Social Anxiety Disorder in Swedish Adolescents

Prevalence, Victimization & Development

Malin Gren-Landell
"I'm the girl who did not dare to go to the local grocery-shop due to fear that someone would say hello to me, or that no-one would."

A brave socially anxious girl
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ABSTRACT

Human beings are social creatures. Accordingly, fear of social situations can be severely disabling. Social anxiety disorder (SAD) is characterized by excessive fear of negative evaluation in social or performance situations. SAD has an early onset and often goes undetected and untreated. Descriptive studies on non-clinical samples are required in order to find ways to prevent SAD and associated consequences. This thesis aimed at examining epidemiological variables of SAD in adolescence which is the critical period for onset of SAD. More exactly, issues of detection and prevalence, victimization and developmental course were addressed.

Data was collected in four different community samples, using cross-sectional and longitudinal designs. In the first study (n=169), psychometric evaluation of a screening questionnaire for use with adolescents was conducted. The second study (n=2128) investigated prevalence of SAD in students in grade 6-8 (age 12-14 years). In the third study (n=3211), the association between SAD and victimization in high-school students (aged 17) was investigated. Finally, in the fourth study (n=350), longitudinal associations between social anxiety and depressive symptoms were investigated, with 4 waves of data from grade 7 to grade 11.

Self-reported SAD was found among 4.4% of students in grade 6-8 and among 10.6% of high-school students. Females reported SAD to a significantly higher degree than males in all age groups. Experiences of peer victimization, maltreatment and sexual victimization were significantly more common in those reporting SAD than in non-cases. Social anxiety was stable over adolescence. Further, peer victimization in grade 7 predicted social anxiety that mediated subsequent depressive symptoms. In conclusion, self-reported SAD is common in Swedish adolescents and especially in girls and older adolescents. Social anxiety is stable over adolescence and correlated with depressive symptoms over course. The high prevalence rates, stable course and mediation of depressive symptoms call for early detection and prevention of social anxiety. The relationship between victimization and SAD needs to be investigated further in controlled prospective studies on children and adolescents.

Keywords: social anxiety disorder, adolescents, prevalence, victimization, peer victimization, developmental course.
Social fobi, även kallat social ångeststörning, utmärks av en handikappande rädsla för sociala situationer avseende interaktion eller prestation. Rädslan rör att bli negativt bedömd och att framstå som dålig i andras ögon. Social ångeststörning debuterar tidigt och förblir ofta ouppptäckt och obehandlad. Deskriptiva studier på icke-kliniska grupper behövs för att få kunskap om hur social ångeststörning och därtill relaterade negativa konsekvenser kan förebyggas. Föreliggande avhandling syftar till att undersöka epidemiologiska variabler som är associerade med social ångeststörning under ungdomsåren, vilket är den kritiska perioden för att utveckla de här besvären.

Data samlades in i fyra icke-kliniska grupper. I den första studien gjordes en psykometrisk utvärdering av ett screeningformulär för användning på äldre ungdomar. Den andra studien undersökte förekomst av social ångeststörning bland skolungdomar i årskurs 6-8 (12-14 år). I den tredje studien, på ett representativt urval av 3211 gymnasieelever (17 år), undersöktes om det finns ett samband mellan social ångeststörning och att ha varit offer för sexuella övergrepp eller kränkningar, fysisk misshandel, mobbing, konventionella brott (stöld etc) eller att ha bevittnat våld. I den fjärde studien slutligen, med longitudinell design, undersökte utvecklingen av social rädsla över tid i relation till utveckling av depressiva symptom och att ha blivit mobbad i årskurs 7.

Förekomsten av självrapporterad social ångeststörning var 4.4% i årskurs 6 till 8 och 10.6% bland gymnasieelever. Signifikant fler flickor än pojkar rapporterade social ångeststörning, i alla åldersgrupper. Erfarenheter av att ha blivit mobbad, illa behandlad av vuxna (misshandel, kränkningar, försommelse) och att ha varit utsatt för sexuella kränkningar och övergrepp var signifikant mer vanligt bland ungdomar som rapporterade social ångeststörning än hos dem utan. Social rädsla var stabil från årskurs 7 till andra året på gymnasiet. Vidare så predicerade mobbing i årskurs 7 social rädsla som i sin tur medierade senare depressiva symptom.

Sammanfattningsvis är självrapporterad social rädsla och social ångeststörning vanligt bland svenska ungdomar och särskilt bland flickor och äldre tonåringar. Föreliggande fynd visar att social rädsla är korrelerad med depressiva symptom över tid. Förhållandet mellan erfarenheter av sexuella övergrepp, fysisk misshandel och försommelse och social ångeststörning behöver studeras närmare i longitudinella, kontrollerade studier.
LIST OF PAPERS

This thesis is based on the original publications, referred to by their Roman numerals.


## ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ADHD</td>
<td>Attention deficit hyperactivity disorder</td>
</tr>
<tr>
<td>APA</td>
<td>American Psychiatric Association</td>
</tr>
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<td>APD</td>
<td>Avoidant personality disorder</td>
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<tr>
<td>AUC</td>
<td>Area under the curve</td>
</tr>
<tr>
<td>CES-DC</td>
<td>Centre of Epidemiological Studies – Depression scale for Children</td>
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<tr>
<td>DSM</td>
<td>Diagnostic and Statistical manual of Mental disorders</td>
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<tr>
<td>ICD</td>
<td>International Classification of Diseases</td>
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<tr>
<td>JVQ</td>
<td>Juvenile Victimization Questionnaire</td>
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<tr>
<td>LGM</td>
<td>Latent growth modeling</td>
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<tr>
<td>LR</td>
<td>Likelihood ratio</td>
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<tr>
<td>OR</td>
<td>Odds ratio</td>
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<td>ROC</td>
<td>Receiver operation characteristics</td>
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<tr>
<td>SAD</td>
<td>Social anxiety disorder</td>
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<tr>
<td>SCID-I</td>
<td>Structured Clinical Interview for DSM axis I Disorders</td>
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<tr>
<td>SPSQ-C</td>
<td>Social Phobia Screening Questionnaire for Children</td>
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<td>WHO</td>
<td>World Health Organization</td>
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INTRODUCTION

“The average person at a funeral would rather be in the casket than doing the eulogy”

Jerry Seinfeld

About this thesis

The well known comedian Jerry Seinfeld refers to the common finding that most people fear public speaking more than they fear death. Social anxiety is indeed a universal phenomenon that most people can relate to. At the same time, social anxiety can turn into a disabling condition called social anxiety disorder (SAD), also named social phobia. Socially anxious children receive little attention in school and health care and even in cases of severe impairment only a few see a clinician. SAD has an early onset in adolescence and is associated with high costs at the individual level but also at a societal level. It is of clinical importance to gain knowledge of how social anxiety can be effectively screened in young individuals, how social anxiety develops and what constitutes associated factors, in order to prevent SAD and long-lasting negative consequences. Adolescence thereby is a critical period for the study of SAD.

The present thesis focuses on the epidemiology of SAD in adolescence, looking into detection (study I), prevalence (study II), the relation to victimization (study III) and developmental course (study IV).

Concepts and definitions

Diagnostic criteria of social anxiety disorder

The diagnosis of SAD is based on a categorical classification and found in the section on anxiety disorders in the Diagnostic and Statistical manual of Mental Disorders, 4th edition and 4th edition text revision (DSM-IV, DSM-TR; American Psychiatric Association, 1994, 2000). Although anxiety disorders in
children and adolescents differ in between, they also share similarities and are commonly studied and described together in overviews and treatment studies (e.g. Dadds & Barrett, 2001; Rapee, Schniering, & Hudson, 2009; Soler & Weatherall, 2005). When it is relevant for the present thesis, references will be made to studies on childhood anxiety disorders in general.

Most studies on SAD are based on the DSM-classification which will be used in the present dissertation, instead of the criteria of the tenth revision of the International Classification of Diseases (IDC-10; World Health Organization, 1993). To date a developmental subtype of SAD is not supported by empirical evidence (Bögels et al., 2010) but some criteria are modified for use with children (see notes in Table 1) and a developmentally sensitive assessment is recommended (Morris, Hirshfeld-Becker, Henin, & Storch, 2004). The diagnostic criteria of SAD are referred to as social phobia in the DSM-IV. It is proposed that the term will be changed into social anxiety disorder and for this reason the term SAD will be used throughout the thesis.

Table 1. Diagnostic criteria for social phobia (social anxiety disorder) in DSM-IV

A) 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.

B) 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.

C) The person recognizes that the fear is excessive or unreasonable. Note: In children, this feature may be absent.

D) The feared social or performance situations are avoided or else are endured with intense anxiety or distress.

E) 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 and relationships, or there is a marked distress about having the phobia.

F) In individuals under the age of 18 years, the duration is at least 6 months.

G) 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.

H) If a general medical condition or another mental disorder is present the fear of criterion A is unrelated to it.

Specify if: Generalized: if the fears include most social situations (also consider the additional diagnosis of avoidant personality disorder)
Subtypes of SAD

The diagnosis of SAD in the DSM-IV (American Psychiatric Association: APA, 1994) allows for specification of a generalized form of SAD, defined as fear of most social situations. However, it is debated if SAD should be divided into subtypes (e.g. Wittchen & Fehm, 2003; Vriends, Becker, Meyer, Michael, & Margraf, 2007) and clear evidence of subtypes has been missing (Rapee & Spence, 2004). In addition, precise operational definitions of subtypes of SAD are lacking and as different definitions are used, comparisons between studies are difficult to conduct (Bögels et al., 2010). In conclusion, it is suggested to eliminate the generalized subtype in the forthcoming 5th edition of the DSM (Bögels et al., 2010). However, recent studies on other subtypes than the generalized form support a division of social fears into public speaking/performance and social interaction and observation (Blöte, Kint, Miers, & Westenberg, 2009; Bögels et al., 2010). A performance subtype is therefore proposed to replace the generalized subtype in the next edition of the DSM (Bögels et al., 2010).

Subtypes of SAD in children and adolescents are less well studied compared to subtypes in adults (Velting & Albano, 2001). One recent exception is a study by Sumter and Westenberg (2009). In their study, social fears were divided into fear of 1) formal speaking and interaction 2) informal speaking and interaction and 3) observation. By this division the authors were able to detect differences between age groups by types of fear. Namely, higher rates of distress and avoidance was found for fears of formal speaking and interaction in adolescents aged 15-17 years compared to younger age groups. Thus, division of social fears into subtypes may be of special value in understanding developmental pathways.

Subtreshold SAD

It is argued that SAD is better conceptualized on a continuum of severity based on number of fears and/or avoidance of social situations, than as subtypes and the use of a dimensional level is recommended in empirical studies and in clinical work (Brown & Barlow, 2005; Furmark, 2002; Merikangas, Avenevoli, Acharyya, Zhang, & Angst, 2002; Rapee & Spence, 2004). It is proposed that a dimensional measure should be added to the categorically defined diagnoses, including SAD, in the DSM-V (Brown & Barlow, 2005; Bögels et al., 2010).
In comparison to other anxiety disorders, prevalence rates of SAD vary greatly between studies due to, among other factors, inclusion or exclusion of criteria of impairment (Brown & Barlow, 2005; Canino et al., 2004; Cartwright-Hatton, Hodges, & Porter, 2003; Wittchen & Fehm, 2003). Although impairment constitutes a criterion of the diagnosis of SAD, sub-threshold SAD is also associated with distress and impairment (Essau, Conradt, & Petermann, 1999; Fehm, Beesdo, Jacobi, & Fiedler, 2008; Van Roy, Kristensen, Groholt, & Clench-Aas, 2009). Including cases of sub-threshold SAD are therefore relevant in the research field of SAD.

**Social fears**

Social fears are part of a normal development (Ollendick & Hirshfeld-Becker, 2002). In a non-clinical sample of adolescents aged 12-17, nearly 50% reported at least one social fear (Essau et al., 1999). The most common social fears are related to school primarily fear of reading aloud in front of the class, musical or athletic performances or joining in on a conversation (Kearney, 2005). Also in clinical groups fear of public speaking and other school-related situations are most commonly endorsed (Beidel, Turner, & Morris, 1999; Rao et al., 2007; Strauss & Last, 1993). As mentioned earlier, which kind of situations are most feared (Sumter, Bokhorst, & Westenberg, 2009), and level of fear ratings (Rao et al., 2007) vary with age.

**Phenomenology of SAD in children and adolescents**

“To have to fulfil others’ expectations is among the most difficult things I know. To live with the fault, with not being good enough and to make others’ disappointed”

The core fears of SAD involve concerns about social evaluation and negative expectations about being scrutinized and negatively evaluated because of a person’s anxiety symptoms, certain behavior or appearance. Cognitive, physiological and behavioral symptoms of SAD in childhood and adolescence are described below.

