutions. In both samples, the authors report that the items clustered in factors they labeled (a) Interaction, (b) Symptoms, and (c) Performance (Melfsen, 1999).

An overview of all the factor analyses give at hand that 15 of the 26 items of the SPAI-C cluster identically in six of the seven studies. In the three studies which present three-factor solutions (Beidel et al., 1995; Melfsen et al., 1999), these 15 items cluster in three identical factors. These are typically labeled “Assertiveness”, “Symptoms”, and “Public performance”.

In a large Brazilian community sample (n = 1871), Gauer et al. (2005) conducted an exploratory factor analyses and found a four factor structure that explained 47.66 % of the variance. The authors name the factors (a) Assertiveness (13.90 % variance explained), (b) Avoidance/Social encounters (11.99 %), (c) Public performance (11.74 %), and (d) Physical and Cognitive Symptoms (10.03 %). In a North American community sample (n = 1147), Storch et al. (2004) conducted a confirmatory factor analyses of the five-factor structure found by Beidel et al. (1996). The authors report acceptable fit with the initial solution. In a Norwegian community sample (n = 1493), Aune et al. (2008) conducted several different factor analysis, exploratory as well as confirmatory in a thorough attempt to establish a robust factor structure. The authors conclude that a five-factor solution was stronger psychometrically and “provides a good approximation to established DSM-IV criteria (APA, 1994)” (Aune, 2008, p. 1083).

Results from the pool of factor analytical studies are not clear-cut. It has not been possible to confirm the findings of the two initial factor analytical studies (Beidel et al., 1995; Beidel et al., 1996) in any of the subsequent studies that drew their populations from community samples. It must also be mentioned that in the models proposed by Beidel and co-workers, a few items are included in more than one factor. This makes theoretical conclusions hard to draw, comparisons hard to make, and complicate practical use of the factor models. Despite these difficulties in finding a robust factor structure of the SPAI-C, it is obvious from a theoretical overview of the studies that certain items of the instrument load consistently in certain clusters. These findings were made in psychometrically sound studies, but with non-clinical samples.

There is a lack of more extensive psychometric investigations of the SPAI-C in children diagnosed with SAD. Melfsen et al. (1999) examined mean scores and cut-off scores of the SPAI-C in a sample of 17 children with SAD. The sensitivity and specificity of the SPAI-C in subsets of clinically anxious children has been investigated in three studies (Aune et al. 2008; Inderbitzen-Nolan et al., 2004; Kuusikko et al., 2009).
Social cues are often ambiguous in nature, that is, more open to interpretation (Beard & Amir, 2008). The concepts of "interpretation bias", "threat perception bias", "negative cognitive errors" "negative feelings and cognitions" are used in the literature to describe a phenomenon measured by ratings of feelings and cognitions, or via qualitative interpretations of ambiguous situations. In cognitive models of childhood anxiety (Daleiden & Vasey, 1997; Kendall, 1985) as well as in models of SAD maintenance (Clark & Wells, 1985; Rapee & Heimberg, 1997; 2010), the disorder is believed to, in part, be caused by “distorted cognitive processes”. In these models, information from our surroundings is interpreted in a distinctive way by individuals who suffer from anxiety disorders; these individuals judge an ambiguous situation as more threatening, and associated with more negative feelings and cognitions, than an individual with no anxiety would. Thus, the individual’s answers called "biased" when their answer-pattern deviates systematically and significantly (by statistical computing) to the answers of a normal control group.

Self-report instruments prompt the subject to rate on a scale how afraid they would feel in a certain situation, or what they would think in that situation. The alternatives are pre-defined by the researcher (e.g. Silverman, Kurtines, Ginsburg, Weems, Rabian, & Serafini, 1999). Another common way to measure threat interpretation is by prompting the subject with an ambiguous scenario and asking them to imagine themselves in that situation, followed by a prompt to rate negative emotions and/or cognitions (e.g. Bögels & Ziegertman, 2000; Barrett, Dadds, & Rapee, 1996; Waters, Wharton, Zimmer-Gembeck, & Craske, 2008). Generally, results of these studies reveal that anxious children tend to rate their feelings and cognitions as more negative than control children do, and they tend to feel more helpless and are more prone to choose avoidant solutions. When given the chance to freely describe what happens after hearing an ambiguous scenario, they tend to express more fearful thoughts and see higher potential threat in the situations.

In a study by Muris, Merckelbach, and Damsmaa (2000), the ambiguous scenarios were presented in a way that enabled a more in-depth look at threat perception. The stories were read aloud sentence by sentence. After each sentence, the child was asked if they thought the story would be a scary or non-scary story. The moment the child rated a story as scary was noted as the threat threshold score: if a child rated the story as scary after the first
sentence, the threshold score was 1. If they rated the story as scary after the second sentence, the threshold score was 2, etc. The fewer sentences the child needed to rate a story as scary, the less information they needed to perceive the story as threatening. This finding, the tendency to jump to conclusions, was later named “Reduced Evidence for Danger-bias” (RED bias) by Muris, Jacques, and Mayer (2004). Since the child was allowed to change their mind once a story had been rated the story in a certain way (scary or non-scary), it was also possible to count the very number of sentences the child deemed as scary; the frequency of threat perception. After each sentence deemed as scary, the child rated how much on a 0-10 scale. The ratings were averaged into a mean, the threat rating score. The children were also asked to rate the following feelings and cognitions: I am scared, I am shy, I don’t know what to do, and I am worried that this will end badly on a 1-5 scale. Results showed that the socially anxious children used fewer sentences to deem a story as scary, that is, they had lower thresholds of threat perception. Furthermore, the socially anxious children were significantly more prone to deem a story as scary after hearing a sentence (frequency of threat perception) and in general, rated the stories as more scary (threat ratings).

Very little research has been made on treatment effect on threat perception and interpretation. In the abovementioned study by Silverman, Kurtines, Ginsburg, Weems, Rabian, and Serafini (1999), the pre-treatment results of children with phobias were compared with their own post-treatment and follow-up scores. Results showed that treatment gains were found post-treatment and at follow-up for all measures, including the tendency to make “negative cognitive errors”. In the Waters, Wharton, Zimmer-Gembeck, and Craske (2008) study, there were no pre- to post-treatment differences in either indexes of negative emotions or danger judgment, despite the successful effect of a treatment program as measured by other means. The “influence” index however showed pre- to post differences: at post treatment scores on this index did not differ from those of non-anxious control children. Two studies have found significant changes in interpretation bias scores after cognitive behavior treatment programs (Barrett, Dadds, & Rapee, 1996; Creswell, Schniering, & Rapee, 2005).
6. Cognitive-behavioral treatment

Three components are commonly included under the “CBT umbrella”:

**Exposure**
Gathering from the available data, exposure therapy stood out as a backbone of effective treatment. In fact, exposure in vivo alone did equally good as a combination treatment (rational emotive therapy, social skills training, and exposure in vivo) in a study on the treatment of adult SAD, both on short-term and long-term basis (Mersch, 1995).

**Cognitive restructuring**
Most treatment protocols for childhood anxiety include cognitive restructuring components. These are typically focusing on restructuring of negative thinking, same as in adult treatment protocols. Adjustments to suit child vocabulary and maturity level are made. There has been some debate whether or not children are enough cognitively mature to benefit from such a treatment component (e.g. Barrett, 2000; Stallard, 2002) and so far, no cut outcome data is available to establish a conclusion upon.

**Social skills**
In the late 90s, a rather new theoretical viewpoint with high face value was the proposed lack of social skills in people with SAD. It was hypothesized that not only could the cause of poor social performance be anxiety-induced inhibition, but also, actual lack of skills to perform (Rapee & Heimberg, 1997; Beidel & Turner, 1998). A lack of successful performance in social situations could, hypothetically, lead to negative expectancies and thoughts regarding upcoming social situations. These negative thoughts and expectancies would fuel the social phobic symptoms of arousal, fear, and avoidance. Subsequently, the fear and avoidance would hinder new learning to take place, thus, a vicious circle would be maintained (Spence, 1994).

The first treatment studies of social anxiety disorders in children weren't carried out until the late 1990s. Knowledge about the impairment and chronic course of the disorder was growing (Beidel & Turner, 1998), and studies on treatment of adult SAD showed good results (eg. Turner, Beidel, Cooley, Woody, & Messer, 1994). A few pilot/case studies on treatment of children
and adolescents with SAD also showed promising results (e.g. Albano, Martin, Holt, Heimberg, & Barlow, 1995, Beidel & Morris, 1995).

6.1. Randomized controlled studies

To date, there have been 12 randomized clinical trials (RCTs) published on various cognitive behavioral treatments for social anxiety disorder in children and adolescents.

Social effectiveness training for children, and variations thereof

In 2000, Beidel, Turner, and Morris published their study on Social Effectiveness Training for children (SET-C), a treatment program with no cognitive restructuring component. Cognitive restructuring was considered one of the pillars of anxiety treatment, but Beidel et al. (1995) argued that a cognitive component was not necessary to include in the treatment of children. Sixty-seven children with SAD in ages 8-12 participated in the (2000) study. All 67 children had both public performance fears and fears of interpersonal interactions, thus, all fulfilled criteria for SAD of the generalized subtype. Forty-one percent of the children suffered from a comorbid disorder, most of which were other anxiety disorders. Just over half of the children were randomized into the SET-C group (active treatment), and the other half to the nonspecific intervention called Testbusters which provided equal amounts of therapist attention and group sessions during the same amount of time.

The active treatment consisted of psycho-education, in vivo exposure, and social skills training (practicing such things as introducing oneself, initiating and maintaining a conversation, how to listen and remember what others say, how to join a group, and telephone skills). Another component in the active treatment package was a peer generalization group; weekly activities with non-anxious peers such as bowling, pizza parties, flying kites and in-line skating. During these sessions, the SAD children could practice their new skills in an unstructured environment. The placebo treatment, Testbusters was a study-skills and test-taking training program. Because children with SAD often have fear associated with test-taking, this program was supposed to have face value for children with SAD. Testbusters included establishing good study habits, learning how to develop a study contract, how to enhance study skills and test-taking preparation. Results were clear cut; there was significant reduction in the SET-C group for measures of social fear and anxiety (self-report scales, clinician severity ratings), for measures of associated psychopathology (child- and parent report), and increased social interaction skills (measured by ratings of the role play tasks) and social interaction (measured by self-ratings of anxiety during role play tasks and daily diary ratings). Out of all children treated in the SET-C group, 67% no longer fulfilled DSM-IV criteria for social anxiety disorder compared to 5% of
the children in the Testbusters group. Further, treatment responding was measured by “very minimal or no”-impairment ratings by the independent assessor, and scoring below the social anxiety cutoff score of 18 on the SPAI-C self-report scale. Applying these responder criteria, 53 % of the SET-C group were classified as responders, compared to 5 % of the Test-busters group. Treatment gains were maintained at 6-month follow up.