Behavioral symptoms of SAD mainly consists of avoidant behaviors (Essau et al., 1999). Children with SAD typically avoid athletics lessons, going to disco, eating in the school dining-hall and giving oral reports. Avoidance
may be more obvious in later ages when it is harder to push children into situations they hesitate to approach, compared to younger children who may not as easily avoid without parental consent. However, avoidant behavior can be less overt in SAD compared to other phobias (Bögels et al., 2010). So called “safety behaviours” constitute more subtle avoidance, like wearing certain clothes to cover symptoms of nervousness or to sit in the back of the classroom to avoid attention.

Typical cognitions in subjects with SAD are negative expectations of behaving in an embarrassing way. Children and adolescents with SAD, tend to overestimate danger in ambiguous situations (Bögels & Zigterman, 2000) and highly socially anxious children and adolescents more easily and more frequently perceive threats and make negative interpretations of ambiguous social situations (Miers, Blöte, Bögels, & Westenberg, 2008; Muris, Merckelbach, & Damsma, 2000). Youths with SAD also tend to be excessively self-conscious, focus on physiological arousal, easily notice indication of negative evaluation and underestimate their own competence (Kearney, 2005).

The physiological reactions involved in children and adolescents with SAD, are similar to those in other anxiety disorders, namely increased heart rate, shortness of breath, blushing, sweating, trembling and muscle tension (Essau et al., 1999). Somatic complaints like stomach aches and headaches are also common (Beidel et al., 1999).

Manifestation and expression of SAD vary due to developmental phase and the phenomenology of SAD should be considered in a developmental context (e.g. Albano, 1995; Albano & Hayward, 2004; Alfano, Beidel, & Turner, 2006). Overall, in young children somatic complaints, clinging, crying and whining are common manifestations (Albano & Hayward, 2004). Oppositional behavior is described in socially phobic children in early childhood though it is uncertain whether this is best understood as comorbid externalizing symptom or expression of a strong social fear with a marked attempt of avoidance (Beidel et al., 1999). The consequences and impairment of SAD may though be more salient than the symptoms, see next section.

**Impairment**

“I would rather die hungry than to give myself to the wolfs”

The quote comes from a socially anxious girl who is attending a concert and becomes terribly hungry. She cannot overcome the fear associated with
ordering a hamburger and without help from a friend she would have had to stay hungry. Indeed, social anxiety interferes with daily life as is shown by the above example and threshold and subthreshold SAD is associated with substantial impairment (Essau et al., 1999; Wittchen, Stein, & Kessler, 1999). In children and adolescents, underachievement in school and dropping out from school prematurely are of particular concern (Van Ameringen, Mancini, & Farvolen, 2003; Van Roy et al., 2009). Short-term and long-term school refusal is seen in children and adolescents with SAD (Heyne & King, 2004; Kearney, 2005; Weeks, Coplan, & Kingsbury, 2009).

Referred children with SAD tend to have few or no friends and to avoid extracurricular activities (Beidel et al., 1999) and the same results are seen in non-referred children. In one study on children up to age 13, socially anxious children had fewer friends, were participating less in extracurricular activities and were bullied and/or neglected to a higher extent than children without significant social anxiety (Van Roy et al., 2009). In another study including children of 7-8 years of age, socially anxious children reported significantly more loneliness, school avoidance and liked school less than non-anxious children (Weeks et al., 2009). Marked avoidance in turn, may hinder socially anxious adolescents to face important developmental challenges as they avoid going into situations that are typical of adolescence like dating, gaining independence from parents, having a work outside of school, travel etc (Kearney, 2005).

Related concepts

In the section below constructs that are related to SAD and common in childhood will be described. These concepts show similar manifestations and are overlapping, though not interchangeable with SAD. Also, similar negative consequences as in SAD are seen, like substance abuse, academic impairment, school refusal, anxiety, depression and loneliness (Greco & Morris, 2001; Rubin, Coplan, & Bowker, 2009).

Shyness

Shyness is described as discomfort and inhibition in novel social situations and fear of negative evaluation in social situations (Crozier, 1990). Shyness involves similar cognitions, behavioral responses and physiological reactions
as in SAD. However, prevalence rates of shyness are higher than those of SAD and shyness is considered a non-pathological condition (Turner, Beidel, & Townsley, 1990). As shyness is used as a lay term and most people can admit feeling shy in some situations, definitions are hard to capture. Prominent researchers on shyness find it “a fuzzy concept” and “not a precise term” (Crozier, 2000).

**Social withdrawal**

Social withdrawal is defined as frequently refraining from social activities when peers are present (Rubin et al., 2009). The person withdraws from others and is not rejected or isolated, though socially withdrawn children easily become targets of rejection and peer victimization (Rubin et al., 2009). Anxiety and fear of evaluation is not necessarily involved in social withdrawal.

**Selective mutism**

Selective mutism is a psychiatric diagnosis, restricted to children up to age 18, characterized by “persistent failure to speak in social situations (e.g., in school, with playmates) where speaking is expected” (APA, 2000, p.125). The reported prevalence rates of selective mutism are low, about 0.2-0.7% and as most 1.9% (Viana, Beidel, & Rabian, 2009). There is considerable overlap with SAD and selective mutism is considered as an extreme form of SAD (Black & Uhde, 1995). There are also findings that do not support this view, see Viana and colleagues (2009) for a review. Still, it is considered to modify the diagnostic criteria of SAD to include “refusal to speak” (selective mutism) as an extreme form of avoidance, comparable to school refusal (Bögels et al., 2010).

**Avoidant Personality Disorder**

In adults, considerable overlap between SAD and avoidant personality disorder (APD) is reported (Bögels et al., 2010). However, APD is not diagnosed in young individuals and no further descriptions will be given in this thesis.
Detection

“I use to sit close to the wall in the classroom to make myself invisible... To raise my hand is to ask for attention and that is as stupid as jumping in front of a train.”

This girl describes that the teachers have always said to her “I know that you can, why don’t you show it?” Social anxiety in children and adolescents is indeed poorly recognized by school personnel and parents (Kashdan & Herbert, 2001). Also primary pediatric care providers often fail to identify SAD despite the fact that SAD is a common condition in primary care (Chavira, Stein, Bailey, & Stein, 2004). According to the practice parameters of the American Association of Child and Adolescent Psychiatry (Connolly & Bernstein, 2007), routine screening for anxiety symptoms is recommended in children and adolescents during the initial mental health assessment due to the high prevalence of anxiety disorders and it is recommended that the screening is based on DSM-IV criteria. The use of a reliable and valid, brief screening instrument in primary care pediatric settings has shown to facilitate the detection of SAD in adolescents (Bailey, Chavira, Stein, & Stein, 2006).

The most commonly used self-report instruments for assessment of SAD in children and adolescents are the Social Phobia and Anxiety Inventory for Children (SPAI-C; Beidel, Turner, & Morris, 1995), the Social Anxiety Scale for Children – Revised (SASC-R; LaGreca & Stone, 1993) and the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1997) which all offer a categorical as well as a dimensional measure.

However, there is to date no screening questionnaire based on the DSM-IV criteria of SAD intended for Swedish adolescents. The Social Phobia Screening Questionnaire (SPSQ) has shown good psychometric properties in adults (Furmark et al., 1999) and it has been modified for use with children and adolescents; The Social Phobia Screening Questionnaire for children (SPSQ-C). The SPSQ-C offers a dimensional measure as well as a categorical. It includes information on impairment and duration of reported social anxiety. However, it remains to be psychometrically evaluated for use in populations of children and adolescents.
Age of onset

Onset of SAD is in early to middle adolescence between 10 to 17 years of age. However, is concluded that SAD can reliably be established as a diagnosis from the age of 6 and a valid diagnosis at least from age 9 (Bögels et al., 2010). New cases are rarely developed after the midst of 20 years (Beesdo et al., 2007), emphasizing the characteristics of an early appearing disorder. No differences in age of onset between the sexes have been reported (Beesdo et al., 2007).

Certain aspects of cognitive maturation that takes place during adolescence may account for the onset of SAD during this period (Westenberg, Drewes, Goedhart, Siebelink, & Treffers, 2004). The cognitive capacity of taking others’ perspective usually develops during this developmental phase which means that one can evaluate oneself in comparison to others which, in turn, can cause concerns about negative evaluation from others.

Another factor of importance for onset of SAD is the tremendous increase of social challenges during adolescence with daily scrutiny from peers and teachers. There is an increasing and heavy emphasis on appearance and performance, and typical developmental tasks involves attracting others. During this developmental period a switch from reliance on parents to reliance on relationships with peers and romantic relationships also takes place (Albano, 1995).

Besides that fear of social evaluation increase during adolescence (Weems & Costa, 2005; Westenberg et al., 2004), adolescents (15-17 years) report significantly higher degrees of avoidance than younger children do (Sumter et al., 2009). As social interaction becomes more important during adolescence increases in interference on life may account for the onset at this developmental period rather than increases in level of social distress (Rapee & Spence, 2004).

From a theoretical point of view, the psychosocial theory of Loevinger has been used to explain the timing of development of different fears in children and adolescents (see, Westenberg, Siebelink, & Treffers, 2001). Social fears can be related to the so called conformist level in an ego-developmental process (Westenberg et al., 2004). The conformist level, appearing in adolescence, is characterized by a focus to meet demands from a normative group that the individual refers to. Any self-perceived failure to do so may result in self-blame. At this developmental level, dangers are internal contrary to earlier stages where fear emanates from external sources.
Prevalence

Lifetime prevalence rates of SAD, based on criteria of the DSM-III (American Psychiatric Association, 1980), DSM-III-R (American Psychiatric Association, 1987) and DSM-IV (American Psychiatric Association, 1994), vary greatly from 3.9 to 13.1%, in studies on adult samples from western communities (Furmark, 2002; Ruscio et al., 2007). It is concluded that SAD is the third most common psychiatric disorder in adult samples (Kessler et al., 1994).

Prevalence rates (12 months) in children and adolescents from 6-17 years range from 1.6-5.6% (Essau et al., 1999; Lieb et al., 2000; Ranta, Kaltiala-Heino, Rantanen, & Marttunen, 2009; Wittchen et al., 1999). In a community sample of adolescents aged 13-18 years, a six months prevalence rate of DSM-III-R of 9.2% (combined child and adolescent report) was found and SAD was among the most common disorders in that study (Verhulst, Van der Ende, Ferdinand, & Kasius, 1997). Higher rates, 7-15% have been found in studies including participants from age 15 to 24 (Kessler et al., 1994; Magee, Eaton, Wittchen, McGonagle, & Kessler, 1996; Sonntag, Wittchen, Höfler, Kessler, & Stein, 2000). The great variability in prevalence rates, due to methodological and cultural reasons, makes it difficult to draw conclusions on true prevalence rates of social anxiety and SAD in non-clinical groups. Hopefully, the new edition of the DSM-criteria will offer more guidance by clear operational definitions like a change of the term “marked” fear into “intense” fear. Also, different fears will hopefully be better defined by more examples of what constitute situations of interaction, observation and performance (Bögels et al., 2010).

While the epidemiological knowledge of SAD in adults “is fairly complete, further research is clearly required with regard to prevalence studies in children under the age of 16 years” (Wittchen & Fehhm, 2003). Reports on mental health in the Swedish general population and in other countries during the last decades, show an increase of internalizing symptoms such as anxiety and depression, in all age-groups and for both genders (Blom, Larsson, Serlachius, & Ingvar, 2009; SOU, 2006). Specific data on the prevalence of SAD in Swedish adolescents are missing though. Given reports of increasing mental health problems without specific data on SAD, developmental epidemiological studies are crucial in order to gain knowledge of how to prevent psychiatric illness (Costello, Egger, & Angold, 2005).
Sociodemographics

Sex

The aims of the present studies are to report on prevalence of SAD due to being either male or female. Accordingly it is considered appropriate to use the term sex (The Swedish Research Council, 2004) and to use term gender when referring to male and females as social groups (APA).

No differences between boys and girls have been reported in young children (aged 7-8 years) with symptoms of social anxiety (Weeks et al., 2009). Sex differences in prevalence of SAD emerges around age 13 (Bittner et al., 2007; Van Roy et al., 2009) with more girls than boys reporting SAD (Canino et al., 2004; Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Essau, Conradt, & Petermann, 2000; Verhulst et al., 1997). A female preponderance of 3:2 is reported in adults (Furmark, 2002).

Differences between males and females may be limited to fear of certain social situations. For example, when investigating sex differences closer it was found that only fear of “doing something in front of others” was more common in females than in males (Essau et al., 1999). A similar result was found by Sumter and colleagues (Sumter et al., 2009). However, in the study of Wittchen and colleagues (1999) higher rates were found in females on all measured social fear situations. The development of self-consciousness is suggested to be one condition related to the onset of SAD and self-consciousness is reported to be more pronounced in girls (La Greca & Lopez, 1998). In this way, concern about physical appearance and others’ opinions, may explain the greater fear in females of doing something in front of others.

The above example is one possible explanation of higher rates of social fear in girls. However, specific models explaining sex differences in prevalence of SAD are missing. Theoretical models on sex differences in internalizing disorders during adolescence are though emerging (Zahn-Waxler, Shirtcliff, & Marceau, 2008). Support for biological factors in affective and mood disorders mainly comes from animal studies and studies on adult populations (Lager, 2009). In studies on children and adolescents, an association with puberty and hormonal changes was found in girls with depressive symptoms as well as with anxiety symptoms (Altemus, 2006; Angold, Costello, Erkanli, & Worthman, 1999). Social anxiety and puberty onset was studied in one cross-sectional study which found that advanced pubertal development was associated with heightened levels of social anxiety in girls but not in boys (Deardorff et al., 2007). Another study showed an association between
pubertal status and timing and social anxiety, both in boys and girls aged 10-12 (Ge, Brody, Conger, & Simons, 2006). Early physical development can lead to unwanted sexual attention and body dissatisfaction where girls are more prone to negative self-evaluation and being more sensitive to others’ opinions regarding appearance and behavior, as mentioned earlier. The role of hormones and other biological factors in the etiology of SAD remains to be further studied.

The increasing rate of internalizing disorders in girls during adolescence has also been linked to interpersonal stress which becomes more pronounced during adolescence (Nolen-Hoeksema & Girdus, 1994). Girls are more oriented towards interpersonal goals like connection and perceive negative experiences in these domains as more stressing than boys do (Hayward & Sanborn, 2002; Rose & Rudolph, 2006; Rudolph, 2002).

Co-rumination is a construct that has gained interest in studies on gender differences in anxiety and depression. It means to dwell on problems and focus on negative feelings together with another person (Rose, Carlson, & Waller, 2007). It is more common that girls than boys ruminate with a friend (Rose, 2002) or that a mother ruminates with her daughter than her son (Waller & Rose, 2009). Girls tend to have closer relationships with friends than boys have which can buffer against emotional problems. At the same time, a close relationship that includes co-rumination also means increased risks of anxiety and depressive symptoms (Rose & Rudolph, 2006). It may be that co-rumination reinforces avoidance and negative feelings, thus explaining higher rates of social anxiety in girls. This remains to be empirically tested though.

Finally, higher exposure to certain forms of victimization in females is proposed to contribute to higher prevalence rates of anxiety and depression in adult women (Lager, 2009). Childhood sexual abuse and an increased risk of SAD in females are reported (Dinwiddie et al., 2000) though it is premature to explain a female preponderance of SAD with higher rates of victimizing experiences (Hayward & Sanborn, 2002).

In conclusion, theories and empirical evidence on sex differences concern depression and anxiety symptoms in general. However, models and empirical evidence for differences in SAD are largely missing.

**Urbanization**

Little data exist on the effect of urbanization in samples of children and adolescents with social anxiety or SAD. A cautious conclusion is that rural or
urban status is not a significant correlate of childhood SAD (Angold et al., 2002; Beesdo, Knappe, & Pine, 2009; Canino et al., 2004).

Ethnicity

Ethnicity of the child and/or parent(s) is not reported as a discriminative factor for the prevalence of SAD in a multicultural society (Kearney, 2005; Keenan, Feng, Hipwell, & Klostermann, 2009; Siegel, La Greca, & Harrison, 2009). However, in a clinical group of children with SAD a trend towards lower levels of social anxiety was found in African-American children (Beidel et al., 1999).

Family status

Epidemiological studies on adults show that SAD is associated with low income levels, lower educational attainment and being unmarried (Furmark, 2002). No support have been reported for significant differences in parental educational level, household income, civil status in children and adolescents with SAD or significant social anxiety compared to non-socially anxious children using community studies (Canino et al., 2004; Chartier, Walker, & Stein, 2001; Ranta, Kaltiala-Heino, Rantanen et al., 2009; Van Roy et al., 2009; Weeks, 2009). However, Tiet and colleagues (Tiet et al., 2001) found lower parental income status in a clinical group of boys with SAD.

In conclusion, support for socio-demographic characteristics of SAD in non-clinical groups of children and adolescents is sparse and results are inclusive. Only sex seems to be clearly related to higher rates of SAD in adolescents.

Comorbidity

High rates of comorbidity are seen in community samples of children and adolescents with SAD and especially there is strong comorbidity with depression, with about 30-50% of especially older adolescents with SAD reporting depressive symptoms (Essau et al., 1999; Marmorstein, 2007; Nelson et al., 2000; Ranta, Kaltiala-Heino, Rantanen et al., 2009; Wittchen et al., 1999). The high comorbidity rates and similarities in phenomenology reflect that
SAD and depression are related constructs. Depression and anxiety are however also distinct constructs (Hale, Raaijmakers, Muris, van Hoof, & Meeus, 2009).

Comorbidity with other psychiatric disorders is common in both clinical (Beidel et al., 1999) and community samples, with up to 40% of children with SAD reporting a second diagnosis of primarily another anxiety disorder (Beidel et al., 1999; Essau et al., 2000; Ranta, Kaltiala-Heino, Rantanen et al., 2009; Wittchen et al., 1999). Also, comorbidity with somatoform disorders is reported (Essau et al., 1999) and with attention deficit hyperactivity disorder (ADHD) in community studies (Bittner et al., 2007; Marmorstein, 2007; Van Roy et al., 2009) and in clinical groups (Beidel et al., 1999; Rao et al., 2007). Besides comorbidity with ADHD, comorbidity with other neuropsychological conditions or learning disability has been very sparsely addressed. One study with a small sample size investigated early childhood language impairment in children with SAD and found some support for the prediction of SAD (Voci, Beitchman, Brownlie, & Wilson, 2006).

Development and outcome

In longitudinal studies on anxiety disorders in community samples of children and adolescents, SAD is reported to be stable and even more stable than other anxiety disorders (Bittner et al., 2007; Ferdinand, Dieleman, Ormel, & Verhulst, 2007; Hale, Raaijmakers, Muris, van Hoof, & Meeus, 2008; Hayward et al., 2008; Pine, Cohen, Gurley, Brook, & Ma, 1998; Van Oort, Greaves-Lord, Verhulst, Ormel, & Huizink, 2009). Findings from a pediatric clinical sample of young children showed that SAD had the highest diagnostic stability compared to other childhood psychiatric disorders (Carballo et al., 2009).

Although high stability of SAD is reported, symptoms of SAD also show discontinuity. In a longitudinal study of young adults (aged 14-17 at baseline) it was found that SAD was waxing and waning over 19 months (Wittchen, Lieb, Pfister, & Schuster, 2000). This conclusion is similar to that of Merikangas and coworkers, in a 15-year prospective community study on young adults with SAD (Merikangas et al., 2002).

In prospective studies on anxiety disorders in children report remission from an initial anxiety diagnosis is reported in clinical samples (Last, Perrin, Hersen, & Kazdin, 1996) and in community samples (Pine et al., 1998). It should be noted though that development of another anxiety disorder later is not uncommon (Bittner et al., 2007; Van Oort et al., 2009).
Temporal comorbidity of SAD and depression is reported, and most studies have found that SAD predicts later depression (Beesdo et al., 2007; Essau, Conradt, & Petermann, 2002; Nelson et al., 2002; Stein et al., 2001) though one study did not find support for the prediction of depression from SAD (Bittner et al., 2007).

Besides the secondary development of depression, SAD is also associated with other serious negative outcomes and role impairments. Prospective studies of SAD in adolescence show that SAD is a unique predictor of later alcohol and cannabis dependence (Buckner et al., 2008; Zimmerman et al., 2003) and with onset of heavy smoking (Sonntag et al., 2000). SAD also predicts suicidal behaviors in older adolescents and young adults (Boden, Fergusson, & Horwood, 2007; Stein et al., 2001). One study reported that females with SAD show higher rates of teenage childbearing than controls (see, Kessler, 2003). As mentioned earlier, adults with SAD retrospectively report leaving school prematurely (Van Ameringen et al., 2003).

Predictors of developmental course

Few studies have addressed what predicts persistence and outcome of SAD in children and adolescents. In one longitudinal study on non-referred adolescents with SAD it was found that lack of emotional warmth and dysfunctional family functioning (reported by adolescents and parents) alone and in combination with parental psychopathology predicted persistence of SAD (Knappe et al., 2009).

There is more knowledge of factors influencing the course or outcome of SAD in adults than in children (Keller, 2003). For example, De Wit and colleagues (DeWit, Ogborne, Offord, & MacDonald, 1999) found that in a community sample of participants aged 15-64 years those with one fear were 3 times more likely to recover than those endorsing 4 or more fears.

Taken together, most studies show a stable developmental course of SAD in children and adolescents. There are also reports of a discontinuous course and symptoms waxing and waning along a continuum of subthreshold and threshold levels. Only a few longitudinal studies have exclusively examined the development of SAD during adolescence, taking into account potential predictors of developmental course. Of special interest are studies that allows for modeling change on an intraindividual level as well as an interindividual
level and the study of directionality of effects between factors over course. Extended knowledge of predictors of developmental course and persistence of SAD are crucial in order to prevent negative outcomes.

Aetiology

Developmental psychopathology constitutes a valuable framework for understanding of the development, persistence and amelioration of SAD. The main tenets of this theory are 1) the dynamic transaction of risk and protective factors, 2) the necessity to study both normal development and unsuccessful adaption to understand psychopathology, and finally 3) to consider the role of developmental phase in studies of psychopathology (Vasey & Dadds, 2001). No factor is thus necessary or sufficient to explain the development of SAD. Instead a multifactorial approach with a reciprocal interaction between environmental and biological factors is emphasized (Ollendick & Hirshfeld-Becker, 2002; Rapee & Spence, 2004). Knowledge about the exact nature of factors and how they interact is still missing though it is proposed that multiple pathways exist (Albano & Hayward, 2004). A short review of factors that so far have got most empirical support, selected factors that need to be further studied and those related to the present studies, are described below. Even factors that have not been investigated in this thesis will be presented in accordance with the view that SAD develops through interaction between different factors and thus knowledge of other crucial variables are of interest.

Risk factors

Genetics

Evaluation of genetic contribution is best informed by twin-studies or by molecular genetics. A concordance rate of 24.4% for female monozygotic twins was reported in one large well-cited study, suggesting that there is a genetic predisposition for SAD (Kendler, Neale, Kessler, Heath, & Eaves, 1992). Evidence from family risk studies show that parental SAD (and other psychiatric disorders like depression) is associated with an increased risk of SAD in offspring (Lieb et al., 2000; Mancini, van Ameringen, Szatmari, Fugere, & Boyle, 1996). It is concluded that genetic components play a significant but
modest role with estimates around 0.4-0.5 (Ollendick & Hirshfeld-Becker, 2002; Rapee & Spence, 2004). Accordingly, other factors must therefore play a role. In examining the role of genetics, studies on temperamental characteristics are informative.

**Temperament**

Behavioral inhibition (BI) is a temperamental style characterized by hesitant behavior, fear and avoidance of unfamiliar situations and people. These reactions are shown in response to novelty of any sort, social or not (novel objects, peers, adults, settings), compared to shyness, where fear and avoidance are typically related to social situations only. Early, stable and high levels of BI in early childhood predicts increased risk for lifetime SAD in children (Biederman et al., 2001) and adolescents and young adults (Bohlin & Hagekull, 2009; Essex, 2010; Hayward, Killen, Kraemer, & Taylor, 1998).

Questions that remain to be answered are whether BI and SAD represent different constructs or the same construct and whether BI is a specific risk factor of SAD or of other internalizing disorders as well (Rapee, 2010).

**Parenting**

There is empirical support for the contribution of parental factors in relation to other risk factors like temperament. Studies on childhood anxiety disorders in general show that parental influence includes modeling of fear and reinforcing avoidant behavior (Hudson & Rapee, 2001). Children can also learn from parents to have negative expectations on the outcome of social situations and on being negatively evaluated by others.

Different aspects of parenting in persons with SAD have been examined like overprotection, rejection, level of warmth/affection, parents’ concern with others’ opinions, parental shame of the child’s shyness and using shaming as a discipline (e.g. Majdandzic, de Vente, & Bögels, 2010; Rapee, 1997). Non-retrospective studies show an association, although small, between parental control and overprotection and anxiety disorders in children including SAD (Hudson & Rapee, 2001). An association between SAD and “family sociability” i.e. parental social isolation of the family, and accordingly the child, has also gained support (Bögels, van Oosten, Muris, & Smulders, 2001; Caster, Inderbitzen, & Hope, 1999). Masia and Morrris (Masia & Morris, 1998) found
that parents with SAD less frequently arrange for children to meet with other children. Parents isolating the family and the child, due to social anxiety, may decrease the opportunities for the child to develop social skills which may in turn, lead to higher levels of uncertainty and anxiety in social situations.