In a study where the five-year follow-up results of this treatment program were reported (Beidel, Turner, & Young, 2006), results showed that treatment gains were maintained at 3, 4, and 5 year follow-up, with the rate of diagnosis free participants increased to 81 %. A majority of the children assessed five years later had reached mid-adolescence, a high-risk age for social anxiety disorder onset. Thus, the authors tentatively suggest that participating in the SET-C treatment program during childhood is protective against SAD later. In another trial, Beidel et al. (2007) reported that SET-C was significantly better than both the SSRI Fluoxetine and a pill placebo. The proportion that no longer fulfilled criteria for SAD was 53% at post and 60% at 1 year follow-up.

The SET-C treatment protocol has been tested later, by independent research groups (the treatment study of the current thesis included). In an attempt to make the labor-heavy SET-C program more easily accessible and able to generalize to a community outpatient setting, Baer and Garland (2005) modified the treatment program substantially; their version of the program included 12 consecutive weeks of group sessions only. Twelve adolescents with a primary diagnosis of social anxiety disorder, aged between 13-18 years, partook in the study. A whole 75 % of this treatment group was comorbid with at least one other disorder (58 %) or two (17 %) comorbid disorders, mainly anxiety disorders. Six children were randomly assigned to treatment, and six children to waitlist control group with subsequent treatment. The modified treatment program consisted of 12 weekly 90 minute sessions, rather than the three weekly sessions included in the original treatment manual, and consisted of social skills training and exposure in vivo. The peer-group was not included in this protocol either, but non-anxious peers were involved in some of the in-vivo exposure tasks. (These sessions increased the pre-task anxiety ratings for most participants but were later reported to be one of the most helpful components.) The treated children showed significant reduction of social anxiety assessed by both clinician severity rating and the self-report scale. Thirty-six percent of the participants no longer fulfilled criteria for SAD post treatment, compared to 0 % in the waitlist group. The mean change in the SPAI self-report inventory scores was -28.5 for the treatment group and -9.8 in the pre- to post waitlist group, thus, there was no spontaneous remission during the treatment program period. This is notable, given that the participants were still partaking in their regular psychiatric treatment including medication programs.

Yet another trial (Masia-Warner et al., 2005) used a modified version of the SET-C, this time transformed to a school-based intervention (“Skills for
Social and Academic Success program”, SASS). This modified version of the SET-C included a cognitive restructuring component. The sample consisted of 35 adolescents (26 females). Out of these, 12 % (n=5) were diagnosed with single performance fears only. The other 37 adolescents received a general subtype diagnosis with at least a moderate degree of SAD severity. Participants were randomly assigned to either the SASS (n = 21), or waitlist control group (n = 21). Mean age for the completer group was 14.8 (range 13-17) and a majority was female (74.3 %). About [sic] half the sample had comorbid disorders, most commonly GAD (40 %) and dysthymia (14.3 %). The SASS consisted of 12 weekly group school sessions of approximately 40 minutes, two brief individual sessions (15 minutes), and two group booster sessions. Additionally, a peer interaction component of four 90 minute meetings was added to provide real-life exposure and opportunity for skills generalization. Furthermore, parents attended two group meetings during which they received psycho-education and knowledge how to address their child’s anxiety. Also, teachers participated in two psycho-educational meetings of 30 minutes and they conducted classroom exposure under supervision by group leaders. The 12 ‘school meetings’ (equivalent of treatment sessions) consisted of one psycho-educational session, one session on realistic thinking, four social skills training sessions (i.e. initiating and maintaining conversations, establishing friendships, listening and remembering, and assertiveness), five sessions of exposure, and one session on relapse prevention. Exposure was regularly integrated in the school environment with the assistance of school staff and peers (e.g. ordering and returning food in the school restaurant, going to the school office to ask the school secretary questions, starting a conversation with the principal). Results gave at hand that adolescents in the treatment group showed significantly reduced social anxiety and avoidance, as well as improved general functioning, compared to the waitlist group. Sixty-seven % of the treated group no longer met criteria for social anxiety disorder following treatment compared to 6 % of the waitlist group; numbers similar to the original Beidel et al. (2000) study. The 9 month follow-up suggested that treatment gains were maintained. In fact, seven of the nine participants later served as peer assistants in subsequent treatment groups, and according to “anecdotal observations by therapists and naïve participants”, these persons were indistinguishable from the other outgoing peers nominated to be peer assistants by teachers. This study demonstrates that effective interventions may be transported to become efficacious treatments in community based settings, in this case, a school.

In a subsequent study, Masia-Warner et al. (2007) compared the SASS program to a credible attention control condition, matched for structure and contact. Thirty-six adolescents in age range 14-16 (M = 15.1, SD = 0.6), 83.3 % female, 41.7 % comorbid with at least one disorder were randomized into one of the two treatment groups. The active treatment was the SASS program described earlier. The attention control, Educational-Supportive Group Function (ESFG) was designed to parallel SASS with regard to amount of
professional attention and format. The program included instructions on
general relaxation strategies, but omitted the elements directed towards re-
versing social anxiety: social skills training, cognitive restructuring, and
exposure. Further, peer assistants were not included. Both independent eval-
uations and adolescent self-report indicated significant reduction in social
anxiety for the SASS group; 59 % no longer qualified for a social anxiety
disorder diagnosis post-treatment, versus 0 % thus improved in the control
group and the gains were maintained at 6 month follow-up. Parent reports of
their child’s social fears did not discriminate between groups, however.

**Cognitive-behavior therapy**

In a pilot study, Hayward, Varady, Albano, Thienemann, Henderson, and
Schatzberg (2000) examined CBT group therapy for SAD in female adoles-
cents. Thirty-five females were randomized into either a treatment group or
no treatment. The treatment consisted of 16 weeks of therapy, each session
lasting approximately 1.5 hours. Psychoeducation, social skill-building, so-
cial problem-solving skills, and assertiveness were the components. The
treatment also included cognitive restructuring and exposure, both in vivo
and in-session. Homework between sessions consisted of exposure assign-
ments. Despite this impressive set up, the results were mixed. Post treatment,
there was significant reduction in SAD symptoms measured by self-report,
and interference caused by the disorder as measured by a structured inter-
view. At one year follow-up, however, there was no longer a difference be-
tween the two groups on the SAD symptoms or percentage of subjects with
SAD diagnosis. The authors are uncertain about the reason for these less
than robust results. One possible reason could be the waxing and waning of
SAD symptoms. Spence et al., (2000) investigated child-focused CBT com-
pared to wait list control in treatment of childhood SAD. There was also a
CBT plus parent involvement condition. The twelve session (once a week)
CBT program included social skills training, relaxation techniques, social
problem-solving, positive self-instruction, graded exposure in-vivo, and
cognitive restructuring. Results showed that children in the treatment condi-
tion showed significant decrease in general and social anxiety compared to
the wait list group, and significant improvement in parent reported social
skills performance. These changes were maintained and enhanced at twelve
month follow up.

A CBT intervention was tried in a study by Herbert et al (2009), where 73
adolescents (56 % female) were randomized into one out of three interve-
entions, all with 12 weekly sessions of psychotherapy: group CBT, individual
CBT, and psycho-educational/supportive therapy. Results revealed that there
was a significant reduction in symptoms and functional impairment, and
improved social skills for all three treatment groups. There was a significant
difference in gains on behavioral measures however, between the CBT inter-
ventions and the treatment control.
A method called *Treatment for Adolescents with Social Phobia* (TASP) was tested in a study with 57 adolescents (14-18 years). Olivares et al. (2008) found that adding 12 individual sessions to an original format of 12 group sessions yielded significantly better effects than group treatment only, whereas addition of 6 individual sessions did not make that difference. In a study with 10-14 year old children (Sanchez-Garcia et al., 2009), a treatment protocol called *Intervention in Adolescents with Social Phobia* (IAFS) was tried. It was found that a version of IAFS including a cognitive restructuring component yielded better effects than IAFS without cognitive restructuring, but both active treatments were better than a waitlist condition.

A brief intervention of only three weeks of CBT group therapy was examined by Gallagher, Rabian, and McCloskey (2004). Twenty-three children aged 8-11 received either CBT or were assigned to a waitlist control group condition. The treatment consisted of three sessions only, each three hours long. The first session consisted of psycho-education, including the learning of cognitive strategies such as identifying and modifying negative self-talk. The cognitive strategies were repeated, and exposure exercises were carried out during the two subsequent sessions. Homework included a daily diary and one exposure session, conducted with the help of parents, were assigned. At post-test, parent report and interviewer rating measures showed greater improvement than the child report (that is, significant pretest to posttest improvement) but at three week follow-up the improvement compared to waitlist was evident in all measures; parent-, interviewer-, as well as child ratings. With regard to for example treatment feasibility and cost, these were promising results.

**Cognitive therapy**

The cognitive treatment model focuses on four maintenance processes: increased self-focused attention (and less focus on other people and their responses), use of misleading internal information (feelings and images) to judge how one comes across to onlookers, extensive use of safety behaviors, and pre- and post-event processing. A treatment protocol with special focus on cognitions, based on the Clark and Wells treatment model, was tested in a recent study (Melfsen, Kühнемund, Schwieger, Warnke, Stadler, Poustka, & Stangier, 2011). Twenty-one children were treated, and results were compared to a wait-list group. The 44 participants were all screened for intelligence level. The treatment lasted for 20 sessions, once weekly, with four parent sessions. Individual setting was used to allow for individual differences. Social skills-training was not included, but, behavior experiments were. Results showed at post treatment that the active group had significantly lower scores on the self-report measure (SPAI-C) and significantly more were diagnose free.

This brief literature review is not sufficient to use for any extensive analyses of what makes treatment successful, or not successful. It seems plausi-
ble to conclude that treatment is better than no treatment. Still, with the addition of credible placebo treatment, the difference in results between CBT and that active control is not so immediate any longer.

6.2. Randomized controlled studies with parent involvement

The theoretical benefit of including parents in treatment of childhood anxiety disorders has high face validity. As reviewed in the Etiology section, parent factors seem to play a major role in child anxiety. Overprotection, over-control, and overcritical behavior are all parental styles that have been linked to childhood anxiety (eg. Siqueland, Kendall, & Steinberg, 1996), and parents may over-focus on threat and thus enhance the child's fear (eg. Barrett, Rapee, Dadds, & Ryan, 1996), et cetera. Further, psychopathology in the parent and high-conflict relationships between children and parents are factors believed to be involved in creating and/or maintaining pathological anxiety in children. Following from this line of reasoning, treatment that involves changing these parental behaviors should theoretically be more effective. Further, to maintain and deepen treatment gains, repeated practice is crucial. With parent involvement in therapy, chances of successful practice between sessions and after completed treatment should increase, at least theoretically. Methods used to change parental behavior vary between the studies and so does the degree of parent involvement. Not surprisingly, the treatment studies conducted give mixed results a hand. In the following, the empirical studies are reviewed according to the degree of benefit from parental involvement.