Parenting needs to be viewed in the light of characteristics in the child. For example shyness in the child can elicit protective behavior from a parent (Rapee & Spence, 2004). To complicate things further, Rubin (1999) found that the way parents perceive their child will determine parental rearing style, i.e. the child as shy in the parents’ eyes but not in others’.

As mentioned earlier, there is moderate contribution of heritability for the onset of SAD but parental psychopathology is in many cases involved in the parenting styles like overprotection.

In summary, reciprocal effects of parental overprotection, social isolation and behavioral inhibition may contribute to maintenance and exacerbation of SAD. Longitudinal prospective studies are warranted for a better understanding of the contribution of parenting in relation to other factors, for the development or maintenance of SAD in children.

**Victimization**

There are a wealth of studies that have examined the psychological effects of negative experiences and a variety of concepts are used to denote such experiences, e.g. “trauma”, “victimization”, “negative life events” and “adverse experiences”. Victimization referred to in the present thesis can be defined as “harm that comes to individuals because other human actors have behaved in ways that violate social norms” (Finkelhor, 2008; p. 23;). Events included in what is considered victimization in children and adolescents are maltreatment, crimes and non-crimes (Finkelhor, 2008). Trauma on the other hand includes reactions to events like traffic accidents and natural disasters that were not considered relevant for the study of SAD. Negative or adverse life events embrace a wide range of events varying in meaning and severity which limits the theoretical value. The concepts of trauma and victimization are both problematic due to that both definitions depend on the individual’s reaction to the event making all kind of events potentially victimizing or traumatizing. However, victimization was considered the most appropriate concept for the studies of SAD due to the interpersonal and social characteristics.
Retrospective studies on adults show some support for an association between SAD and different forms of maltreatment and victimization in childhood or negative life events of various types in adulthood (Bandelow et al., 2004; Chartier et al., 2001; Dinwiddie et al., 2000; Magee, 1999; Marteinsdottir, Svensson, Svedberg, Anderberg, & von Knorring, 2007; Nelson et al., 2002; Simon et al., 2009; Stein et al., 1996). However, besides the study of Chartier and colleagues (2001) that included subjects from the age of 15 years and studies on peer victimization, studies on other forms of victimization and concurrent reports of SAD are missing.

There is growing support for the importance of studying multiple experiences of victimization instead of a single experience (Allen, Rapee, & Sandberg, 2008; Finkelhor, Ormrod, & Turner, 2007; Kessler, Davis, & Kendler, 1997; Suliman et al., 2009; Turner, Finkelhor, & Ormrod, 2006). Prognosis after a first victimizing experience is generally favourable (Copeland, Keeler, Angold, & Costello, 2007) but one victimizing event is often followed by multiple and different types (Finkelhor, Ormrod, Turner, & Hamby, 2005; Goodyer, 1994). Therefore, it is recommended to measure multiple victimization. In the present thesis multiple victimization refers to a victimization experiences of different types of victimization and not only repeated experiences of one type of event.

In conclusion, there is some empirical support for an association between victimization in childhood and later development of SAD. However, evidence consists mainly of retrospective studies and concurrent studies on multiple victimization and SAD in children and adolescents are missing.

Peer victimization

Peer victimization constitutes one type of victimization, but tends to be a research field separated from studies on other victimizing events. Theoretically, peer victimization may be of special interest in studies on SAD due to the interpersonal characteristics. Experiences of peer victimization, also called bullying, are common in children (La Greca & Harrison, 2005; Ranta, Kaltiala-Heino, Pelkonen, & Marttunen, 2009). During the adolescent years there is an emphasis on being part of a group and the risk of being excluded from the social group can be perceived as particularly distressing during this period and presumably be related to an outcome of SAD (Bokhorst, Westenberg, Oosterlaan, & Heyne, 2008). Cross-sectional studies on children
and adolescents show that peer victimization is related to social anxiety (Storch, Masia-Warner, Crisp, & Klein, 2005; Vernberg, Abwender, Ewell, & Beery, 1992) but also to other conditions like depression (Bond, Carlin, Thomas, Rubin, & Patton, 2001; Hawker & Boulton, 2000).

Only a few prospective studies have investigated the temporal relationship between peer victimization and social anxiety. Support for peer victimization preceding social anxiety has been reported (Erath, Flanagan, & Bierman, 2007; Siegel et al., 2009). Less empirical support exists for social anxiety preceding peer victimization though a reciprocal relationship would be expected. Socially anxious children though tend to be maltreated by peers (LaGrec & Lopez, 1998) and it has been assumed that this partly is due to deficits in social skills, described in the next section.

**Social skills deficits**

Social skills deficits have been considered to contribute to the development of SAD (Spence, Donovan, & Brechman-Toussaint, 1999). Support for this approach has been revised later as some studies have not found evidence for deficits in social skills among people with SAD (Alfano et al., 2006; Cartwright-Hatton et al., 2003; Cartwright-Hatton, Tschernitz, & Gomersall, 2005; Erath et al., 2007). A related concept may better to use, interrupted social performance, i.e. “interference of appropriate social behavior due to heightened anxiety” (Rapee & Spence, 2004; p. 758). This means that anxious feelings and intrusive thoughts hinder effective social interaction that in turn may reinforce negative expectations of performance (Rapee & Spence, 2004). Support comes from studies on cognitive processes, discussed earlier. Some authors have found that negative self-perceptions make children anxious despite adequate social skills (Cartwright-Hatton et al., 2003) and that highly anxious children rate themselves as low in social skills while observers do not report any differences compared to low anxious children (Cartwright-Hatton et al., 2005). On the other hand, Morgan and Banerjee (Morgan & Banerjee, 2006) found that socially anxious children, especially girls, gave less responses compared to non-socially anxious children in an experimental role-play task.

Taken together, it is likely that social skills deficits are not a major cause of SAD but a consequence (Cartwright-Hatton et al., 2005). Recent advances in the research suggest that reduced availability of social skills, due to anxiety, may better describe the process of social interactions of children with SAD than true deficits in social skills.
Theoretical models

Theoretical models of several childhood disorders tend to be downward extensions of models of adult psychopathology. However, models on development and maintenance of SAD in children and adolescents can be seen as exploratory, describing pathways and specific contributing factors within the psychiatric, clinical, developmental and social psychology field. Contrary to the established models of SAD in adulthood, developmental pathways or links are proposed including mutual interaction of temperament, heredity, parenting and peer relationships. Still, two theoretical models will be described as frames wherein the factors mentioned earlier, can fit in. Cognitive behavioral theory, as the most influential contemporary model will be described and interpersonal theory, related to variables studied in the present thesis.

Cognitive behavioral models

Evidence based treatments of SAD in children and adolescents rest on cognitive behavioral models (Beidel, Ferrell, Alfano, & Yeganeh, 2001; Spence, Donovan, & Brechman-Toussaint, 2000). According to cognitive behavioral theory, SAD is developed through a combination of biological vulnerability and learning experiences that result in maladaptive beliefs and assumptions about social events (Rapee & Heimberg, 1997). These beliefs can be activated by social cues and once activated lead to selective attention and biased interpretation of social events that maintain social anxiety.

Research on cognitive processes in children and adolescents with anxiety disorders is emerging and for example support for attention bias and interpretation bias has been found (Hadwin, Garner, & Perez-Olivas, 2006). Several concepts that are related to a social cognitive model have been studied and will shortly be described below. It should be emphasized though that cognitive processes that have been studied, mainly accounts for maintenance of SAD and not onset of SAD.

In a study of non-referred children with SAD aged 8-13 years, it was found that socially anxious children perceived threat in socially ambiguous situations more easily and more frequently than a control group (Muris et al., 2000). In a non-referred group of adolescents, those with high levels of social anxiety made negative interpretations of ambiguous social situations to a higher degree than their non-socially anxious counterparts, i.e. a negative
interpretation bias in social situations (Miers et al., 2008). In clinical groups of children and adolescents with anxiety disorders, including SAD, anxious children tend to interpret ambiguous situations more negatively and to overestimate danger to a higher degree than non-anxious group and a clinical control group (Bögels & Zigterman, 2000).

The empirical evidence and unanswered questions on information processing biases in relation to SAD cannot be fully explored in this text, however constituting a growing research area. Studies on attention bias in anxious children who have experienced physical abuse are emerging, however much more research is needed before conclusions can be drawn (Hadwin et al., 2006). Research on the role of parenting in information processing biases in anxious children is also emerging.

Theories of classical conditioning are part of cognitive behavioral models and are mentioned in the etiology of SAD. According to a classic conditioning model, SAD may result from experiences of humiliating interpersonal interactions, via a biological preparedness to react to social threat cues (Rapee & Spence, 2004; Stemberger, Turner, Beidel, & Calhoun, 1995). An example of conditioning could be giving an oral report and pronouncing a word in the wrong way (conditioned stimuli) while having someone laughing at you (unconditioned stimuli). Future situations reminding of this prior aversive situation, may elicit anxiety (conditioned response) despite not being laughed at.

Modeling is another way of learning that constitutes an important factor in explaining the development of anxiety disorders in children (Rapee et al., 2009). In children and adolescents, learning histories of modeling naturally includes observation of parent’s behaviour and parental factors will be further described under a separate heading.

Part of what is explained by a cognitive behavioral model may be described by the interpersonal theory (below) and vice versa. The interpersonal theory is less well evaluated but offer a complementary and alternative explanation of the etiology of SAD.
**Interpersonal models**

SAD is characterized by disruptions in the interpersonal functioning and thus theories that take into account how social processes form interpersonal behavior patterns may be useful for explaining SAD. Still, interpersonal theory has been less widely applied in the research field of SAD in children and adolescents. Basically, models built on this theory postulates that social behavior is interactive, i.e. a certain behavior evokes a response from others that further reinforces and maintains underlying beliefs about one self in relation to others (Alden, Taylor, Laposa, & Mellings, 2006). In this self-perpetuating cycle relational roles are developed and maintained.

While for example temperament is considered an important etiological factor, the main interest is in how interpersonal patterns endure. It is postulated that early relationships shape a sense of self and what to expect from others, which build up cognitive structures and relational schemas that are activated in future relations.

One assumption of the interpersonal theory is that the underlying goal of human behavior is to maintain a sense of relatedness to others. This may be one way to understand homophily (i.e. attraction to persons who are similar to oneself) among shy or socially phobic children (Rubin, Wojslawowicz, Rose-Krasnor, Booth-LaForce, & Burgess, 2006). Considering the risk factor of co-rumination mentioned in the section on sex differences, homophily could at the same time constitute a risk and a protective factor for increased peer victimization and social anxiety.

Within the interpersonal theory, the self-representational model deals with how one wants to be and how one perceives oneself. According to this model, social anxiety is triggered by a perception of having failed to make the desired impression on others (Schlenker & Leary, 1982). Parental disapproval or disapproval from peers (for example, peer victimization) may according to this model contribute to the development of SAD. In the section on sex differences (p.15-16), a tendency in girls to put importance on making a good impression on others, is referred to. This finding may be related to the self-presentational model and the higher prevalence rates of SAD in girls.

Experiences of victimization may shape interpersonal patterns that contribute to the emergence of social anxiety. Alden and Taylor found that individuals with a social developmental history of being abused as a child rated their partner as cold and unfriendly (Alden et al., 2006). Such an interpersonal pattern also has implications on therapeutic relationships and outcome of treatment (Alden & Taylor, 2004). More clinical and descriptive
studies on SAD in children, investigating an interpersonal approach are needed.

The above mentioned models and risk factors of SAD may form a basis for the understanding of SAD. Integrated research from different paradigms studying environmental factors in relation to developmental specifics is required to gain a better understanding on normal development and of clinical course of social anxiety. Some areas that need further investigation are for example, concurrent studies on the contribution of victimization for the development of SAD.

Summary of background

In summary, epidemiological studies on SAD and social anxiety in children and adolescents show varying prevalence rates. There are reports of increasing rates of internalizing symptoms in adolescents in Sweden and other European countries. However, no studies exist on the prevalence of social anxiety and SAD in community groups of Swedish adolescents. Developmental epidemiological studies are needed to gain knowledge of prevalence, correlates, risk factors, predictors and course. In clinical work, reliable and efficient screening devices to detect cases of SAD and sub-threshold levels are needed. To date, a short screening instrument for use with Swedish adolescents is missing.

Interpersonal theory is addressed as a theoretical frame to understand processes involved in SAD. In this domain, it is of interest to study interpersonally victimizing events like sexual abuse, maltreatment and peer victimization. There is support from concurrent and retrospective studies on adults for such a relationship. To date, studies on concurrent reports on victimization and SAD in adolescents are largely missing.