6.2.1 Benefit from parent involvement

In a sample of mixed anxiety disorders (separation anxiety, overanxious disorder, SAD) Barrett (1998) examined group cognitive behavior therapy, group CBT plus family management, and wait list control. The CBT treatment used the Coping Coala workbook, an adaption of Kendall’s CBT program Coping Cat Workbook (Kendall et al., 1990). CCW recognizes anxious feelings and somatic reaction to anxiety, cognitive restructuring, coping self-talk, exposure in vivo, peer modeling, and reinforcement strategies. This workbook was shortened compared to the original Coping Cat workbook. First four sessions were training sessions; anxiety management procedures were introduced in role play and practice. These were recognizing positive and negative thoughts and the feelings that one experiences in various situations; relaxation training; use of coping self-talk in anxiety provoking situa-
tions; realistic self-evaluation of the performance; development of self-reward strategies. Throughout the remaining eight sessions, the child practiced the newly acquired skills in in-vivo exposure practice. Group sessions were two hours in duration to match for therapist contact in the family condition. The family condition treatment was based on the Group Family Anxiety Management Workbook (Barrett, 1995) parallel with the child CBT condition. It was designed to last for twelve sessions. Eight sessions devoted to anxiety management and techniques, and the remaining four to parental communication training. After the child’s sessions were completed, the family gathered to work through a family session, two hours on a weekly basis. Goals of the family sessions were to form an expert team with them, to empower them for their work together. Open sharing of information, joint determination, and identification and reinforcement of family members for any existing areas of expertise.

There are three specific content aims; first, group training for parents in how to reward courageous behavior and extinguishing anxious behavior in the child. Reinforcement strategies include verbal praise and administering privileges and rewards when the child has faced an anxiety provoking situation. Planned ignoring is used to deal with excessive complaining and anxious behavior. The parent will prompt the child to use a coping strategy learned in the child condition. In session, parents role-played and were encouraged to learn from each other’s role play. Second, parents were taught to deal with their own emotional upsets, gain awareness of their anxiety responses in stressful situations, and model problem solving and proactive responses. Third, brief training in communication and problem solving skills were taught. Manuals were applied flexibly to allow for individual family and group needs. Results showed that both active treatment were superior to wait list condition, across measures, and was maintained at follow-up. Further, the family condition showed marginally better effects on a number of measures in comparison with the child-only intervention and participants in the family condition showed significant improvement at follow-up. These results points to a generalization of treatment effects. On parent self-report measures, especially the CBCL, parents in the family condition rated their children significantly lower at follow up. The greater improvement in the CBCL externalizing scales for the family condition points to the effectiveness of teaching parents contingency management.

In a study by Barrett, Dadds, and Rapee (1996) on mixed anxiety disorders (separation anxiety, overanxious disorder, SAD) were randomized into either: CBT, CBT plus family management, or wait list group. The CBT condition was the Australian adaption of the Coping Cat Workbook, the “Coping Coala,” described in detail above. The family condition was also identical to the one described for the Barrett (1998) study. Both active treatment conditions were superior to waitlist across measures. The added family component resulted in added benefit: significant improvement compared to CBT only on a number of measures. Independent assessor ratings showed
improvement for both active conditions at post treatment, a result that was maintained at six- and twelve month follow up. For the family condition however, the results were not only maintained, but improved, and this improvement was significant. At one year follow up, 70.3 % of the children in the CBT group, and 95.6 % in the CBT plus family condition did no longer meet criteria for any anxiety disorder. Self report measures and clinician ratings indicated added benefit for the added family treatment. In a six year follow up study to this one, when the children were 14-21 years old, Barett, Dadds, and Rappee (2001) found that the improvement was maintained, however, the two treatment conditions were equally effective at this follow up-point.

Cobham, Dadds, and Spence (1998) divided children with anxiety disorders (separation anxiety disorder, overanxious disorder, generalized anxiety disorder, specific phobia, and SAD) into three groups depending on parent anxiety level. Within these three groups, children were randomized into a child only CBT condition, and a child CBT plus parental anxiety management condition. Child CBT ran over 10 sessions and was based on the Coping Coala Workbook thoroughly described above. Child CBT plus parental anxiety management consisted of the ten week Coping Coala Workbook, with an addition of four sessions for parents. The aims of the parent condition was to make parents aware of the possible role they can play in development and maintenance of their child’s anxiety, and to make parents aware of their anxious responses, manage them, and to model these management strategies to their children. Results indicated that for children with non-anxious parents, both treatment conditions were equally effective with 82 % for CBT vs. 80 % for CBT plus parent condition diagnosis-free at post treatment. For children with anxious parents, only 39 % in the child only condition were diagnosis free at post treatment, versus 77 % in the child CBT plus parent anxiety management condition.

In yet another study that shows enhanced effect by added parent training, Wood et al. (2006) investigated treatment for anxiety disorders (separation anxiety disorder, SAD, GAD, OCD, and simple phobia). Child CBT was based on the Coping Cat Workbook (Kendall et al., 1990, described in detail above. The family CBT intervention was called “Building confidence”, and combines child CBT strategies (foremost in-vivo exposure and rewards) with parent training. The manual extends previous family interventions in that it emphasizes parental communication patterns that are hypothesized to maintain child anxiety particularly intrusiveness and autonomy granting. Skills that the child had learned in the individual part of the session were reviewed less thoroughly (15-30 minutes) to permit time for the parent training lesson (25-30 minutes). The last 15 minutes were devoted to family meetings. Results indicated that the family condition was superior to the child only condition on several measures, including independent assessor. Parent report of anxiety symptoms revealed that the children in the family condition showed more rapid rate of change. Independent assessor ratings of anxiety severity,
distress and impairment in school, social and family functioning were significantly lower in family condition. Also, significantly more children in the family condition were rated as very much better or completely recovered compared to the child only condition (79 % vs. 21 %). Children’s self-reports of anxiety showed no advantage for the family condition, but both groups improved equally.

6.2.2 Trend towards benefit from parent involvement

In the one study that focuses on the diagnosis SAD and parent involvement, Spence et al., (2000) investigated child-focused CBT, CBT plus parent involvement, and wait list control in treatment of childhood SAD. The twelve session (once a week) CBT program included social skills training, relaxation techniques, social problem-solving, positive self-instruction, graded exposure in-vivo, and cognitive restructuring. The parent condition aimed to teach parents to model, prompt, and reinforce the child’s newly learned skills between treatment sessions; planned ignoring and withstanding reinforcement of the child’s anxious behavior and avoidance; encouraging the child to participate in social activities outside of treatment sessions; prompt and reinforce the completion of homework between sessions; model socially proactive instead of anxious behavior. Results showed that children in both treatment conditions showed significant decrease in general and social anxiety compared to the wait list group, and significant improvement in parent reported social skills performance. These changes were maintained and enhanced at twelve month follow up. There were fewer children who fulfilled criteria for SAD diagnosis in the parent involvement condition, at both post-treatment and follow up, but this difference was not significant.

Mendlowitz (1999) investigated a treatment program for anxiety, depression and coping strategies in children who met criteria for one or more anxiety disorders. Participants were randomized to either child only intervention, parent and child intervention, and parent only intervention. Treatment was the Coping Bear Workbook, an adaption of the Coping Cat Workbook (Kendall, 1990) described in detail above. The parents were given the ‘Key to Parenting Your Anxious Child’ workbook developed by the authors, and designed to help parents understand anxiety, learn how to deal with a child that is anxious, and learn how to help the anxious child cope with fearful situations. Results showed that all treatment groups had a decrease in anxiety and depressive symptoms post treatment. In the parent-child condition there were significant changes in benign coping strategies, and parents in this condition rated their children as significantly more improved.
6.2.3 No benefit from parent involvement

In a study on the treatment of specific phobias, Öst, Svensson, Hellström, and Lindwall (2001), children were treated with one session treatment for the child only, one session treatment for the child but with a parent present, or wait list control group. The one session treatment consisted of gradual exposure in vivo, where the child’s catastrophic cognitions about the feared object or situation are tested. In the child-parent condition, the child treatment was identical to the one in the child-only condition, but parents were included for support. “Support” was flexibly applied as the therapist deemed necessary; one parent could assist as a model in the fearful situation, another parent could be actively comforting their anxious child, while a third parent could function as a passive observer only. Results showed that the treatment conditions were superior to the waitlist control condition on all accounts except for the physiological measures, where there was no difference between the groups. Comparisons between the two treatments gave no direction to whether one condition was better than another. On the Behavior Approach Test the children who were treated in the child alone condition did better.

In a sample of children with mixed anxiety disorders (GAD, separation anxiety disorder, and SAD) Kendall et al., (2008) investigated the effect of child only CBT, family CBT, and an active control group: education/support/attention. The active control group also included the parents. All conditions ran for 16 sessions. The first eight sessions were dedicated to teaching psycho education and skills such as managing stress, and in the following eight the skills were practiced in exposure tasks. In the control condition, were given attention, support, and education about anxiety for 16 sessions. The child only condition used the Coping Cat Workbook (Kendall, 1990), described thoroughly above. Results showed that in general, the active treatments were superior to the active control condition. The authors draw the conclusions that since the treatments were equally effective, including a treatment protocol for parents only is not essential for treatment gains.

In a study by Nauta et al. (2001) children with anxiety disorders (separation anxiety, SAD and generalized anxiety disorder) were treated with twelve sessions of individual CBT. Some families were randomly assigned to seven sessions for parents where they were given cognitive training. The child treatment followed the shortened version of the Coping Cat (Kendall, 1990), described extensively above. The parental condition consisted of an added seven sessions for the parents, where they were given cognitive training in a program developed by the authors of the study. The program was based on the principles of cognitive therapy described by Beck, focusing on the parents’ cognitions and behavior provoked by the anxious behavior of the child. Thoughts and core-beliefs were challenged during sessions. Further, the
program included psycho education about anxiety in children, problem-solving skills training, and learning to reward courageous behavior. To compare results with a control group, ratings on outcome measures were collected from 20 ‘normal’ children. The majority of the clinical children benefitted from the CBT, but these treatment gains were not evident until at three month and 15 month follow up. By then, most children no longer fulfilled criteria of their anxiety disorder. Parental reports also showed a decrease in child anxiety symptoms over time. There was no added benefit by including parent cognitive training on any measure, or at any measure point. However, some children in the child-only condition revealed by self-report that they were doing worse at fifteen month follow up.