Lastly, the course of SAD in children and adolescents has been addressed in prospective studies. Still, studies on predictors on developmental course are few. There is a strong support for comorbidity between SAD and depression. There is also support for a relation of peer victimization with SAD and with depression, mainly based on cross-sectional studies. Longitudinal studies on the temporal relationship between peer victimization, depressive symptoms and social anxiety are though missing. In order to inform guidelines for the prevention of disabling social anxiety and depressive symptoms, the study of mediating processes could be one way to move the research forward.
Loneliness has been found to mediate subsequent depression from social withdrawal and peer rejection and peer victimization. One hypothetical pathway of the development of SAD may be social anxiety arising from peer victimization, leading to increasing avoidance of social interaction which in turn may limit establishment of friendships and cause feelings of loneliness. Avoidance, lack of friendship and loneliness are in turn risk factors for the development of depression. As sub-clinical levels of social anxiety are associated with disability, studies examining early signs and states of social anxiety, before a perpetuating circle with full-blown comorbid clinical conditions of SAD and depression have developed, are of interest.
EMPIRICAL STUDIES

Aims

The general purpose of the present dissertation was to describe prevalence and course of SAD, evaluate a screening device and explore the association between SAD and victimization in community samples of adolescents. This was of interest in order to gain knowledge of how to prevent, detect and eventually treat social anxiety at an early stage.

Study I
The objective was to investigate the psychometric properties of a short screening questionnaire, the Social Phobia Screening Questionnaire for children (SPSQ-C), in a community sample of high-school students.

Study II
The aim of this study was to investigate the prevalence of self-reported SAD in a community sample of Swedish adolescents in grade 6-8, encompassing the high risk period for onset of SAD. Sub-threshold levels of SAD were studied as well. The above aim was to investigate rates due to sex and age.

Study III
In the third study, the aim was to investigate the association between victimization and SAD in adolescents and if certain types and multiple victimizations were associated with an increased risk of SAD. In addition sex differences in the association between SAD and victimization were investigated.

Study IV
The objective of the last study was to examine the developmental course of social anxiety in relation to depressive symptoms and peer victimization. In particular, the aim was to investigate a mediation model of social anxiety.
METHODS

Procedure

All samples were community based. For each data collection, students and their parents were sent written information about the study and the student’s participation. The students were also orally informed that participation was voluntary. Questionnaires were administered by trained research assistants and were completed in class during regular school hours, except for the clinical interview in study I that was conducted via telephone. The study protocols of study I and III were approved by the ethics committee at Linköping University, study II at a Central ethics committee. In the fourth the study protocol was approved by the ethics committee at Örebro University and at Uppsala University. Table 2 presents an overview of the methods used in the four studies. The first, second and third studies use a cross-sectional design and the fourth study a longitudinal design.

Table 2. Summary of methods in each study

<table>
<thead>
<tr>
<th>Study</th>
<th>Total n*</th>
<th>Response rate</th>
<th>Statistical method</th>
<th>Age</th>
<th>Instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>169 (1st assessment = 85%, 2nd = 79%)</td>
<td>Spearman’s correlation, t-test, α, χ²</td>
<td>15-18</td>
<td>SPSQ-C, SCID-I</td>
<td></td>
</tr>
<tr>
<td>II.</td>
<td>2128 (77%)</td>
<td>χ², LR</td>
<td>11-15</td>
<td>SPSQ-C</td>
<td></td>
</tr>
<tr>
<td>III.</td>
<td>3211 (78%)</td>
<td>Pearson’s correlation, χ², LR, independent t-test</td>
<td>17</td>
<td>SPSQ-C, JVQ</td>
<td></td>
</tr>
<tr>
<td>IV.</td>
<td>350 (61%)</td>
<td>LGM</td>
<td>T1-T3 13-15, T4 17</td>
<td>SPSQ-C, CES-DC, 3 items on PV</td>
<td></td>
</tr>
</tbody>
</table>

Note * = Final data for analysis, LR = logistic regression, LGM = latent growth modeling, CES-DC = Centre of Epidemiological Studies – Depression scale for Children, JVQ = Juvenile Victimization Questionnaire, SCID-I = Structured Clinical Interview for DSM-IV axis-I Disorders, SPSQ-C = Social Phobia Screening Questionnaire, PV = peer victimization
**Study I**

Subjects were drawn from a sample of high school students \((n=180)\), in a small Swedish municipality (12,000 inhabitants). The students were following a theoretical programme (i.e. the Social Science Programme), or a practical programme, namely the Child Recreation Programme. More males (59.2%) than females participated. In the total sample \((n=169)\) the proportion of students that had parents of Swedish origin was 88.9%. In total, 80.5% were living with their family.

Data was collected on three occasions, see Figure 1. On the first two, the SPSQ-C was used for the purpose of evaluating reliability and on the third occasion a clinical interview was used for establishing concurrent validity. Data was collected in association with weekly class-councils.

To evaluate concurrent validity, the SPSQ-C was compared to a semi-structured clinical interview, the SCID-I (First, Gibbon, Spitzer, & Williams, 1997), which was used as gold standard. A case-control design was applied (Gordis, 2004). Cases were selected for interview if they reported SAD on at least one occasion except if reporting SAD at the first assessment but not the second (i.e. last available assessment). In order to have enough power for the statistical analyses, calculated on the basis of number of observed cases, controls were randomly selected with no restrictions. The interviews were made by a student in the last year of his master graduation of psychology studies with basic training in the diagnostic procedures and by a mental health professional. The respondents were interviewed via telephone and the interviewers were blind to the subjects’ response on the SPSQ-C. A flow-chart is presented in figure 1.

![Flow-chart](image)

**Figure 1.** Flow-chart for the evaluation of test-retest reliability and validity.  
Note: * = randomized selection of cases
Study II

Students in grade 6-8, from 17 schools in five Swedish municipalities participated \((n=2345)\). Due to incompletely filled out questionnaires, final data for the analysis consisted of 2128 respondents (992 boys, 46.6% and 1136 girls, 53.4%). The schools were recruited to obtain a representative sample of schools with small, medium and large numbers of students and numbers of students from families of foreign origin. The municipalities were representative for the population regarding major sociodemographic variables (sex distribution, proportion of inhabitants under the age of 17). Three municipalities were of medium size (i.e. 20-50 000 inhabitants) and two municipalities were classified as large.

Study III

The study was part of a larger, ongoing research project investigating prevalence of victimization among Swedish adolescents and psychological reactions to experiences of polyvictimization. Five percent of all Swedish students in their second year of high-school studies, from 10 municipalities of different population size, commuting patterns and economic structure, were sampled. All high-schools \((n=18)\) from a large municipality (50-200 000 inhabitants), six high-schools from Sweden’s third largest city (more than 200 000 inhabitants) and nine high-schools from municipalities of less than 25 000 inhabitants were selected.

Questionnaires were computerized and the students completed these during school-time. The project manager was present during the whole survey to answer any questions. All participants were asked to respond to all items and items could not be skipped.

Study IV

Participants were part of an ongoing longitudinal community study and data were collected at four waves, when students were in grade 7 (aged 13-14 years) and then re-assessed in grade 8, grade 9 and lastly in grade 11 (the second year of high-school). Identical items were completed at each wave of data collection. The sample was drawn from a Swedish city with 26 000 inhabitants. The unemployment rate and the proportion of immigrants were
similar to Sweden in general and also the proportion of single-parent households. Income rate was about 4% lower than in the rest of the country.

**Instruments**

**Study I-IV**

*The Social Phobia Screening Questionnaire for Children and adolescents (SPSQ-C)*

The SPSQ-C is a modified version of the Social Phobia Screening Questionnaire (SPSQ) for adults (Furmark et al., 1999). The SPSQ has shown good psychometric properties and has been used in several treatment studies and epidemiological studies (Carlbring et al., 2007; Furmark et al., 1999; Tillfors et al., 2008; Tillfors & Furmark, 2007). The SPSQ-C was chosen for the present studies due to the recommendation to base assessment of childhood anxiety disorders on DSM-IV criteria, that the instrument has shown good psychometric properties in studies on adults and that it has been developed in a Swedish cultural context.

The SPSQ-C consists of 8 items based on the DSM-IV diagnostic criteria of SAD (APA, 1994). First the respondent rates perceived social fear in 8 potentially phobic situations on a three-point scale corresponding to no fear, some fear and marked fear. Seven diagnostic questions follow, assessing if the individual meet the DSM-IV social phobia criteria for one or more of the phobic situations. The respondent has to rate at least one potentially phobic situation as “marked fear” on the social fear scale. This particular situation has to be consistently endorsed in the diagnostic questions. Report of impairment in at least one of three life domains has to be fulfilled as well as the criterion concerning persistence of symptoms for more than six months. See appendix 1, for description of the eight situations and the diagnostic questions.

In the fourth study only continuous measure of social anxiety was used, i.e. the first part of the SPSQ-C (level of fear in the 8 social situations).

**Study II**

*The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I)*

In order to evaluate validity a clinical interview, SCID-I (First et al., 1997) was used as gold standard. The SCID-I is a semistructured interview that aims to aid in assessing major DSM-IV axis I diagnoses. For this purpose, obligatory
questions, operational criteria from the DSM-IV, a categorical system for rating symptoms, and an algorithm for arriving at a final diagnosis are incorporated. The SCID has the advantage of being well evaluated and as it allows for use of information from different sources it is well suited for psychiatric assessment.

Only the section covering SAD in the research version of the SCID-I was used as the purpose of the study was only to validate a diagnosis of SAD. The SAD-section of the SCID-I has previously been used in a telephone format with students from the age of 17 (Osório, Crippa, & Loureiro, 2007). The interview was conducted via telephone due to that many of the students were living in geographically distant areas, leading to transportation difficulties. Telephone administration of (semi)structured clinical interviews has been found to yield reliable, valid and time-effective data in the assessment of anxiety disorders in children (Lyneham & Rapee, 2005).

Study III

The Juvenile Victimization Questionnaire (JVQ)
The JVQ (Hamby, Finkelhor, Ormrod, & Turner, 2004) measures offenses against young people and is in part built on American legal and insurance issues. It is designed as an interview but can be used in a self-administered format from the age of 12 years, which was the case in the present study. The self-administered format has proven to have good test-retest reliability and construct validity (Finkelhor, Hamby, Ormrod, & Turner, 2005). A version of the JVQ that investigates victimization during the prior year and victimization before the prior year was used in the present study. For the data analysis, a lifetime scale was created that summed up the items from before the prior year and during prior year. This was due to the criteria of six months duration of social anxiety to establish a diagnosis of SAD and accordingly data on prior year was of minor interest.

The 33 items (see Appendix 2) in the present study cover five domains, described below with Cronbach’s alpha found in the present study given in brackets. Cronbach’s alpha for the total scale was .83, conventional crime ($\alpha=.67$), maltreatment ($\alpha=.56$), victimization from peers or siblings ($\alpha=.52$), sexual victimization ($\alpha=.64$), witnessing victimization ($\alpha=.52$).

The respondent rates number of times each event has been experienced (i.e. 1 time, 2-5 times, 6-10 times, >10 times or no times). For the data analysis, each item was dichotomized into not victimized = 0 or victimized = 1. A total score of each domain was then obtained (min-max): conventional crime (0-8), maltreatment (0-4), sexual victimization (0-6), peer/siblings victimization (0-6),
witnessing victimization (0-9). For the data analysis a continuous measure was used with mean values of each victimization domain and total JVQ (0-33 victimizing events).

As this study was part of a larger study on victimization in Swedish youths and psychological reactions to victimization, the participants completed measures on traumatic reactions, general child psychiatrics symptoms and reports of life events. These data were not analyzed in the present thesis.

**Study IV**

In the fourth study, dimensional measures of social anxiety and depressive symptoms were used and a liberal definition of peer victimization. This was due to be able to examine growth processes before disabling and serious conditions have been established.

*Centre of Epidemiological Studies – Depression scale for Children (CES-DC)*

CES-DC is a self-report scale consisting of 20 items (Fendrich, Weissman, & Warner, 1990). The CES-DC has been used for screening of depressive symptoms in community samples (Roberts, Lewinsohn, & Seeley, 1991). A psychometric evaluation has been conducted on a Swedish community sample of children aged 16 to 17 years (Ohlson & von Knorring, 1997). The response scale is based on 1 (*Not at all*) to 4 (*Often*). Internal consistency of the 20 items was: T1=.91; T2=.91; T3=.85; T4=.90. Mean item values were calculated.

*Peer victimization*

Three items dealing with peer victimization were used (Alsaker & Brunner, 1999). These items described the degree to which the respondent had been bullied during the previous school semester. The items were: 1) “Has anyone… mocked you, teased you or said mean things to you in school or on the way to or from school?”, 2) “Have you been hit, kicked or attacked at school or on the way to or from school?” and 3) “Sometimes one can be excluded by someone in class and not be allowed to participate. Has this happened to you?” The items were endorsed according to frequency, i.e. “No, it has not happened”, Yes, it has happened once or twice”, Yes, it has happened about once a week”, or “Yes, it has happened several times a week”. Alpha reliability was .74 at T1. The variable of peer victimization was
dichotomized into 0 = has not happened and 1 = has happened at least one time.

Data analysis

Study I

Chi-square or Fisher’s exact tests were used for evaluating group differences with respect to categorical variables. Test-retest reliability was assessed using Spearman’s correlation coefficient. The internal consistency of the scale was assessed using the Cronbach’s coefficient alpha for the first eight items of the SPSQ-C (data from the first assessment). Specificity (1-α) and sensitivity (1-β), positive and negative likelihood ratios were calculated as well as positive predictive value (PPV) and negative predictive value (NPV).

Study II

For categorical variables, group differences were evaluated by use of chi-2 tests. Logistic regression was used in order to assess the increased odds of presenting with social phobia in relation to sex. Grade was used as a covariate when calculating odds ratios for sex.

Study III

Categorical data were analyzed with chi-2 statistics and logistic regression. Group differences between subjects reporting SAD and subjects without SAD on experiences of multiple victimization were analyzed by independent t-tests. Bivariate correlation analyses were conducted on all variables of interest using Pearson’s correlation coefficient. Logistic regression analysis was conducted with SAD used as dependent variable. Significantly different patterns emerged between gender and therefore separate logistic regression analyses were performed. All domains of the JVQ (lifetime) and socio-demographic variables that correlated significantly with SAD, were entered in the same step but in two different blocks.
Study IV

Latent growth modeling (Muthén & Curran, 1997), crosslagged autoregressive models and a combination of both, known as Autoregressive Latent Trajectory models (ALT) was used (Curran & Bollen, 2001).

The analytical modeling steps were conducted hierarchically in four stages. (1) Modeling change (vs. stability) in growth of the social anxiety (SPSQ-C) and depressive symptoms (CES-DC) in separate growth processes, without and with time-invariant covariates. (2) Modeling both variables simultaneously and noticing the association between latent growth factors (intercept and slope) for the two constructs to demonstrate that social anxiety and depressive symptoms are correlated over time. (3) Modeling crosslagged parameters at each time point across construct and across time in order to explore whether earlier social anxiety symptomology predicted subsequent symptoms of depression. (4) Specifying a mediational model using regression among latent growth factors.

In step 1, 2 and 4 growth models were used and in step 3 crosslagged autoregressive model was used.

Fixed loadings made it possible to estimate latent growth factors, i.e. intercept and/or slope. Sex and victimization status (at grade 7) were included as covariates (time in-variant) for examination of inter-individual differences in growth factors, and these variables were dichotomized.

Model estimation was performed within the framework of Structural Equation modeling (SEM) using Mplus version 5.2. Model fit was assessed using standard fit indices within SEM, including chi-square statistics, the comparative fit index (CFI), and root mean square error of approximation (RMSEA). Chi-square difference test based on model log-likelihood values was used to judge the fit of nested models. The asymmetric confidence interval test with bias corrected confidence intervals for the indirect effects were calculated using bootstrap procedures (MacKinnon, Lockwood, & Williams, 2004). Throughout, statistical significance was determined by the Wald ratio and effects were considered statistically significant when the ratio exceeded 1.96.
RESULTS

Study I - Detection

In the evaluation of reliability of the SPSQ-C, internal consistency of the 8 social situations was $\alpha = .78$. A temporal stability over three weeks was found, $r = .60 \,(p < .01)$.

Overall test accuracy, i.e. the percentage of correct diagnoses in the validity sample, was 84%. A ROC-analysis showed sensitivity to be 71% and specificity 86% (See Table 3.). This means that the SPSQ-C performs well in detecting true cases of SAD and even better in distinguishing true non-cases, i.e. those without SAD. The validity properties of the SPSQ-C can also be described in terms of positive likelihood ratio (LR+). We found LR+ to be 5.07, thus a self-reported case of SAD is about 5 times more likely to be a true case than a non-case. The negative likelihood ratio (LR–) was .34. This means that a negative screen on the SPSQ-C is marginally likely to identify a true non-case. Predictive values represent the probability of an outcome after the results are known. Positive predictive value (PPV), the percentage of positive screens that are accurate, was 45% (5/11). Negative predictive value (NPV), i.e. the percentage of respondents screening with a negative test result who were not diagnosed with SAD, was 95% (38/40),

Table 3. Outcomes from the SPSQ-C and the SCID-I ($n = 51$)

<table>
<thead>
<tr>
<th>SCID-I</th>
<th>SAD</th>
<th>no SAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPSQ-C</td>
<td>SAD</td>
<td>5 (true positive)</td>
</tr>
<tr>
<td></td>
<td>no SAD</td>
<td>2 (false negative)</td>
</tr>
</tbody>
</table>

- Sensitivity = 71%
- Specificity = 86%

39
Study II - Prevalence

Prevalence of self-reported SAD, i.e. probable cases of SAD, was 4.4% in the total sample. Sex differences were found in all age groups with a threefold increased risk of SAD in girls in the total group (see Table 4). No significant differences were found in prevalence between grades neither in the total group ($\chi^2=1.69$, df=2, ns) nor when analyzed separately for girls ($\chi^2=1.60$, df=2, ns) and for boys ($\chi^2=0.40$, df=2, ns). The results are presented in Table 4.

Table 4. Point-prevalence rates of self-reported SAD, by gender and grade. Summary of logistic regression presented with odds ratios (OR) and $p$-values.

<table>
<thead>
<tr>
<th>Grade (Age: M; SD)</th>
<th>Gender</th>
<th>SAD (n)</th>
<th>SAD (%)</th>
<th>(95%CI)</th>
<th>OR (95%CI)</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>18 (6.2)</td>
<td>(3.4–9.0)</td>
<td>4.20 (1.43–16.91)</td>
<td>$a$ &lt;.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boys</td>
<td>3 (1.3)</td>
<td>(0.2–2.8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>21 (4.1)</td>
<td>(2.4–5.8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>23 (5.7)</td>
<td>(3.4–8.0)</td>
<td>2.94 (1.30–6.66)</td>
<td>$a$ &lt;0.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boys</td>
<td>8 (2.0)</td>
<td>(0.6–3.4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>31 (3.8)</td>
<td>(2.4–5.8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>34 (7.7)</td>
<td>(5.2–10.3)</td>
<td>4.30 (1.88–9.81)</td>
<td>$a$ &lt;0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boys</td>
<td>7 (1.9)</td>
<td>(0.5–3.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>41 (5.1)</td>
<td>(3.6–6.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>75 (6.6)</td>
<td>(5.2–8.0)</td>
<td>3.83 (2.27–6.50)</td>
<td>$b$ &lt;0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boys</td>
<td>18 (1.8)</td>
<td>(1.0–2.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>93 (4.4)</td>
<td>(3.5–5.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$^a$Within grade  
$^b$Adjusted for grade  

Four cut-off levels of SAD were used, see Table 5. When removing the criteria of 6-month duration of SAD a prevalence rate of 6.3% of students from all grades was found. The prevalence rate was 13.8% at the most liberal level, i.e. the report of marked fear of at least one social situation.
The situation most commonly endorsed with “marked fear” was “Speaking in front of class” followed by “Making a phone-call to someone unfamiliar”. In the SAD group 63.4% (59/93) reported marked fear of “Speaking in front of the class” while only 3.6% (73/2035) in the non-SAD group reported marked fear of speaking in front of the class. “Initiating a conversation with someone unfamiliar” was the third most common situation to be endorsed with “marked fear”, in the SAD-group (27/93).

Table 5. Prevalence rates of sub-threshold SAD, with 95%CI

<table>
<thead>
<tr>
<th>Cut-off</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total (n=2,128)</td>
</tr>
<tr>
<td></td>
<td>n (%) 95%CI</td>
</tr>
<tr>
<td>1</td>
<td>293 (13.8) (12.3–15.2)</td>
</tr>
<tr>
<td>2</td>
<td>151 (7.1) (6.0–8.2)</td>
</tr>
<tr>
<td>3</td>
<td>134 (6.3) (5.3–7.3)</td>
</tr>
</tbody>
</table>

*a=Marked fear in at least one social situation, b=Marked fear in at least one social situation and impairment in 1 life-domain, c=All criteria except 6-months duration

In the SAD-group, 91.4% reported impairment in the school domain. In the total group (probable cases and non-cases) impairment of school-activities was most commonly reported, 17.2%, followed by activities during leisure time (4.1%) and being with peers (3.1%). Significantly more girls than boys in the total group reported impairment in school ($\chi^2=21.42$, df=1, $p<0.01$). A higher proportion of students reported impairment in the school-domain in grade 7 and 8 compared to students in grade 6 ($\chi^2=8.45$, df=2, $p<0.05$).

Study III - Victimization

Self-reported SAD was found in 10.6% (n=340) of the total group (N=3211). A significant sex difference emerged with more females (14.9%, n=243) than males (6.2%, n=97) reporting SAD ($\chi^2=64.27$, df=1, $p<0.001$). Prevalence rates differed significantly due to size of municipality with lower rates found in the sample from a large city (6.9%) compared to the sample from a middle-sized municipality (11.4%) and from the smallest municipalities (12.8%). Lower odds
ratios of SAD ($p<.01$) was seen in subjects with foreign birth of origin and of parental foreign birth of origin ($p<.001$). Finally, paternal unemployment was associated with lower odds ratios of SAD.

In the total group, a mean value of 2.19 events (SD=2.92), was found for total victimization during prior year (PY), and mean value for lifetime victimization was 4.18 events (SD=4.06). In the total group, a mean value of 2.19 events (SD=2.92), was found for total victimization during prior year (PY), and mean value for lifetime victimization was 4.18 events (SD=4.06).

Significantly higher rates of lifetime victimization were found in the SAD-group compared to non-cases on total victimization ($t=4.13$, $p<.001$), maltreatment ($t=4.72$, $p<.001$), victimization from peers/siblings ($t=4.89$, $p<.001$) and sexual victimization ($t=4.77$, $p<.001$).

Females with SAD reported significantly more lifetime victimization of maltreatment ($t=3.53$, $p<.001$), victimization from peers/siblings ($t=3.05$, $p<.01$) and sexual victimization ($t=4.12$, $p<.001$) than females not reporting SAD. Increased risk of SAD was found in females for maltreatment (OR=1.23; 95%CI=1.03-1.46, $p<.05$) and for sexual victimization (OR=1.16; 95%CI=1.02-1.32, $p<.05$) while controlling for sociodemographic variables.

In males, a significant difference between subjects with SAD and those without SAD was found on the domain of sexual victimization ($t=2.26$, $p<.05$). Sexual victimization remained a significant predictor when controlling for parental and adolescent birth of origin (OR=1.17, 95%CI=1.01-1.36, $p<.05$).

**Study IV – Developmental course**

Social anxiety was stable from grade 7 to grade 11. The findings from the univariate growth model for depression variables indicated that depressive symptoms changed in a non-linear way over assessment points. Girls reported more social anxiety and more depressive symptoms than boys. Being peer victimized in grade 7 predicted higher levels of social anxiety as well as depressive symptoms, compared to not being peer victimized.

Findings from the bivariate growth model indicated that social anxiety had a time invariant association with depression symptoms, i.e. social anxiety was related to level of depressive symptoms (intercept) but not with intra-individual change of depressive symptoms (slope). Specifically, in the crosslagged autoregressive model a unidirectional relationship was found between social anxiety and depressive symptoms, with social anxiety predicting subsequent depressive symptoms but not vice versa.
In the fourth and final analytical step support for a meditational model was found, implying that peer victimization in grade 7 led to overall higher level of social anxiety, which in turn led to higher reported levels of depressive symptoms in grade 8. A direct effect of victimization status on depressive symptoms in grade 8 was also significant and this suggested a partial mediation of social anxiety at this point in time. Later, full mediation effect of social anxiety on depressive symptoms was found in grade 9 and grade 11. See figure 2 for an illustration of the fourth step. Taken together, the results highlight that the development of anxiety and depression symptomatology among adolescents can be described as one sequential longitudinal process initiated by early peer victimization.

**Figure 2.** Path-diagram for parallel processes latent growth model for mediation. Paths of primary interest are shown in bold. The model estimates the time-invariant effect of victimization status (measured at grade 7) on level of depressive symptoms (intercept for depressive symptoms) via level of social anxiety (intercept for SA). Residual covariance across construct and regression between adjacent time points within each construct are not displayed, but are part of the model. SA = social anxiety.
GENERAL DISCUSSION

Summary of findings

Prevalence

The present studies showed that SAD is commonly reported by Swedish adolescents in the age of 12-17 years. A point prevalence rate of 4.4% of self-reported SAD was found among students in grade 6 to 8. The rates are in concordance with rates found in other European and American studies using the DSM-IV criteria (Ranta, Kaltiala-Heino, Rantanen et al., 2009; Wittchen et al., 1999) yet higher than in other studies (Essau et al., 1999). In high-school students (aged 17) the rate was 10.6%. Higher prevalence rates have been found in studies on older adolescents/young adults (Magee et al., 1996; Verhulst et al., 1997; Wittchen et al., 1999), in epidemiological studies on Swedish adults (Furmark et al., 1999) and on Swedish University students (Tillfors & Furmark, 2007). It must be kept in mind though that the prevalence rates from the present studies are based solely on self-report and report from the adolescent only. Also, the instrument used has only been validated on older adolescents and discriminant validity is not known. Still, considering the early onset of SAD (Wittchen & Fehm, 2003), the high rates in adolescence found in this study and other studies using clinical interviews, and the even higher rates in adults, early detection, prevention and treatment of social anxiety at an early stage is of concern.