A study on a similar treatment set up, but with a larger sample was conducted by Nauta et al. (2003). Children with anxiety disorders (separation anxiety, SAD, generalized anxiety disorder, and panic disorder with and without agoraphobia) were all given CBT. Half of the children were randomized into a CBT plus parent condition. There was also a waitlist control group. In this study, in contrast to the previous one by Nauta et al. (2001) reviewed above, a few added components of the parental condition are mentioned, and it is not possible to draw a conclusion from the study if these added components are due to a more extensive description in the latter study, or were in fact added to the treatment package for this second study. The added components (mentioned, or in fact added) are for example that the counseling included encouraging coping behavior, stimulating independent behavior, and considering intermediate steps in conquering difficult situations. Results indicate that both treatment conditions were superior to the wait-list control group, but there was no additional gain from the parent cognitive training.

In a study by Bodden et al. (2008), a design with CBT for the child only, family CBT and waitlist control was applied on a group of children with anxiety disorders (SAD, separation anxiety disorder, generalized anxiety disorder, specific phobia, and panic disorder). The child treatment was based on the Coping Cat and similar workbooks. Parents were involved “as little as possible”. The family CBT program was designed to target the family mechanisms that are known to maintain childhood anxiety: reduction of child and parent anxiety with CBT, parent modeling of courageous behavior, giving rewards, identification and modification of beliefs about parenting and the anxious child, and identifying and modifying problematic family interactions by encouraging communication and problem solving. Results showed that both treatment conditions were superior to the waitlist control. The treatment gains were most evident in the child only condition, where 53 % of the children no longer met criteria for the anxiety disorder, compared to 28 % in the family CBT conditions. At three month follow up, these superior gains for the child only group were no longer evident; results were similar for the self-report and parent-report measures. Interestingly, it was found that both treatment conditions were less effective if the parents had an anxiety disor-
der themselves, while family CBT was superior if the parent had no anxiety disorders.

In a study by Silverman (2009), children with anxiety disorders (separation anxiety disorder, specific phobias, generalized anxiety disorder, SAD, panic disorder with and without agoraphobia, and OCD) were given either child-only CBT with minimal parent involvement, or CBT with active parent involvement. Treatment lasted for 12 to 14 sessions for both conditions, and the youth treatment program was identical for both conditions: systematic and gradual exposure to anxiety provoking situations, and behavioral and cognitive strategies to facilitate the exposures. Parental involvement in the child-only condition consisted of ten minutes in the end of each 50 minute session where the child, the parent and the therapist were present; child progress and homework assignments were summarized. In the child plus parent condition, the child-parent dyad actively planned the child’s exposure tasks together, and the exposure tasks for parents with anxiety. Further, three to four sessions were dedicated to target the other parent variables believed to be linked to childhood anxiety: child behavior management skills, parent-child communication, and problem-solving skills. Results showed that both treatment conditions significantly reduced child anxiety on all outcome measures from pre- to post treatment, and these effects were maintained at follow up. A very important part of this study was that great care was taken to measure also the variables that are believed to maintain anxiety in children, i.e. the parent’s own anxiety, child-parent conflict, and negative parental behavior towards the child. The major conclusion to be drawn from this study is the same as for several others in this review: there was no difference in child anxiety between treatment conditions, i.e. between the child-only treatment group, and the group where care was taken to target problematic family and/or parent behaviors known from empirical research to maintain anxiety. The authors draw the conclusion that there should be such a difference since these issues were targeted. Second, also in the child only condition, all the parental behaviors assessed (and targeted in the child plus parent condition) showed significant improvement, to a magnitude that was comparable to the child plus parent condition. The authors mean that this is consistent with the assumption that changes in child anxiety produce parallel change in parent anxiety. The authors find that their results are possible to interpret in a way that suggests change in parental behavior can succeed child change, and not vice versa (that is, change in parental behavior necessary for change in child behavior/anxiety).

As is evident from this review, there is a wide variety in results, from significant benefit from parent involvement to no benefit at all. Three reviews of randomized, controlled studies investigating the added benefit of parent involvement in the treatment of childhood anxiety also conclude that the results are mixed (Barmish & Kendall, 2005; In-Albon & Schneider, 2007; Breinholst et al., 2012). Even if most of the studies follow similar basic outlines, the variety of methods and even degree of parent involvement has
differed significantly. The degree of parental involvement in the child only conditions is never zero, and the degree of parent involvement can sometimes be substantial even if so called child only conditions, for example, ten minutes in each fifty minute session. This fact blurs the comparisons. Interestingly, it is not until lately that attempts have been made to dismantle what components are indeed involved in maintaining childhood anxiety, and if these are affected by treatment. In the study by Silverman (2009) this is done, and the results give many interesting implications at hand. Parental behaviors change even in the child-only condition, which suggests that the parents’ behavior changes when the child’s does. If so, this could be another explanation to why there is seldom a difference found between treatment conditions.
7. Aims of the study

The overall aims of this study were to explore measurement, maintaining factors, and treatment of childhood social anxiety disorder. It was carried out by evaluating the psychometric properties of an instrument that assesses social anxiety disorder, and by investigating the occurrence of threat interpretation bias in a sample of carefully diagnosed children and adolescents. Further, the efficacy of an extensive treatment program for social anxiety disorder was examined, the added benefit of parent involvement to that program, and the influence of the treatment on co-occurring disorders.
8. The empirical studies

The present thesis consists of studies conducted on a sample of children diagnosed with moderate to severe SAD. The children were recruited to our research project for participation in a treatment study. During assessment, several types of data were gathered to enable studies on not only treatment, but also other issues regarding SAD in children and adolescents. The project was conducted at the Unit for Anxiety Research, Department of Psychology, Stockholm University between 2001 and 2005. Four clinical psychologists functioned as therapists and four clinical psychologists as research assistants during this time period.

8.1 Participants

The participants were referred to the project from child psychiatric and school health services in Stockholm County, Sweden, or replied to an advert published in two morning papers. In order to be included in the treatment study the children had to fulfill the following criteria:

1. A primary diagnosis of moderate to very severe SAD according to the DSM-IV (APA, 1994).
2. Aged between 8 and 14 years.
3. Duration of the phobia had to be at least one year.
4. Found to be motivated for treatment
5. Not fulfill criteria for primary depression, drug or alcohol abuse, developmental disorder or displaying psychotic symptoms.
6. Agree to discontinue any other form of psychotherapy or anti-anxiety medication for the duration of the treatment.

In total, 107 participants were screened and 89 completed diagnostic interviews. Of these 89, 59 fulfilled the inclusion criteria and accepted to participate in the study. For comparative purposes, a sample of 49 non-socially phobic children was recruited for study II and study III.
8.2 Procedure

8.2.1 Pre-treatment

After a brief telephone screening interview with the parent, children preliminarily deemed to fulfill criteria for SAD were invited to further in-clinic assessment by licensed psychologists. To prevent fatigue in the child, the assessment was done at two separate occasions. The parents gave written
consent and the child assented to participate in the treatment study. The ADIS-C and ADIS-P were administered to the child and the parent, respectively. A clinical psychologist supervised the administration of the self-report scales SPAI-C, FSSC-R, MASC, QOLI, and CDI. The parents filled in the SPAI-P CBCL, and SCL-90R. The children were also given an ambiguous stories interview. Children with a principal DSV-IV diagnosis of SAD with a clinician severity rating (CSR) of at least 4 (moderate impairment) were offered to participate in the treatment study. Those who accepted were randomized into (1) child treatment only, (2) Child treatment plus parent training, and (3) wait-list control. Once the 12 week wait-list period was over, the children in that group were randomly assigned into one of the two treatment conditions. The clinical psychologist who had been randomized to treat a certain group contacted the participants and set up a pre-treatment meeting. The treatment proper started a week after that and ran for twelve consecutive weeks.

8.2.2 Post-treatment
After treatment termination the children were assessed by the research assistants. Only the relevant sections of the ADIS-C/P were administered to the child and parent; the SAD section in all cases, and sections of any co-morbid disorders were relevant. The ambiguous stories interview and an interview about how the child perceived the treatment were also administered. After the interview, the child filled in the self-report instruments SPAI-C, FSSC-R, MASC, QOLI, and CDI. The parents filled in the SPAI-F, CBCL, and SCL-90R after their interview was done.

8.2.3 Follow-up
One year after treatment termination the child and parent were assessed anew with the same assessment battery given at post-treatment.

8.2.4 Assessment of children in the non-socially phobic control group
After permission from the principal, children in an elementary school in Stockholm County, Sweden were approached and asked if they wanted to participate in a study on social fears. Children whose parents had given written consent completed the SPAI-C in their classrooms, supervised by a licensed psychologist. From the generated bank of protocols, 72 protocols were picked randomly to ensure there were enough protocols to form a control group. The SAD section of the ADIS-C was administered to the child (only) in the school by a licensed psychologist, to ensure that no child in the
control group fulfilled diagnostic criteria for SAD. Six children out of the 72 (8 %) were found to fulfill criteria for SAD and were excluded from the study. From the 66 remaining SPAI-C protocols, 49 were matched for age and gender with clinical children for study II; these protocols were later used also in study III.

The studies were approved by the local ethics committee at Karolinska Institute, Stockholm, Sweden.

8.3. Study I: Behavior treatment of social phobia in youth: Does parent education training improve the outcome?

8.3.1 Purpose
There are a number of promising treatments for SAD that have been evaluated in RCTs. Study I aimed to contribute to this field of RCTs. The main purpose of Study I, however, was to investigate whether giving an educational course to the parents of socially phobic children would lead to a better treatment outcome, compared to a condition where only children were treated and the parents received no educational course. Another purpose of Study I was to investigate what influence, if any, co-morbidity has on treatment outcome. Children and adolescents with anxiety disorders are found to have high co-morbidity rates with different types of disorders; other anxiety disorders, mood disorders, and behavior disorders. Based on previous research findings we hypothesized that comorbidity would not impair the treatment outcome. A third purpose of Study I was to investigate in what way, if the co-morbid disorders were affected when the treatment was focused on SAD only. Based on previous studies we hypothesized that co-occurring disorders would be significantly improved without being targeted in the treatment program, i.e. the treatment for SAD would have a generalizing effect.

8.3.2 Method

Child treatment only
The child only condition consisted of individual exposure in vivo-therapy and group sessions. The children got a written summary of each individual and group session. The purpose was to help the children remember the com-
ponents of the therapy in order to maintain treatment effects, and to serve as a reminder of the importance of practicing the new skills.

**Exposure in-vivo**

In the individual therapy, the child received a 12 week therapist assisted exposure in-vivo treatment combined with psycho-education and homework assignments. A functional analysis was carried out by the main therapist with information retrieved from the child directly, from the self-report scales and the ADIS-C/P interviews. A fear-and-avoidance hierarchy was established. Behavior experiments were also carried out during the sessions; for example, read-aloud tasks and other oral presentations in front of the group or the research assistants. The homework assignments were sometimes the same as the exercise implemented during the sessions, or exercises that were not possible to implement in that format such as answering a question in the classroom. The importance of continued practice to maintain treatment gains were emphasized.

**Social skills training (SST)**

The group sessions ran for 12 weeks concurrent with the individual therapy. The focus was social skills training and the group format gave the children opportunities to train and test various skills. There were 4-5 children of similar age in each group, and the training was often done in the form of role plays but also through ”live” exercises, e.g. going to fast food restaurants and order food, pose questions to strangers in the street, etc.

**Child treatment plus parent training**

In addition to the treatment described above, parents to children in this treatment condition were given a course that ran for eight sessions during the 12 week child treatment period. The course was designed to inform parents about anxiety in general and SAD in children in particular, how they could help their children overcome their anxiety problems and not reinforce their children’s avoidance behaviors inadvertently or on purpose, how to help their children to carry out homework assignments, e.g. practicing the skills they learned during group sessions, how to model socially proactive instead of anxious behavior, and how to encourage their children to participate in social activities outside of the treatment sessions. Care was taken to keep the discussions on a general level and not on an individual child level.

8.3.3 Results and discussion

There was no significant difference between the two treatment groups on any of the primary or secondary outcome measures. The initial SAD severity of the current sample was compared with samples in the other randomized clinical trials. This comparison showed that the sample in the current study was
at the top of the range when it came to initial SAD severity. Still the proportion of diagnosis free patients was similar to the other treatment studies at follow up: at the median or somewhat better. Both active treatments did significantly better than the WLC group on all measures except for the Child depression inventory (CDI). When the WLC had been treated and the results merged into the two main groups there was a significant interaction effect on the Social Phobia and Anxiety Inventory for Children (SPAI-C) and there was a significantly larger change from pre- to follow-up assessment in the Child plus Parent group (decrease of 22.1 points) compared to the Child treated group (decrease of 12.1 points). The same pattern, without a significant interaction effect though, was seen on the The Fear Survey Schedule for Children-Revised (FSSC-R) and the Multidimensional Anxiety Scale for Children (MASC). In other words there was no support on the primary outcome measures for the proposition that including parents in the treatment of their children’s SAD would improve the children’s outcome, and only weak support on one of the secondary measures. This finding is in line with the only previous study on parent involvement in the treatment of children with SAD, and with other studies with mixed anxiety disorder samples. A few studies have found enhanced treatment effect with inclusion of parent involvement, and in those cases, the parent course was longer or substantially longer than in the current study.

The result on the primary measure corroborated the prediction that the presence of comorbidity at pretreatment would not impair the treatment effect on SAD since the outcome was the opposite – the comorbid patients had a significantly larger change than the non-comorbid patients on the Clinician Severity Rating (CSR) of SAD (2.92 vs. 1.63 points). It must be taken into consideration that the children with comorbid disorders had higher severity ratings initially. Furthermore, we predicted that the focused treatment on SAD would have a generalizing effect, i.e. the comorbid disorders would improve significantly without being targeted in treatment. This prediction was also corroborated since the mean CSR across comorbid disorders, as well as the CSR for each of the comorbid disorders, changed significantly from pre- to post-assessment. Furthermore, there was also a significant improvement from post- to follow-up assessment on the mean, the first and the third comorbid disorder. Thus, it can be concluded that the comorbid disorders diagnosed in this sample of socially phobic youth pre-treatment did not impair the SAD treatment but was rather associated with further improvement, and despite the sole focus on SAD, there was significant improvement in the severity of the comorbid disorders. The four most common comorbid disorders in this sample were various anxiety disorders. With a larger sample, it would be possible to determine to what extent the current treatment generalizes to mood or externalizing disorders.
8.4. Study II: Psychometric properties of the Social Phobia and Anxiety Inventory-Child version in a Swedish clinical sample

8.4.1 Purpose
The main purpose of Study II was to investigate the reliability and validity of the SPAI-C in a sample of Swedish children diagnosed with moderate to severe SAD. Based on previous psychometric studies of the SPAI-C it was hypothesized that the SPAI-C would display satisfactory psychometric properties, a secondary purpose was to investigate the factor structure of the SPAI-C in a clinical sample, and to investigate the psychometric properties of these factors. Although the results of previous factor studies are mixed, three domains of feared situations have been identified across multiple studies of SAD in adults (Bögels et al., 2010). These domains are fear of public performance, fear of social interaction situations, and fear of observation situations. Based on these findings, we hypothesized that a three factor structure would be the most satisfactory factor solution.

8.4.2 Method
Data were collected as described in the general overview of the studies. Instruments included in Study II were ADIS-C clinician severity ratings of SAD, ADIS-C number of social phobic fears, self-report instruments SPAI-C, MASC, and FSSC-R, parent report measures CBCL Internalizing scale and SPAI-P. For the discriminant analysis, SPAI-C scores diagnostic status for the non-socially phobic control group was used. Statistical analyses were carried out as follows: Internal consistency using Cronbach’s alpha, Spearman-Brown split-half and test-retest reliability were calculated for the entire scale and for the factors. Discriminant analyses, sensitivity and specificity were investigated by comparing SPAI-C scores and diagnostic status measured with the ADIS-C. Construct validity was investigated both by examining correlations between the SPAI-C and various self-report and parent-report measures as well as clinician severity rating (CSR) of SAD. The factor structure of the SPAI-C was investigated by an exploratory factor analysis with an oblique rotation.
8.4.3 Results and discussion

An exploratory factor analysis resulted in a three factor solution that was in high conceptual accordance with previous studies, as well as in theoretical accordance with the three fear-domains found in adult SAD across multiple studies. The three factors reflected (1) fear in social situations, (2) fear of public performance situations, and (3) thoughts, and physical symptoms associated with SAD. The three factors were included in the psychometric investigation and were found to display acceptable reliability and validity.

The examination of the relationship between the SPAI-C total score and factors, and social phobic severity and number of social phobic fears are extensions of previous research. It was found that the fear of social interactions factor had the strongest correlation with number of social phobic fears reported by the child, and there was a negative significant correlation with the CBCL externalizing scale. Judging from these findings, it can be suggested that the fear of social interactions factor has a quality that is associated with greater impairment as measured by fear across more situations, and less behavior activation as measured by the CBCL externalizing scale. Interestingly, these result display that the public performance factor had significantly lower correlations with number of fears reported by the child. This finding lends tentative support to the notion that public performance is a specific subtype of SAD associated with less impairment. The SPAI-C total scale and each factor was found to possess good internal consistency, good test-retest reliability and was generally strongly correlated with both self-report and clinician measures of anxiety and fears. The discriminative properties of the total scale were satisfactory. These findings, albeit in line with earlier findings, is an extension of previous research in that this study is the first to replicate an investigation of the psychometric properties of the SPAI-C in a sample of children with SAD. The results support the reliability of the SPAI-C when used in a clinical sample. One general conclusion that can be drawn from the results is that a revision of the SPAI-C is called for. This revision should focus on (a) excluding items that load inconsistently, and (b) including items that reflect fear of being observed, and (c) including more avoidance items.
8.5. Study III: Perception of threat in children with social phobia: comparison to non-socially anxious children before and after treatment

8.5.1 Purpose
One purpose of Study III was to investigate interpretation- and Reduced Evidence for Danger (RED) bias in children with SAD. Based on earlier research we hypothesized that clinically referred, socially phobic children would make more threat interpretations, and display a RED bias, compared to non-socially anxious peers. The biases in attention towards possible threat are proposed to maintain phobia: the perception of threat makes the individual overestimate the danger of the situation, and overestimate the risk of a negative outcome (Vasey et al., 1995). That is, if such biases exist they should be a driving factor behind the fear according to this theory, but should also change post a successful treatment for anxiety. Thus, a second purpose was to examine possible change in interpretation- and RED bias just after, and a year after a 12 week behavior treatment program for SAD, and to compare the post-treatment and follow up scores with scores of non-socially phobic children. Based on previous research on the efficacy of behavior treatment, we hypothesized that the interpretation- and RED bias response patterns in the clinically referred children would be significantly altered in a normal direction after the treatment program. Also, we hypothesized that these changes would be maintained at one year follow-up.

8.5.2 Method
Interpretation- and RED biases were measured using seven ambiguous stories (Bögels & Zigerman, 2000; Muris et al., 2000). After each sentence the child was prompted to share their interpretation of the story (scary or not scary). The first sentence rendering a “scary” interpretation was noted as the threat threshold. Since the child was allowed to change their mind after hearing each new sentence, the very number of sentences prompting a “scary” reply gave information on how threatening the child found the stories to be: the frequency of threat perception score. The threshold and frequency scores display the “reduced evidence of danger (RED) bias”. Furthermore, the child was asked to rate each “scary” sentence and mean score was then calculated for each story: the threat rating score, or, “interpretation bias”. Finally, the children were prompted to rate how scared, shy, unsure, and worried they felt after hearing the entire story once. These ratings were subsequently used to derive a negative emotions-index. The interview was administered
post treatment and at one year follow up to a sub group of 26 children; the results were compared within the treated group, and with the control group.

8.5.3 Results and discussion

The ratings of the children in the SAD and the non-socially anxious group were compared. The children with SAD displayed a RED bias as measured by the lower threat threshold, and higher frequency of sentences rated as scary. Also, the children displayed an interpretation bias as measured by higher ratings of how scary the children found the stories. These findings were well in line with the previous studies in the field. After the treatment program, the children with SAD displayed a reduced tendency to make biased interpretations as defined above. This is a result also found in previous studies. However, there were no significant post treatment changes in the RED bias, and only threat ratings had reached levels comparable to the control group after treatment. That means children with SAD were still ready to jump to the premature conclusion that the stories were scary even after successful treatment of their SAD. However, at one year follow up there was a significant reduction in both interpretation and RED bias: the scores of the clinical children no longer differed from those of non-socially anxious controls. It is noteworthy that the treatment given to the children did not include any formal cognitive restructuring component. Still, the negatively valence cognitions were decreased after treatment.
Factors leading to pathological anxiety in children are both of genetic and environmental kind. For children, important environmental factors are the parents and their rearing style. The notion of bringing parents into treatment has high face validity and has been tested in several studies. The impairment of ongoing childhood SAD includes lack of social relationships and school refusal, the course of the disorder is chronic, and the risk for future complications such as alcohol abuse and depression is high. Research to find effective treatments for the disorder was highly required at the time this treatment study was carried out, and is still today. The promising results of the SET-C treatment protocol warranted a replication of the study by Beidel et al. (2000); at that time, there had been no other replications made. We did get impressive results in our study, fully comparable to or exceeding other studies when it comes to individual child improvement, and effect on co-morbid disorders. Yet, we found no enhanced effect of parent involvement, a result that is highly consistent with other studies.