High prevalence rates of psychiatric disorders tend to raise the question if normality is being violated and highlights the issue of whether SAD should be conceptualized as a psychiatric condition or if we are "overpathologizing" a normally distributed temperamental characteristic (Wakefield, Horwitz, & Schmitz, 2005). Social phobia will remain as a diagnosis in the forthcoming 5th edition of the DSM but the term social phobia will be replaced with social anxiety disorder (Bögels et al., 2010). One reason for this is that the term social anxiety disorder is connoted with a more disabiling nature than is implied in the term "phobia". The results from the second study of this thesis showed very high rates of self-reported impairment in the school-domain, 9 of 10
students with SAD, and according to this finding, SAD should be considered a condition to take seriously. Also, phobia implies avoidance of circumscribed situations which is certainly not the case for most persons with SAD as feared stimuli involve a wide range of situations in life.

It was noted that impairment in the school-domain was significantly more common than impairment of leisure time activities or being with peers. Also, the most feared social situations concerned situations encountered in school-settings. Among adolescents with SAD, the majority reported marked fear of speaking in front of the class. Contradictive to these findings, teachers and parents tend not to be aware of social fear and associated distress in students (Kashdan & Herbert, 2001) and to have restricted knowledge of SAD (Herbert, Crittenden, & Dalrymple, 2004). This means that those who frequently see adolescents in typically difficult situations and thus would have the opportunity to detect students with social anxiety, are not well-informed on how SAD presents, associated impairment and that SAD is not synonymous with non-problematic shyness.

In all age groups and in all four studies, higher rates of self-reported SAD were seen in girls compared to boys and a threefold increased risk of SAD in girls was noted in the second study and a two-fold increased risk in the third study. Higher rates of fears and phobias and an increased risk of anxiety disorders and mood disorders in girls compared to boys are reported (e.g. Canino et al., 2004; Lewinsohn, Gotlib, Lewinsohn, Seely, & Allen, 1998). The underlying causes of sex differences in internalizing disorders are not fully understood and theoretical models to explain differences in SAD are missing. Sex differences in depression are far more studied than in anxiety disorders (Zahn-Waxler et al., 2008). Research on sex differences are of value not only to guide strategies for prevention and treatment but also constitutes a way to gain knowledge of etiological factors involved in for example SAD (Rutter, Caspi, & Moffitt, 2003; Zahn-Waxler et al., 2008). Biological factors, like pubertal status, pubertal timing and hormonal release are proposed to play a role in the development of anxiety symptoms and disorders (Reardon, Leen-Feldner, & Hayward, 2009). Environmental factors can act as moderating factors. For example, the interaction of early pubertal onset and peer victimization has been found to predict elevated social anxiety in adolescent girls (Blumenthal, Leen-Feldner, Trainor, Babson, & Bunaciu, 2009). Conclusions on concurrent and prospective associations between puberty and development of anxiety disorders in adolescence and adulthood are still premature. More research is needed to inform models on sex differences in prevalence of SAD.
Concerning other demographic factors, inconsistent results were found. In the third study, significantly lower rates of self-reported SAD were found in the sample from a large city (6.9%) compared to the sample from a middle-sized municipality (11.4%) and from the smallest municipalities (12.8%). However, in the second study, no differences were found on urban status. Difference in prevalence due to size of municipality is not reported in samples of children and adolescents or in adult samples (Furmark et al., 1999). Still, it makes sense that living in a large community might offer less attention and opportunities to hide away, in favour of not experiencing as much distress. In the third study, lower odds of SAD were seen in adolescents with foreign origin and foreign origin of their parent(s). This is in line with the preliminary finding of increased incidence of SAD among young white adults than among people of other ethnicity (Heimberg, Stein, Hiripi, & Kessler, 2000). However, in children and adolescents findings on ethnicity are inconsistent (Angold et al., 2002; Kearney, 2005).

In summary, no clear conclusions can be drawn from the present studies regarding sociodemographic factors in SAD among Swedish adolescents.

Detection

In line with the rather high prevalence rates described above, it should be emphasized that screening of SAD in adolescents is critical for treatment and prevention of comorbidity and long-term impairment.

In the present psychometric evaluation, a moderate temporal stability of the SPSQ-C over three weeks was found. The psychometric properties are in line with recommended values (Beidel et al., 1995; Storch, Masia-Warnier, Dent, Roberti, & Fisher, 2004) and in line with those of other self-report measurements of SAD and social anxiety (Bailey et al., 2006). The values of validity found in the present study are also comparable to other instruments screening for symptoms of social anxiety (Matthey & Petrovski, 2002). The greater value of specificity, the more cost-efficient the instrument and a specificity value above 80% is considered useful (Matthey & Petrovski, 2002). Lastly, the values of positive and negative likelihood ratios found can be considered satisfying (Bailey et al., 2006).

In conclusion, the SPSQ-C was found to be a reliable and valid screening instrument in older non-clinical adolescents. Positive test results should be followed up by in-depth assessment. Further, detection of SAD is not a goal in itself, i.e. screening should be done only when further assessment and
treatment can be offered. Compared to other self-reports questionnaires, the SPSQ-C has the advantage of being a short and cost-efficient screening instrument, based on the DSM-IV criteria of SAD including measures of impairment and duration as well as offering a dimensional measure. Further psychometric evaluation of the SPSQ-C is though needed as the present study did not involve younger subjects and no clinical group.

Victimization

Victimization has been proposed as one etiological factor in SAD. However there is little empirical evidence from child and adolescent populations to support this. In this thesis, results from the first concurrent study on a wide range of victimizing events and self-reported SAD in a community sample of older adolescents are reported. An association between SAD and victimization was found, with higher rates of victimization in subjects with SAD compared to non-cases. Specifically, experiences of sexual victimization, maltreatment and victimization from peers/siblings were significantly more common in adolescents reporting SAD than among those without SAD.

Mean values of total lifetime victimization was in line with those found in samples of American children and adolescents (Finkelhor et al., 2007). However, considering the long period for measure of lifetime victimization, the mean values of multiple victimization in the present study was low (Finkelhor, Ormrod, Turner, & Holt, 2009). Studies on clinical groups of adolescents with SAD may show higher rates of multiple victimization than in the present community study. It should be noted that the cross-sectional design precludes conclusions on a causal relationship. It is also unknown if there is a reciprocal relationship, i.e. if a condition of SAD increases the risk of being victimized.

Unexpectedly, a significant association between SAD and sexual victimization in males was found. Sexual abuse is less common in males than in females (Finkelhor, 1994; Mossige, Ainsaar, & Svedin, 2007; Putnam, 2003). In the present study rates of sexual victimization were high in both sexes, but as few adolescents tell about their experiences of sexual victimization (Priebe & Svedin, 2008) such experiences may be perceived as less common than is the actual case. Less common experiences may be perceived as more stigmatizing and thus contributing to discomfort and worries about being different and less attractive in the view of others, which constitutes a core feature of SAD.
Maltreatment was found to be associated with SAD. The domain of maltreatment consisted of questions on experiences of physical- and emotional abuse from adults, neglect and of parental fighting over with whom the child should live. In adults, emotional neglect has been reported as a significant predictor of incidence of SAD (Acarturk et al., 2009) and an association between maltreatment and severity of generalized SAD has been found (Simon et al., 2009). Besides those studies, the concept of maltreatment has rarely been reported in studies on victimization and SAD in children and adolescents. Understanding of the association between maltreatment and SAD can be related to findings from a few studies on information processing in maltreated children (Hadwin et al., 2006). In a recent study, Leist and Dadds (2009) found that maltreated children with anxiety symptoms were significantly more sensitive to- and more accurate at recognizing facial expressions of anger, than of happy expressions. These children also showed better identification of anger and sadness than of neutral faces (Leist & Dadds, 2009). No data were given on the occurrence of SAD among subjects in that study. There is increasing empirical support for the importance of cognitive factors in the development of SAD in children and adolescents, like that children with SAD selectively interpret and overestimate danger and threat in interactions with others (Bögels & Zigterman, 2000). A learning history of being badly treated by adults might shape a cognitive pattern of viewing the world as dangerous and thus contributing to development or maintenance of SAD, in combination with other factors (Hadwin et al., 2006).

A significant association was found between peer victimization and SAD in the third, cross-sectional study. However, peer victimization did not significantly increase the risk of SAD when controlling for sociodemographic variables. The items did not perform very well maybe because the domain included items on victimization from both peers and siblings. More likely, as severity and frequency of each peer victimizing event was not considered in the data analysis, discrimination between subjects experiencing peer victimization of different severity was limited.

In the fourth study, peer victimization predicted social anxiety over time. In that study, different items were used than in the third study and a longitudinal design was adopted. Further, the subjects were of younger age and peer victimization was measured earlier in the developmental course.

Experiences of peer victimization are considered as a major health issue in adolescents (Child and Adolescent Health Research Unit, 2006). The findings from the present studies support, however cautiously, the above notice of peer
victimization as an important issue for the mental well-being, in this case social anxiety and SAD, in adolescents.

**Development**

Studies describing individual trajectories of social anxiety over time in adolescence are, with a few exceptions, missing (Hale et al., 2008; Van Oort et al., 2009). In the fourth study, a longitudinal design was adopted and data was collected at an early stage of adolescence in order to identify processes before more disabling emotional problems were established. High stability of social anxiety over time was found, in line with findings that has been described elsewhere (e.g. Hayward et al., 2008). As comorbidity of SAD and depression is highly common, it is of value to find out about the longitudinal associations between these conditions. A unidirectional relationship between social anxiety and depressive symptoms was found where social anxiety predicted subsequent depressive symptoms but not vice versa.

Being victimized in grade 7 predicted higher levels of social anxiety and depressive symptoms, compared to not being victimized. No data were collected prior to grade 7 and therefore no conclusions can be drawn regarding if those reporting peer victimization were socially anxious prior to being victimized by peers. It has been assumed that socially anxious or withdrawn children more easily become targets of peer victimization (Rubin et al., 2009) and a reciprocal relationship of social anxiety and peer victimization has been proposed in a short-term prospective study (Siegel et al., 2009). This relationship remains to be further studied. The major characteristics of bullied children include being more anxious, insecure, sensitive, quiet and with lower self-esteem than non-victims (Smith, Morita, Junger-Tas, Olweus, & Slee, 1999). Thus a reciprocal relationship can easily be expected.

Support for a mediation model was found which showed that peer victimization in grade 7 led to higher level of social anxiety, which, in turn led to higher levels of depression in grade 8. Victimization status also had an effect on depressive symptoms in grade 8 but a full mediation of social anxiety on depressive symptoms was seen in grade 9 and grade 11.

The mechanisms involved in social anxiety as a mediator for depression was not investigated. Avoidant behavior, interpretation bias and selective attention to external and internal stimuli are maintaining processes that have shown to be definite transdiagnostic, i.e. over diagnoses (Harvey, Watkins, Mansell, & Shafran, 2004). These processes can easily emerge from
maltreatment from peers and among other factors, mediate the development of social anxiety (Alden & Taylor, 2004; Hadwin et al., 2006). Also, lack of approval may account for the mediating role of social anxiety. Victimization by peers may be interpreted as a lack of approval from others (Boivin & Hymel, 1995) and the characteristics of social anxiety is a negative expectation of being negatively evaluated by others (APA, 1994). This may further cause feelings of worthlessness and loneliness involved in depression (Stein et al., 2001). Other mediating and also moderating factors, like sex, are of interest. For example, the interaction of early pubertal debut and peer victimization has been found to predict elevated social anxiety in adolescent girls (Blumenthal et al., 2009).

Limitations

There are limitations to be mentioned when considering conclusions from the present results. Mainly, conclusions are limited by the use of self-report measures only. Multimodal assessment, including the use of several instruments and informants, is recommended in the clinical assessment of SAD in children and adolescents (Brooks & Kucher, 2001; Langley, Bergman, & Picentini, 2002). In the present studies data were collected from the adolescents only. However, previous research has demonstrated that adolescents’ own self-report measures of internalizing problems are the most accurate compared to other sources of information (Tröst, Biesecker, Stattin, & Kerr, 2007) and with increasing age, a high concordance between the child’s report and parents’ report of symptoms of social anxiety in the child, is noted (Rapee, Barrett, Dadds, & Evans, 1994).

Secondly, only older adolescents were included in this first psychometric report on the SPSQ-C. As onset of SAD is usually in early- to mid-adolescence (Beesdo et al., 2007) evaluation in younger age groups is needed.