Correct and easy screening and assessment of mental disorders are crucial to clinical practice and research. For childhood SAD, there was a lack of instruments measuring the disorder generally, and instruments in accordance with the diagnostic criteria specifically. Although the SPAI-C self-report instrument had been created to fill a gap, very few psychometric studies had been carried out on the reliability and validity of the instrument in clinical samples. Still, the instrument is widely used in clinical and research practice. A psychometric investigation was highly called for. We found that the instrument was psychometrically sound, and the results tentatively suggest that the SPAI-C can be used to screen for different subtypes of social fears, something that can help establish disorder and treatment prognosis.

An interpretation style that is biased towards threat is suggested to be a pillar in the maintenance of pathological anxiety. Little was known about possible biased threat in children with SAD at the time when this thesis was outlined, and even less about the effect treatment of SAD would have on such biased interpretation style. To learn more, a study on threat perception bias on clinical children was carried out. Results show that the readiness to interpret situations as dangerous was still there after treatment, although child- and parent report as well as clinician ratings indicated that the children were significantly improved.
9.1. The treatment study

The primary purpose of this study was to compare child only CBT with a child + parent condition in the treatment of SAD, and these active treatment groups compared to a waitlist group. The secondary purpose was to investigate what influence possible comorbid disorders would have on the treatment of SAD, and consequently, what effect a treatment that targets SAD would have on possible comorbid disorders.

9.1.1. Behavior treatment of social anxiety disorder

So far, no study has been able to replicate the magnitude of improvement found in the studies by Beidel et al. (2000) or Beidel et al. (2007), where the SET-C treatment protocol was used. Two studies that have used a slightly modified SET-C format (Masia-Warner et al., 2005; Maisa-Warner et al., 2007) yielded significant results, but not of the magnitude found in the Beidel et al studies. Since the Masia-Warner studies did not include the individual treatment component of the original study, it is not possible to make comparisons. The sample in our study was highly impaired by their SAD. Compared to other studies on the treatment of childhood SAD, the children in this sample were in the highest range. Still, treatment yielded improvement in comparable degree to other studies. The percentage of diagnosis-free children after treatment was comparable to or slightly bigger than in other studies.

What treatment components are important for treatment success? The first two major treatment studies in the field of childhood SAD (Beidel et al., 2000; Spence et al., 2000) differed regarding one crucial aspect; one of them emphasized social skills training and included no cognitive component (Beidel et al., 2000), the other included a cognitive restructuring component but no social skills training (Spence et al., 2000). For the rest of the studies, there are some that are based on the SET-C, thus, do not include a cognitive component. Some use cognitive restructuring. There is no clear line between these two “theoretical groups” regarding treatment success, that is, it is not obvious to say if one theoretical foundation is preferable over another. Two recent studies have specifically focused on the cognitive factors in the treatment protocol, but only one of them used an active treatment as comparison (Sanchez-Garcia et al., 2009). In that study, the treatment protocol which included the cognitive restructuring component, yielded better results than the one without this component. The other study (Melfsen et al., 2011), which was based on the cognitive theoretical model by Clark & Wells, did not include an active comparison group and thus, it is hard to draw conclusions from it whether or not the focus on cognitive factors were more successful than another treatment approach, such as more traditional CBT, or behavior therapy only. In general, the lack of unity in the studies regarding
the ages of the children treated, the treatment components, the mode of
delivery such as the length of the treatments and the amount of therapist
contact, makes comparisons very hard to make. Also, such things as the di-
versity in measurements, and the varying assessment points, all add to the
difficulties to draw solid conclusions about what makes treatment effective.

The comorbidity rate in the sample was high (75 % had at least one
comorbid disorder). Children with comorbidity improved to the same degree
as the non-comorbid children, if not more, albeit the latter could be due to
the higher initial SAD impairment of the comorbid children. Furthermore,
there was a significant generalizing effect on the comorbid disorders from
treatment targeting SAD only, a result in line with a study by Ollendick et al.
(2010). A further finding was that the children with comorbidity were not
only significantly improved, but significantly more so than children with no
comorbid disorders. Added to that, the children in this study were initially
rated as highly impaired by their SAD, and highly impaired also compared to
children in other treatment studies. Still their follow-up severity ratings were
in the same range or even lower than in the other treatment studies.

9.1.2 Parent involvement

There was no general added effect of parent involvement, but a trend to-
wards improvement in child self-report measures in our study. The non-
significant difference between the two active treatment conditions, CBT and
CBT+P, is consistent with the larger bulk of previous research. Still, it is not
possible to completely dismiss the possible impact the added parent con-
dition has on treatment of childhood SAD especially. In the one previous study
that also targeted SAD (Spence et al., 2000) a slightly better outcome was
found for the parent involvement than the child alone condition, even if this
difference was not significant. In our study, we found significant post-
treatment to follow-up differences in favor of the parent condition on child-
report measures; results showed that the children in both conditions im-
proved significantly from pre- to post treatment, but the children in the
child+parent condition continued to improve to a significant extent from post
treatment to follow-up. That is, a treatment which involves the child’s social
context (i.e. parents) could be more successful in the treatment of SAD.

An important finding that the parents brought forth in verbal reports dur-
ing the post-treatment interviews was that the group format had given them a
sense of relief and togetherness, and sense of normalization. Since we know
that over-controlling parent behavior is a factor that fosters anxiety in chi-
ldren, maybe the normalization process itself gave parents more self-esteem,
thus lead to more “relaxed” parent behaviors that are more favorable for the
child.

Two of the three studies that have reported significant improvement on
major outcome measures for the family condition, compared to child treat-
ment alone (Barrett, Dadds, and Rapee, 1996; Woods et al. 2006) had that in
common that there was no group setting, but individual child only. These were mixed anxiety groups, children with separation anxiety disorder, GAD and SAD, and of course, the two former diagnoses demand no group format exposure. But there was treatment gain in all groups. During at least half the individual session the child was in treatment alone, and parent was present for at least part of the session. There were separate manuals for child-and parent treatment. It is possible that this individual-session only format, with parents coming in to the treatment each time, enables a much greater focus on the individual child’s problems, that is, there is a lot of actual treatment time directed towards that single child. Also, with such frequent and personal contact with the therapist, a parent can get attention for each question and challenge raised in the individual child’s treatment process. Compared to the format in the present study, where parent sessions were given only in group format and on a non-individual level (save one parent meeting in the start of the program), and the actual time spent working on the individual child (the patient’s) problems will differ significantly. With our current knowledge, that the difference between child-only and child-family conditions are virtually non-existent where parent session have been given mainly in a group format, the question is if this approach should not be abandoned. At least, the more individual child-focus approach should be given more attention. In the third study where child + family condition showed a difference to child only format, albeit “marginal” to the favor of the family condition, (Barett 1998), the child did not receive any individual sessions at all, a factor that may have affected the results in favor of the family condition.

For a few of the studies, parents in the parent-child conditions rated their children as more successful or more improved than parents did in the other conditions (Mendlowitz, 1999; Woods, 2006). A conclusion, premature perhaps that feels easy to draw is that parents who were actively engaged themselves in treatment perceived their children as more successfully dealing with previously fearful situations – simply because their increased knowledge of how the children are coping. Parents who have yet to see their children face fearful situations might not understand or know to what extent their children have improved. Also, none of the studies in the review found superior results for the parent/family conditions on child self-report measures. Interestingly, it was on the child self-report measures there was a trend for parent involvement superiority.

The results are hard to interpret. There are different approaches to what exactly the parents have been involved in doing in the parent conditions, and there will be always be parent participation to some degree. The question is, to what extent can one single out the parent factor in the groups that do not receive parent training. The parents are always present in the child’s life. They often (but not always) take part in driving their child to sessions, listening to the child explaining what they have done in the session, and watching more or less what the child attempts to do of their own homework. There is no instruction in the non-parent group not to partake in everyday activities
with their child, or not to talk to the child about the therapy. This should be impossible to achieve. However, no matter how small, this input is not inseparable from the environment of the child even in the group that does not receive parent participation. Even in a study such as that by Kendall et al. (2008) on childhood anxiety, where there were no significant differences between two treatment groups, compared to one group that received placebo treatment, parents in the non-family group received parent sessions. These sessions provided psycho education about child anxiety, and even coached parents on how to respond to their particular child’s behavior. The family condition in this study included an ambitious approach: modifying maladaptive parent beliefs, teach parents new responses, encourage parents to support the child’s mastery, and communication skills. Further, anxious parents were themselves told to apply their new skills on their own anxiety. As pointed out in the study by Nauta et al. (2003), parents in the child-only condition are informed about the treatment during two sessions, they read the child’s workbook and are confronted with the child’s exercises. Certainly, there is a substantial difference between the amounts of parent involvement in these studies, but it is not possible to say that the parents were not involved at all in the former. Thus, to draw conclusions about what effect a parent involvement factor in therapy of childhood anxiety is not easy.

9.2. The psychometrics of the SPAI-C

The primary purpose of this study was to investigate the psychometric properties of the SAD and anxiety inventory for children in a Swedish clinical sample, more specifically, a sample of carefully diagnosed children with SAD. Results were similar to earlier studies in the field and confirmed findings of the SPAI-C being a valid, reliable instrument for the use of assessing childhood SAD. An exploratory factor analysis resulted in a three factor solution reflecting: (1) fear of social interactions, (2) fear of public performance situations, and (3) physical and cognitive symptoms connected with SAD. These factors appear to parallel domains of SAD also evident in adults. The SPAI-C total scale and each factor was found to possess good internal consistency, good test-retest reliability and was generally strongly correlated with both self-report and clinician measures of anxiety and fears. The discriminative properties of the total scale were satisfactory. The percentage of children with SAD that were correctly classified to suffer from the disorder was in a low range. Three fear domains were found and the domain “performance fears” was significantly associated with fewer social fears in the child.
In research it is essential to have assessment tools that screen efficiently. For research studies, you sometimes need to identify individuals with a certain disorder from a pool of perhaps thousands of children in a community sample. Certainly, it is essential also at the clinic, where a variety of measures are needed during screening assessment and for reliable and valid measures from pre- to post treatment. Looking at mean score of the instrument is the fastest way to screen for the presence or absence of the disorder in question. However, it is inevitably so that a screening instrument must miss certain individuals with a disorder, and include some that do not have it.

The SPAI-C scores range from 0-52. In the initial study, 18 was suggested to be a sufficient score to use as “cutoff”, that is, a score that differentiates acceptably between children who have the disorder (because they score 18 and over), and those who are supposed not to have the disorder (because they score 17 and under). The numbers given in the original study (Beidel et al., 1995) have been widely used. In that study, 30% of the socially phobic children were incorrectly classified as normal controls (i.e. false negatives) when the score of 18 was used, and 26% of the control children were incorrectly classified as socially phobic (false positives). This score is the one that has gotten the widest use in subsequent studies. A whole 36% of the socially phobic children were incorrectly classified as normal controls in our study, but, in the non-socially anxious sample, only 16% were incorrectly classified as socially phobic. This number resembles that found in a control sample where it was established that the children had no SAD diagnosis, where 19% were found to score above the cut-off of 18 (Beidel et al., 1996). If the SPAI-C had been used for original screening in the carefully diagnosed sample of the current study, the instrument would have missed to include a large percent of children with SAD. Only 64% of the children scored above the cutoff of 18, and this is a low number even compared to the – relatively high – false negative rated that was found acceptable in the original study. The numbers resemble those found in a German socially anxious but subclinical sample, where 59% scored above cutoff (Melfsen, 1999). This is surprising, given the fact that the sample in our study consisted of children with a mild to very severe degree of SAD: the mean clinician severity rating was 6.05 on the 0-8 scale which can be considered high, and compared to other treatment studies on childhood SAD, this sample was in the higher range. There are no severity ratings of SAD reported in the two other studies found that have measured the sensitivity and specificity of the instrument in a clinical sample, which makes a comparison impossible. In the Beidel et al (1996) study, 83% of the children with SAD were found to score above cutoff: This sample was American. Could that explain the differences? In the other diagnosed sample where a classification analysis has been carried out, 82% were found to score above cutoff – this was a German sample (Melfsen et al., 1999). In general, it is hard to draw conclusions about the varying results from an overview of the samples and settings in the available studies.
When SPAI-C cutoff score has been used in community samples to screen for SAD, proportions of individuals scoring above cutoff have varied: 16.3 % (Kuusikko, Pollock-Wurman, Ebeling, Hurtig, Joskitt, Mattila, et al., 2009), 19.9 % (Storch, Masia-Warner, Dent, Roberti, & Fisher, 2004), 31 % (Morris & Masia, 1998) and 37 % (Epkins, 2002), and scoring above cutoff. If the percentage of false positives found in the original study applied to these scores, it would mean that the Kuusikko et al study and the Storch et al study have identified a percentage of children with SAD within the expected range, judged from what we know about prevalence (5-15 %), while a percentage of SAD above what can be expected from prevalence was found in the Epkins and Morris & Masia studies.

While the fifth edition of the Diagnostic and Statistical Manual (DSM-5) was in the works, the workgroup for Anxiety, Obsessive Compulsive Spectrum, Post-traumatic, and Dissociative Disorders suggested a new subtype classification system for social anxiety disorder. The workgroup was in favor of leaving the “generalized” versus “non-generalized” classification. The group concluded that the strongest empirical evidence supports a view of social anxiety disorder as existing on a continuum from lesser to greater severity based on number of situations feared and/or avoided. The caveat of using a severity-definition is the difficulty to describe and quantify what should be considered a ‘situation’. Attempts were made already during works for the DSM-IV to identify sub-domains of SAD based on content of fears. At that time, the data was insufficient and although findings from a large pool of studies gave at hand that social phobic fear might be divided in content groups, data was still deemed insufficient. The three content groups, not only found in factor analytical studies but also found to relate statistically to for example severity of SAD are performance fears, interaction fears, and observational fears. The DSM-5 workgroup proposed a distinction based on “performance fears” versus “interactional fears” which never came to effect. Further, the workgroup proposed that circumcised performance anxiety should be placed under the specific phobia diagnosis (Bögels et al., 2010).

A factor analysis result holds no use if it is not possible to predict something using the factors. If the factors have clinical utility and can be used to say something about severity, prognosis, choice of treatment, they can be useful although a subtypes were not included in the DSM-5. Is it possible to say that the SPAI-C can be used for screening of these subtypes? Five- four-, and three factor solutions have been presented in the studies on the factor structure, something that is found also in the field of factor analytical studies conducted on adults, and with a vast variety of means (Bögels et al., 2010). In the pool of investigations of the SPAI-C factor structure, the major findings are in line with the propositions made by the DSM-5 workgroup, and have high face value although sample sizes, methods to derive factors, and number of factors found differs across studies.
An overview of the factor analytical studies of the SPAI-C gives at hand that three factors with similar item content are presented in all studies. These are *fear of social interactions*, *fear of public performance situations*, and *somatic and cognitive symptoms*. The overview shows that 15 of the 26 items cluster identically in six of the seven studies. In the studies that present three-factor solutions (Beidel et al., 1995; Melfsen et al., 1999a; Melfsen et al, 1999b), these 15 items cluster in the three identical factors. In the two studies which present four-factor solutions (Gauer et al., 2005; Olivares, Sánchez-García, López-Pina, & Rosa-Alcázar, 2010), and in one study that report a five-factor solution (Beidel et al., 1996) 12 of these 15 items cluster in the three factors mentioned above. The remaining three items cluster in a fourth factor. According to the overview, the fourth factor, “assertiveness” is linked theoretically to the “social interactions” factor. In sum, these fifteen items appear to be robustly associated with each other.

Seven items do not load identically in all the studies, but still load consistently enough – on the same factor in at least four of the seven studies made - to be considered solid enough to be included in a theoretical model: Item 2, “Scared when becoming the center of attention”, item 8, “Too scared to ask questions in class”, item 3, “Scared when others watch me do things” item 17, “Scared when in a school play, choir” are all associated with the Public performance factor. Item 7, “Scared in the school cafeteria” and item, 19, “I avoid social situations such as parties or school” are associate with the Assertiveness factor. Item 22, “My voice leaves me or sound funny” is associated with the Symptoms factor. Only four items on the SPAI-C fail to load consistently, or are not even included in the analyses of the seven studies made: Item 1, “Scared when joining a large group”, 6, “Scared at parties… and go home early”, 20, “I leave social situations such as parties or school”, and 23, “I usually do not speak until they speak to me”. Thus, the decision to use three factors for the analysis in this study was based on the solid findings in the current research on adults (Bögels et al., 2010), as well as this thorough overview of the SPAI-C factor analyses.

### 9.3. Threat perception and interpretation bias

The primary purpose of this study was to investigate if participants with diagnosed social anxiety disorder would display a threat perception and interpretation bias of socially ambiguous situations, compared to non-socially anxious peers. The secondary purpose was to investigate if possible threat perception and interpretation bias would alter after a treatment program for childhood SAD. Findings showed that socially phobic children did indeed display a threat perception and interpretation bias compared to non-socially anxious peers, and that the threat perception bias was altered in a normal
direction after the treatment program. Further, it was found that one year after treatment termination, the SAD sample ratings were comparable to those of the non-anxious children.

The presence of an interpretation bias in children and adolescents with anxiety, both sub-clinical and clinical seems established. A question that is raised, however; what is in fact interpretation bias? Is it one single pathological phenomenon, or is it a normally occurring phenomenon with pathological bi-products, that are in fact what is causing the impairment? Further, and based on the current field of study findings, is it still plausible to assign a casual status to interpretation bias in connection to anxiety? The actual difference in raw points between anxious and non-anxious children is often very small in the studies conducted and the scores are low, at or below midpoint also for anxious children (e.g. Muris et al., 2000). This was also true for our study. Another study, conducted years after ours, showed no difference at all between anxious and non-anxious children (Wharton, Waters et al., 2008).

Why this? There are two possible explanations that come to mind. The first one is methodological. It is not impossible that this phenomenon, as measured with almost “qualitative” methods such as the child hearing a non-psychometrically tested story read aloud to them where they are asked to rate a feeling or suggest an ending, is too vague to detect a difference, either because the actual description of the supposedly threatening situation isn’t made well enough. As an example; asking children what they will feel when they go up to a group of classmates to give them invitations to a birthday party, might be too vague to arouse fear even in a child with SAD. Should the situation instead be posed in more detail, fear might be elicited. Or, the wrong types of situations are targeted all together. In our study, it was not unusual that the children with SAD said “I would never have a party, and never invite anyone, so this story is not scary to me”. Even when the assessors asked the child to imagine themselves in the hypothetical situation, the children insisted that it was unrealistic and thus, the story elicited no fear. The second one is etiological. The small difference between the anxious and non-anxious children could reflect reality; all people are prone to vigilance in ambiguous situations to a certain extent. Built-in reactions to potential threat must work for all individuals, or they will be evolutionarily unsuccessful (e.g. Öhman & Mineka, 2001). Rather, it could be the post-interpretation phase of the threat evaluation that causes the difference in levels of anxiety as measured by other means (self-report scales, clinician severity ratings). In a phobic individual the physical reaction goes on for longer (Turner, Beidel, & Larkin, 1986; Beidel, Turner, Dancu, 1985). Further, it seems that anxious individuals are more aware of these reactions, thus, will put more focus on them, and possibly assign a greater importance to them, and even rate them as more severe than non-anxious persons, even when the objective measures (heart rate, body heat, skin conductance) show no differences (Edelmann & Baker, 2002; Anderson & Hope, 2009). This reasoning is in line with Ken-
dall and Chansky (1991, p. 178) who suggest that “what differentiates anxious cases from normals is not the existence of intrusive thoughts, but the ability of nonanxious persons to readily dismiss them”. The same ideas have been proposed elsewhere (Muris & Ollendick, 2005; Puliafico & Kendall, 2006). Furthermore, a memory bias has been found in individuals with anxiety; when anxious children were asked to recall the ambiguous stories of a task such as this, they did not only recall the story, but also their own biased interpretation of it. That is, their recalled version of the story was longer, and had the ending that they themselves had added while they did the task. Yet another factor, is the strong belief phobic individuals report that the threatening situation will indeed be dangerous to them (e.g. Thrope & Salkovskis, 1995). These factors taken together could explain the similar scores on the interpretation task for anxious and non-anxious children, but the difference in anxiety by other measures. Further the findings might indicate that the tendency to “over-react” itself is not pathological, but the “bi-products” of the natural and adaptive fearreaction are.