Another limitation is that no measure of other psychiatric conditions was used. In the study on psychometric evaluation of the SPSQ-C, it would have been of value to examine discriminant validity in order to be able to differentiate SAD from other clinical conditions. Furthermore, inclusion of measurement of for example other anxiety disorders, would have offered knowledge of whether experiences of victimization is specific of SAD and thus adding to the understanding of the etiology and maintenance of SAD.

Neither was any clinical group included thus limiting generalizability to clinical cases. The advantage of using community samples is that they include
clinical as well as sub-clinical cases thus limiting influence of referral bias. Still, data collection in school may have resulted in that the most severe cases of SAD were not included since these students may avoid school.

With regard to the developmental emphasis in understanding of SAD, limited attention was taken to developmental sensitive correlates. For example analysis of data due to pubertal status or cognitive maturation could have contributed to a more thorough understanding of the results. Finally, the measures of peer victimization in the third and in the fourth study differed and both measures can indeed be discussed. In the victimization study, the items on peer victimization did not perform very well and included victimization from siblings which usually is not included in peer victimization. In the fourth study only 3 items were included and a low cut-off level for victimization status was used which means a risk of being overinclusive. It would have been favourable use the same measurement in both studies to be able to compare the results. On the other hand, great variability exist on definition and measurement of peer victimization and bullying (Wolke, Woods, Stanford, & Schulz, 2001) and “there is no widely accepted standard questionnaire in the relative new peer victimization field” (Hamby & Finkelhor, 2001; p. 10).

Despite the above limitations, there are important strengths like the use of cross-sectional and longitudinal data, data from different representative, using normative samples and of large sizes and a high response rate in all studies. Further, these studies are the first to report on prevalence of SAD in Swedish adolescents, on the concurrent association between victimization and SAD and the longitudinal development of social anxiety and depressive symptoms simultaneously in relation to peer victimization.

Clinical implications

The high prevalence of self-reported SAD, high stability of social anxiety, impact on school-related issues and associations with depression and victimization, calls for early detection of SAD. Low referral rates and mental health service use are seen in adolescents with social anxiety or SAD (Essau, 2005; Ranta, Kaltiala-Heino, Rantanen et al., 2009). This might be due to social anxiety perceived as shyness and a common approach to childhood shyness is that the child will grow out of it without any special intervention (Greco & Morris, 2001). On the contrary, the results from the present study imply that
social anxiety is stable and precede depressive symptoms. Girls reported higher levels of social anxiety and depressive symptoms than boys as expected, thus the results imply that attention to girls is especially important.

A high proportion of those with SAD reported impairment in the school-domain which calls for reliable and valid methods to screen for SAD in the school-setting. Beidel and colleagues (1999) reported that in a clinical sample of children aged 7-13 years, 5 distressful events every seven days was reported in a daily diary recorded by the socially phobic child, reported to be significantly more than in a non-phobic sample. School-health professionals and teachers need to have knowledge about social anxiety, and effective interventions to help students overcome social anxiety need to be made available. In order to gather information from teachers on anxiety in children, the use of a specifically designed instrument to use within a multi-informant multimodal assessment protocol has been developed and evaluated (Lyneham, Street, Abbott, & Rapee, 2008).

The finding of a sequential developmental process of social anxiety and depressive symptoms found in the present study can be used to find effective prevention and treatment strategies in youths. It is by some recommended to treat anxiety disorders in order to prevent depression (Flannery-Schroeder, 2006). The findings from the present longitudinal study support that recommendation. Furthermore, the results emphasize efforts to prevent and deal with peer victimization in order to prevent both social anxiety and depressive symptoms. Interventions that aim to enhance close and supportive friendship may be effective, as protective friendship has been reported to buffer against peer victimization and negative outcomes from peer victimization (Rose & Rudolph, 2006).

A cautious conclusion is to screen for experiences of maltreatment and sexual victimization in children and adolescents presenting with SAD.

**Future studies**

SAD was introduced in the DSM in 1980 (APA, 1980). However it was not until in the 4th edition of the DSM (APA, 1994) that SAD in children was recognized. Thus, SAD must be considered as a young diagnosis and further research on children and adolescents is required. Most important in the understanding of SAD, is the mutual interaction of individual- and environmental factors. Longitudinal studies that include a range of risk factors and studies on predictors of persistence are needed to gain understanding on
SAD bridging from childhood into adolescence and adulthood. Besides studies on predictors of persistence, like peer victimization that is reported in the present thesis, studies on resilience over developmental course are of interest.

Theoretical models to explain sex differences found in social anxiety proneness would offer guidance for preventive as well as clinical interventions. The present studies did not address mechanisms that may explain the differences found.

As has been noted, no clinical samples were included in the present studies. While studies on normal development are of value as a reference point, findings from clinical samples are required to inform treatment models.

Unfortunately, there are frequently barriers to treatment utilization and little is known on how to increase mental health utilization among socially phobic individuals (Olfson et al., 2000). While there exist strong empirical support for cognitive behavioral interventions for socially anxious children and adolescents, finding methods that would make treatment more available remains a challenge. Dissemination of treatment in school-settings (Masia Warner, Fisher, Shrout, Rathor, & Klein, 2007) and via Internet (March, Spence, & Donovan, 2009; Spence, Holmes, March, & Lipp, 2006) have shown some promising results. Studies on treatment efficiency and on how to increase treatment availability warrants further studies. Other aspects of the Internet in relation to SAD are of interest, like if children and adolescents with SAD are more likely to use the Internet and if this in turn means an increased risk of being victimized.

Finally, the relationship between victimization and SAD found in the present study needs to be examined in controlled studies for further elaboration on developmental models on SAD and to add to modifications of prevention and treatment interventions. It would be of interest to study if certain victimizing events are related to severity of SAD as has been reported in one study using a clinical group of adults (Simon et al., 2009). It would also be of interest to study the association between victimization and SAD in relation to for example biological and genetic variables.
MAIN CONCLUSIONS

- Social anxiety disorder and social anxiety are common phenomena among Swedish adolescents and especially among girls. A high proportion of students report impairment in the school-domain due to social anxiety.

- The SPSQ-C, with the advantage of being a short instrument and based on the DSM-IV criteria of SAD, can be used as a reliable and valid screening device for non-clinical older adolescents.

- Social anxiety is stable over early- to middle adolescence and predicts depressive symptoms over time but not vice versa.

- The course of social anxiety over the adolescent years can be described as a sequential process where peer victimization precedes social anxiety that in turn mediates subsequent depressive symptoms.

- Self-reported SAD in older adolescents is associated with reports of victimization, especially sexual victimization and maltreatment.
APPENDIX

Appendix 1.

Items of the SPSQ-C. Brackets show the corresponding criteria of SAD in the DSM-IV

Item 1 (A). Rate the level of fear you usually experience in each of the situations

1. Speaking in front of class
2. Raising your hand during a lesson
3. Making a phone-call to someone I do not know very well
4. Being with peers during the breaks
5. Going to a party
6. Initiating a conversation with someone I do not know very well
7. Eating together with others during the lunch-break
8. Looking someone in the eyes during a conversation

After each statement in items 2-6 the above 8 situations follow and the alternative None of the situations

Item 2 (B, D) I find the following situations distressing because they make me feel afraid, worried, sad or angry

Item 3 (A) In the following situations I fear that others will notice that I am nervous (for example blushing, shaking, sweating or speaking in a funny way)

Item 4 (A) In the following situations I fear that something embarrassing will happen (for example not being able to answer a question or someone laughing at me)

Item 5 (B) If I know I am going into the following situation(s) I worry on beforehand

Item 6 (D) I try to avoid these situations due to that I find them distressing

Item 7 (E) The fear I feel in one or more of the previously listed social situations make it severely distressing for me (yes/no):
- At school
- During leisure time
- When being with friends

Item 8 (F) The fear I experience in one or more of the above mentioned situations, has endured in at least 6 months (yes/no)
Appendix 2. JVQ: Basic screening items and domains of the child self-report version

Conventional crime
C1) Robbery. Did anyone use force to take something away from you that you were carrying or wearing?
C2) Personal theft. Did anyone steal something from you and never give it back? Things like a backpack, money, watch, clothing, bike, stereo, or anything else?
C3) Vandalism. Did anyone break or ruin any of your things on purpose?
C4) Assault with weapon. Sometimes people are attacked WITH sticks, rocks, guns, knives, or other things that would hurt. Did anyone hit or attack you on purpose WITH an object or weapon? Somewhere like: at home, at school, at a store, in a car, on the street, or anywhere else?
C5) Assault without weapon. Did anyone hit or attack you WITHOUT using an object or weapon?
C6) Attempted Assault. Did someone start to attack you, but for some reason, it didn’t happen? For example, someone helped you or you got away?
C7) Kidnapping. When a person is kidnapped, it means they were made to go somewhere, like into a car, by someone who they thought might hurt them. Did anyone try to kidnap you?
C8) Bias attack. In the last year, were you hit or attacked because of your skin colour, religion, or where your family comes from? Because of a physical problem you have? Or because someone said you are gay?

Maltreatment
Next, we ask about grown-ups who take care of you. This means parents, babysitters, adults who live with you, or others who watch you.

M1) Physical abuse by caregiver. Not including spanking on your bottom, in the last year, did a grown-up in your life hit, beat, kick, or physically hurt you in any way?
M2) Psychological/emotional abuse. Did you get scared or feel really bad because grown-ups in your life called you names, said mean things to you, or said they didn’t want you?
M3) Neglect. When someone is neglected, it means that the grown-ups in their life didn’t take care of them the way they should. They might not get them enough food, take them to the doctor when they are sick, or make sure they have a safe place to stay.
M4) Custodial interference/family abduction. Sometimes a family fights over where a child should live.

Peer and sibling victimization
P1) Gang or group assault. Sometimes groups of kids or gangs attack people.
P2) Peer or sibling assault. Any kid, even a brother or sister, hit you? Somewhere like: at home, at school, out playing, in a store, or anywhere else?
P3) Nonsexual genital assault. Any kids try to hurt your private parts on purpose by hitting or kicking you there?
P4) Bullying. Any kids, even a brother or sister, pick on you by chasing you or grabbing your hair or clothes or by making you do something you didn’t want to do?
P5) Emotional Bullying. Get scared or feeling really bad because other kids called you names, saying mean things to you, or saying they didn’t want you around?
6) Dating Violence. Did a boyfriend or girlfriend or anyone you went on a date with slap or hit you?

**Sexual victimization**

S1) Sexual assault by known adult. A grown-up that YOU KNOW touch your private parts when you didn’t want it or make you touch their private parts? Or did a grown-up YOU KNOW force you to have sex?
S2) Non-specific sexual assault. Did a grown-up you did NOT KNOW touch your private parts when you didn’t want it, make you touch their private parts or force you to have sex?
S3) Sexual assault by peer. Kids in your age, like from school, a boy friend or girl friend, or even a brother or sister, did another child or teen make you do sexual things?
S4) Rape: Attempted or Completed. Did anyone TRY to force you to have sex; that is, sexual intercourse of any kind, even if it didn’t happen?
S5) Flashing/sexual exposure. Did anyone make you look at their private parts by using force or surprise, or by “flashing” you?
S6) Verbal sexual harassment. Did anyone hurt your feelings by saying or writing something sexual about you or your body?

**Witnessing and indirect victimization**

Sometimes these things don’t happen to you but you see them happen to other people. This means to other people in real life. Not people on TV, video games, movies, or that you just heard about.

W1) Witness to domestic violence. In the last year, did you SEE one of your parents get hit by another parent, or their boyfriend or girlfriend? How about slapped, punched, or beat up?
W2) Witness to parent assault of sibling. In the last year, did you SEE your parent hit, beat, kick, or physically hurt your brothers or sisters, not including a spanking on the bottom?
W3) Witness to Assault with weapon. In the last year, in real life, did you SEE anyone get attacked on purpose WITH a stick, rock, gun, knife, or other thing that would hurt? Somewhere like: at home, at school, at a store, in a car, on the street, or anywhere else?
W4) Witness to Assault without weapon. In the last year, in real life, did you SEE anyone get attacked or hit on purpose WITHOUT using a stick, rock, gun, knife, or something that would hurt?
W5) Burglary of family household. In the last year, did anyone steal some thing from your house that belongs to your family or someone you live with? Things like a TV, stereo, car, or anything else?
W6) Murder of Family Member or Friend. When a person is murdered, it means someone killed them on purpose. In the last year, was anyone close to you murdered, like a friend, neighbour or someone in your family?
W7) Witness to Murder. In the last year, did you SEE someone murdered in real life? This means not on TV, video games, or in the movies?
W8) Exposure to Random Shootings, Terrorism, or Riots. In the last year, were you in any place in real life where you could see or hear people being shot, bombs going off, or street riots?
W9) Exposure to War or Ethnic Conflict. In the last year, were you in the middle of a war where you could hear real fighting with guns or bombs?
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