In this study, another finding was a change in interpretation bias to the extent that the ratings of the clinical group no longer could be differentiated from non-anxious controls. This significant change was obtained one year after treatment termination. This means that the change had occurred after all other measures of anxiety had gone down significantly (as measured by post-treatment already). In cognitive models of anxiety, it is commonly suggested that fear is more easily elicited in anxious individuals because they over-react to neutral or low-threat stimuli, and a linear relationship is proposed: the biased interpretation of a stimulus situation leads to the activation of a “cognitive network underlying fear responding” (Davey, 2006, p. 100). A disproportionate amount of attention is allocated to ambiguous stimuli; both at a pre-attentive level, and at a conscious level, where threat cues are perceived in a more controlled way. Subsequently, as the stimuli are evaluated, people with pathological anxiety and phobias tend to interpret and judge them in a threatening, “biased”, way, and a causal relationship between anxious individuals’ biased interpretation of ambiguous stimuli and a fearful response is suggested (Daleiden & Vasey, 1997). A basic principle of Kendall’s (1985) theory of childhood anxiety is that aspects of cognitive processes need to be taken into account in order to understand childhood psychopathology. It is not unusual to find studies on interpretation bias where the finding of such a bias is posed as a confirmation of the cognitive models of anxiety (e.g. Muris, 2000; 2004).

It should be safe to suggest that the interpretation bias happens before a reaction of fear. The question is: what comes first? The anxiety, that leads to heightened arousal and proneness for biased interpretations, or the tendency to make the biased interpretations? If the design had been set to try and confirm a model that proposes a linear and causal relationship, it would hardly have been a success. The children in the study were significantly improved according to a variety of outcome measures after treatment. Still, after treat-
ment, the bias could be found in the children. When they were faced with the task of imagining a fearful situation, they still made biased interpretations of it. Not until a year later, at the subsequent measurement point, was this tendency normalized. By then, other measures of anxiety were further improved.

9.4. Clinical implications

There are a few clinical implications that can be drawn from our study. There will always be parent involvement in the treatment of childhood anxiety, but it seems that it is not necessary for that involvement to be very extensive. Under the condition that the child treatment includes at least some 12-16 sessions, it seems that parent involvement can be limited to information and updates on what goes on in treatment. This should be especially true for adolescents. Parent involvement does not harm, however, and for younger children parent involvement might be crucial to help them with homework and between-session exposure.

Even with patients that have one or more co-morbid disorder, a clinician can focus on the primary social anxiety disorder. By a simple scoring program calculating factor points, clinicians could use the SPAI-C to screen for fear-domains. Children with interaction fears are more likely to be more impaired by their SAD, and treatment can be expected to last longer. Children with only performance fears might not need as much treatment.

For some treatment gains to consolidate, practice is necessary. With the knowledge drawn from our treatment study and the study on threat interpretation bias, a clinician can safely say that further improvement can be expected over the course of a year. Patients may expect that fear can still be easily elicited in new social situations, but that this is by no means a setback, but something normal that can be expected.

9.5. Methodological considerations and limitations

There are a few limitations of this dissertation that deserves an extra mention. First and foremost, the issue of generalization of treatment results and transportability of the treatment is one of great importance. In a specialized
research clinic like the one where this study was carried out, there are several details that might hinder successful transportation and generalization. Such factors as specially trained assessors and therapists, and a controlled environment are clinic-specific factors. Another, very important, issue is the one of the readiness and motivation of the patients and families partaking in the treatment. In a research study like this, patients are either referred by school- or other child healthcare, or they find an advertisement in a paper that appeal to them. This means, that already when the families approach the clinic, they have some understanding of their problems. After the initial screening interview, families are aware that they are invited because they preliminarily fulfill the criteria for the disorder. That means, they have had time to consider the problem, the problem criteria, and have a rudimentary grasp of the treatment. There is a wide gap from this readiness for the problem formulation and time-consuming treatment, to what often happens in primary care settings when patients and families may present with somatic complaints and a school teacher that says the child must ‘stop being so withdrawn’. To address this issue, it is of vital importance that the patients in primary care are thoroughly informed about social anxiety disorder and the treatment, to enhance dedication to treatment, and prevent dropout.

Conducting a factor analysis on a sample small as the one in the psychometric study on SPAI-C (n = 59) is hazardous; the sample size hardly supports such an analysis to be made. Still, the practice in the field so far has been to accept studies of clinical samples although the sample sizes have been small, even smaller than in the current study. Because of the similarities found between studies of small, clinical samples and those made on large community samples, the results found in the small samples have high face value. Are these hazards reason enough not to perform an analysis at all? To enable a comparison at all, it was necessary to conduct a factor analysis although the sample was small. Naturally, the results must be interpreted with great caution. Because the findings of this study were in line with those made in small clinical samples, as well as in large community samples, it was deemed possible to use them for comparisons in a larger context.

The study of interpretation bias as measured by ambiguous stories is a hazardous field. Not only is the nomenclature confusing and flowery, the use of similar, but not identical assessment methods that are not tested psychometrically leads to the foundation for any finding becoming shaky. Both these factors make comparisons harder to carry out. By now, however, a large enough pool of findings is starting to build to enable relatively sound conclusions to be made despite the variety in labels and measurement methods. The tendency to interpret neutral stimuli as negative or threatening exists in anxious children to a larger degree than for non-anxious persons. In addition to the methodological considerations mentioned above, low power due to small sample size is important to mention in regard to all three studies. With low power, possible differences in samples are harder to detect. It is not unlikely that the small – or absent – differences between the
treatment conditions in the parent involvement study are in part due to low power. The highly standardized assessment process and the careful design, however, enhance reliability and power.

9.6. Looking towards the future

Is it indeed so, that child anxiety is affected by parent behavior and parent anxiety, while parents change their anxious behavior by effect of altered child behavior and anxiety only and not only when they have acquired new skills? It is tempting to interpret the results of the Cobham, Dadds, and Spence (1998) study in the light of the Silverman et al (2009) study. Could simultaneous treatment of child and parent become a mutually successful Ping-Pong game with enhanced improvement, where anxious children and their anxious parents benefit by each other’s improvement-process? This notion should be tested in future research, with an addition of process measures taken during ongoing treatment.

Should the issue be settled at last, whether or not there is added benefit of parent involvement in the treatment of childhood anxiety, there should be extreme stringency in the design of the forthcoming studies. The main contamination in the pool of studies is the wide variety of actual parent involvement as measured in time. What is the definition of “parent involvement” and “no parent involvement”? This issue must be carefully addressed in a future design. Further, the content of parent involvement needs to be addressed; what factors contribute to child anxiety, how do we address them in treatment, and how do we measure that we’ve targeted these factors? A future study must not only make sure to answer these questions, but also, make sure that outcome measures cannot be limited to child improvement by various raters. Whether or not the targeted behaviors have in fact changed in the way we assume they should, must be assessed at treatment termination.

Although the data was deemed insufficient to justify a new set of subtypes of SAD for the DSM-5, the factor analysis of SPAI-C gives results similar to studies of adult SAD. Three fear domains are consistently found and the overview of psychometric studies of SPAI-C shows that there are three fear domains present also in childhood SAD. Further, the results give at hand that the SPAI-C is clinically useful for screening these fear domains. Future studies should continue investigating SAD subtypes. Further, the cutoff score of 18 is notably low (on the 0-52 point scale), and it is not entirely clear if the sensitivity and specificity of this cutoff score are optimal. For these purposes, a revision of the scale is called for.

In the study on threat interpretation bias, the children were significantly improved on many measures post treatment, still they kept making biased interpretations when they were asked to imagine themselves in an actual
social, ambiguous situation. When the children were assessed anew at follow up, this tendency to make biased interpretations was no longer there. Considering normal and pathological fear-reactions, it is not unlikely that it is the ability to re-focus once fear has been elicited that differentiates “ongoing anxiety” (i.e. easily elicited fear with subsequent fear reactions) from more normal reactions to fear (i.e. almost as easily elicited, but then easily dismissed). If this is true, the children that came to post-treatment reacted normally when they heard the ambiguous stories (fear was elicited), but their ability to re-focus had not yet been put to practice enough so soon (about one week) after treatment termination. At one year follow up they had acquired this ability, possibly by repeated rehearsals. A thrilling aim for future research would be to describe this “ability to dismiss threat” in non-anxious persons in terms of behaviors, and test in a trial if anxious subjects benefit from acquiring the skills needed, i.e., if the result is faster or greater treatment gains.

9.7. Concluding remarks

Have we reached road’s end with the means of treatment we have today? Although the clinical trial that this thesis is based upon was carried out almost ten years ago, the findings from subsequent studies do not differ much when it comes to treatment effectiveness. Differences in effect sizes are small between trials that use various methods under the “CBT umbrella”. Focus on cognitions, or behavior skill, focus on individual treatment, or group treatment, addition of peer groups, parent groups, and even length of treatment seem to make little difference in the end. Why is it so? While we make sure to transport the solid means of treatment we have today to primary care, and assess their efficacy there, the research on treatment development cannot rest.

Methodology seems to be the sub-field where advances are truly made today. In the field of parent involvement, the question has been raised whether or not treatment affects the parent behaviors we believe are crucial for developing and maintaining anxiety. Further, the insight that outcome data cannot be limited to before-after assessments of improvement on measures that measure level of anxiety is important. A clinician’s rating and a diagnosis capture a unified measure where the child’s functioning and proactive, rather than reactive behavior is weighed in. Behavior tests, daily diaries of activity level, degree of avoidance/approach should be standardized and used across research and clinical fields. For example, interpretation of ambiguous situations seems to be a type of measure that holds face validity, and that could perhaps measure an aspect of anxious functioning that we can’t capture better in another way. By standardizing the ambiguous situation inter-
views across the fields, it could be so that we have found an improved way of getting to know anxiety and anxious functioning.

Child factors could be crucial to treatment success. What child-specific factors are important? A certain interpretation style could be crucial to how fast we gain new knowledge. We need to learn from the increasing neuro-biological research on how new memories are consolidated. If initial fear is too strong, some children might need to learn how to actively re-focus to a larger extent than other children. Children who are not as fearful during exposure might gain better results; could it be so that not only some, but all children can benefit from low-affect treatment? Children with autism spectrum disorders and other neuropsychological disorders might need slightly modified means of treatment delivery. Intelligence level might be a factor that affects treatment. We need to suit the treatment to the child, and not the child to treatment. In our clinical research pursuits, we cannot shy away from certain issues and important questions because they are uncomfortable to pose, if we want to work towards a goal of more effective treatment of social anxiety disorder in children and adolescents.
10. References


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